EXTERNAL REVIEW
OF
CHALLENGE PROGRAMME ON WATER AND FOOD

By

Asit K. Biswas (Chair)
Third World Centre for Water Management,
Atizapan, Mexico

Markus Palenberg
Global Public Policy Institute
Berlin, Germany

Jeff Bennet
Australian National University
Canberra, Australia

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Executive Summary

Background to the review

The CPWF is an international, multi-dimensional, research-for-development initiative. Its overarching goal is to contribute to the efforts by the global community to increase food production to achieve internationally adopted food security and poverty eradication targets by 2015, while simultaneously ensuring that the global diversions to agriculture are maintained at the level of the year 2000. It emphasizes south-south and north-south cooperation, partnership and knowledge exchange. Led by a consortium of 18 institutions, the CPWF is working with a broad range of over 200 institutions in research and development, bringing together natural and social scientists, development specialists and river basin communities in Africa, Asia and Latin America. Over 60 percent of the research funding is disbursed through a competitive grant scheme.

During the first phase (2003-8), its work has been organised in a matrix of five research themes (crop water productivity improvement, water and people in catchments, aquatic ecosystems and fisheries, integrated basin management systems, and global and national water and food systems) and nine benchmark basins (Andes system of basins, Indus-Ganges, Karkheh, Limpopo, Mekong, Nile, São Francisco, Volta and Yellow river basins).

Relevance and effectiveness of the Programme

Internationally, both the scientific and the policy-making communities are increasingly coming to the conclusion that the world´s water and food problems cannot be successfully resolved by looking at these two sectors individually, especially as agriculture currently accounts for nearly two-thirds of the global water use. Both the sectors need to be considered concurrently, including their interactions. This represents a main philosophy of the CPWF. The Review Panel, however, has some concerns as to whether the Benchmark Basins concept that is being used by the CPWF is the most appropriate approach in terms of subject-matter issues for research and for delineating the geographical areas within which the research projects should be organised. In addition, prima facie, it appears that nine basins may be somewhat too many to consider for a focused and result-oriented Programme. **The Review Panel recommends a critical re-assessment of the Benchmark Basins concept as well as the current choice of the basins.** Based on the evolving experience of basins-focal projects, a re-evaluation will help to identify how to work best within the basins. The new concept selected should guide future project selections and should allow for value creation in the current project portfolio.

The Review Panel is concerned that sufficient awareness of the availability of the CPWF funding did not exist for the First and the Second Calls, especially among the water research community. The situation is somewhat better for the agricultural research community. A much larger pool of research proposals are likely to result from which the best can be selected, if the two communities can be made more aware of the Programme.

The existing annual synthesis of the CPWF project is not capturing adequately the results and progress made under different projects. **The Review Panel recommends that the CPWF should attempt to develop a proactive process, instead of the current passive process, to prepare future annual synthesis reports. In addition, the Review Panel considers that it is essential that a series of synthesis reports are prepared to specifically targeted issues and audiences for efficient knowledge, dissemination and application.**

The Review Panel considers that it is essential that the scientific quality of the research carried out under the CPWF projects should be high, and that there is a clear strategy to increase the probability of the uptake of the results not only within the selected basins but also across other basins in the developing world. **The Review Panel recommends that an overall uptake of results strategy should be formulated and implemented as quickly as possible.**

As part of this strategy, it will be essential to consider publications not only in high impact international scientific journals, but also in journals read extensively by national water and food professionals, as well as policy-makers.

In order to ensure an objective progress evaluation, **the Review Panel recommends that the CPWF establishes a new, realistic programme vision, mission statement and a set of internal programme objectives that can be reached by the programme alone.** The degrees to which these objectives can be reached should be used as one important measure of success for the CPWF. **The Review Panel recommends the abandonment of the notion to measure development impacts of the CPWF at the global level. It further recommends that independent ex-post evaluations are made obligatory for all the projects.**

Governance and Management

The CPWF is organized in a decentralized fashion as an unincorporated joint venture of 18 Consortium partners. Each Consortium institution delegates one member to the Consortium Steering Committee (CSC), the main governance body of the CPWF. IWMI, as the CPWF lead centre, chairs the CSC and plays a pivotal role in terms of legal representation, management of programme finances, secretariat hosting and overall programme management of the CPWF. A total of 5 CPWF Managing Centres (including IWMI) lead the 5 CPWF themes.

The Review Panel has invested a large share of its review capacity in a thorough examination of the present governance and the management setup. **The Review Panel has concluded that a thorough reform of CPWF governance is needed that addresses the following challenges that have been observed.**

First, the fact that the CSC consists entirely of institutional representatives of Consortium members has a series of consequences. From a management perspective, CSC decisions are perceived to be mainly driven by institutional interests of the CGIAR Centres in the Consortium instead by programme interests alone. Some CSC members clearly indicated that their CSC participation was driven mainly by the economic interests of their home institution. Since more than 50% of overall programme funds remain with the Consortium members, a considerable potential for

perceived or real conflict of interest exists. The presence of (economical) institutional interest in CSC decision making has the potential to block critical reform.

Second, the current setup effectively limits full partner and stakeholder representation in the Consortium. While the Review Panel endorses the general idea of a Consortium of CPWF partners and stakeholders, the current causality between Consortium and CSC membership has hindered the admission of further CPWF stakeholders simply because the CSC would become too large, and has "left outside" several potential programme stakeholders both in terms of perceived access to programme resources as well as in terms of participation in, and influence upon, overall programme strategy.

Third, in a detailed analysis along the main programme governance functions, a series of specific challenges have surfaced.

While strategic direction setting for the CPWF had been strongly driven by the host centre in early years, neither the CSC nor the board of IWMI (that carries the ultimate legal and fiduciary responsibility for the CPWF) have made a decisive contribution to overall programme strategy in recent years. Overall strategy has, as a consequence, remained largely at inception phase levels, although a series of programmatic and governance-related challenges have surfaced since then.

In terms of management oversight, some ambiguity in the vertical chain of command exists both for the Programme Coordinator and for the most of the programme management. While the Programme Coordinator receives instructions from and reports to the CSC, his performance evaluation is done by IWMI management that also has nomination and, more importantly, firing power. Similarly, most CPWF management staff is employed and evaluated (including firing power) by the Consortium institutions: the Programme Coordinator has only very limited management authority over these pivotal programme managers. These "two masters problems" may reduce management efficiency and have the potential for conflict of interest since, at least theoretically, Consortium members could bypass the CSC and exert direct influence on the CPWF management.

Until now, the CPWF has largely relied on the audit functions of its host centre IWMI. This has led to a lack of checks and balances between the Challenge Programme and IWMI and no thorough assessment of the accuracy of IMWI's financial statements for the CPWF has been done on behalf of the CPWF. This has further led to a lack of a clear financial policy, including financial information needs, for the Challenge Programme.

The Review Panel has also thoroughly analysed the terms of reference, the composition and the performance of the Expert Panel, a scientific subcommittee of the CSC. **It has concluded that while a Scientific Advisory Panel is highly important for the CPWF, the current Expert Panel does not seem to have the role or the necessary expertise required to fulfil a strong and proactive role.**

The CPWF management, i.e. the Management Team, the Theme Leaders and the Basin Coordinators, has received mixed performance ratings. While consisting of experienced, dedicated and hard-working professionals, there is a perceived lack in developing and implementing a well thought-through programme strategy. The

original setup of the Management Team as a coordinating unit rather than as responsible programme management team, the lack of strategic input from the CSC and the absence of a clear and powerful vertical chain of command have certainly contributed to the current lack of performance in strategy development and implementation. **The Review Panel recommends that the Management Team should be developed and enabled to become a strong and proactive unit with full leadership accountability for programme implementation.**

The overall assessment of the CPWF's governance and management structure has led the Review Panel to recommend a thorough and far-reaching governance reform for the CPWF. As ultimate goal, that should be reached in a few years, the CPWF should be led by a small board of independent experts that are elected by a Stakeholder Council, consisting of all Consortium members. This board should be supported by two committees: a strengthened Scientific Advisory Committee and an Audit Committee.

To reach this goal, **the Review Panel recommends a series of intermediate steps in order to guarantee tangible results in a short time, to minimize disruption of the programme activities and cost and to guarantee participation and support of the present CPWF governance bodies.**

First, an independent chair for the CSC should be chosen that leads the further reform process, and an Audit Committee should be set up.

Second, the vertical chain of command should be simplified: the CSC chair should be put in charge of the performance evaluation of the Programme Coordinator and the Programme Coordinator should be put in charge of the performance evaluation of his management staff.

Third, an Executive Committee should be set up that consists of independent experts elected by the present CSC stakeholder groups, a representative of the host centre and the chairs of the CSC and the Audit Committee.

In its further governance evolution, this Expert Committee should evolve into a CPWF board, sharing the full responsibility for the CPWF with the IWMI board. The present CSC should, based on an opening-up of the Consortium to further relevant CPWF stakeholders, evolve into a Stakeholder Council that would represents all programme stakeholders and would elect the board members.

Resource mobilization and financial health

The CPWF has successfully mobilized considerable donor funding until now and is expected to reach close to US$70 million for its entire first programme phase from 2003-2008. A particularly positive aspect is the breadth of the current donor spectrum and the resulting independence of the CPWF on individual donors. The CPWF has also managed to partly compensate for a drastic reduction of a major donor commitment in the programme inception phase, albeit the currently expected funding for phase I remains below the original budget expectations.

While resource mobilization has been satisfactory until now, overall CPWF financial management and reporting needs to be improved considerably. It has been difficult for the Review Panel to obtain reliable financial information from the host centre financial department or the programme secretariat and some data has not been available at all. Audited expenditure data is available only with considerable time lags. **The Review Panel also detected a lack of a clear financial policy regarding accrued programme interest, administration fees, and hosting-related charges.** No comprehensive breakdown of overall expenses into programmatic and non-programmatic expenses could be obtained. The Review Panel has recommended a series of measures to improve this situation.

As far as could be determined, CPWF's short-term financial liquidity at year-end 2006 was satisfactory. However, some of these funds are committed to projects for phase I of the CPWF and no information was available about the cash reserve of entirely uncommitted funds.

Overall view of CPWF

The Programme is in its early days, and the projects under the First Call are mostly in mid-way phase. Initiating such a complex, multi-institutional, ambitious programme is never an easy task, but this has been accomplished fairly smoothly. The Programme has already enhanced cross-linkages between the various CG Centres, NARES, ARIs and NGOs, which, in several instances, indicate discernible synergising impacts. The two projects visited in India are highly likely to produce good results which will directly contribute to the achievement of the Programme´s objectives. However, a determined effort is essential to further unlock the Programme´s considerable potential.

The Review Panel believes that the results witnessed thus far, and expected over the short- to medium-terms, justify the establishment of the CPWF. Based on the past performance, neither the CGIAR Centres nor its Programme partners could have achieved these developments individually. The Programme has made individual CGIAR Centres more aware of the water-food nexus, and is already showing some benefits because of its multi-institutional, multidisciplinary and multi-sectoral approaches. **The Review Panel believes that after its recommendations are implemented both in the programmatic and governance-related areas, the CPWF can serve as a good model for greater interactions between national and international institutions and researchers. This is further likely to deliver implementable results in a cost-effective and timely manner. Assuming that the CPWF will be independently evaluated in the future at periodical intervals, and thereafter appropriate course corrections will be made, the Programme has the potential to become an important value-added initiative, which should generate good scientific outputs. These should contribute to meeting the reformulated CPWF goals.**

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List of Recommendations

Programmatic Recommendations

To avoid the problems associated with an overly broad specification of its objectives, the Panel recommends that future developments of the Programme be more closely specified to well defined areas of research activity as can be seen in the topics proposed for phase 2.

In addition, the Panel recommends that the focus of water productivity be broadened to include issues beyond “crop per drop”. Water could be considered to be one factor, but not necessarily the major factor, for food production and wealth creation.

Thus, the Panel recommends that the CPWF should be maintained as a time limited entity that precipitates greater levels of collaboration between the Centres and other research and development partners.

The Panel recommends that more collaboration should be a prerequisite for the continuation of many existing CPWF projects and for newly commissioned research work.

The Panel thus recommends that a specific budgetary allocation be made available for Theme Leaders to bid for the commissioning of specific linkage/integration research tasks.

The Panel recommends that the Science Council should give stronger direction as to what constitutes IPGs, in terms of the continuum, which would assist in the definition of research objectives and the reinforcement of that delineation through the course of the Programme.

The Panel thus recommends that the potential for the CPWF involvement in forming public-private consortiums to enhance the international public goods aspect of research should be investigated.

The Panel recommends that these should be research areas that should be more vigorously pursued in the CPWF.

The Review Panel recommends a critical re-assessment of the Benchmark Basin concept, taking into account the evolving experience of the basin focal projects, as well as the current choice of the Benchmark Basins and with the assistance of experts external to the Programme Consortium. The Panel suggests a re-evaluation of how to work best within the basins. The new concept should mainly guide future project selection, but should allow for value creation from the current project portfolio. It may not be too late to do a basin analysis to better tie the projects together and identify priority areas of research which are likely to support achievements of the CPWF objectives the best. This, ideally, should have been carried out at the beginning of the Programme.

The Panel recommends that the CPWF take steps to integrate valuation exercises into projects in order to deepen their analytical component and to facilitate their ex post evaluation.

The Panel recommends that the CPWF should attempt to develop a proactive process, instead of the current passive process, to prepare its future synthesis reports.

Hence, the Panel recommends that consideration should be given to produce a series of synthesis reports for specifically targeted issues and audience.

The Panel recommends that the CPWF builds into its partnership agreements the requirement for the national institutions to engage in application of research results to development and also a network of influential friends in a formal way.

The Panel recommends that the CPWF builds a network of influential friends in a formal way.

The Review Panel recommends that considerable attention now should be given to formulate and implement an overall uptake strategy.

Thus, the Panel recommends that the CPWF should contact project leaders and make it very clear to them that all the publications, power point presentations, media releases, signboards at the project sites, etc., must include appropriate acknowledgement that they are part of the CPWF.

The Panel recommends that the CPWF establish a publication strategy across all aspects of its activities to develop and encourage researchers to target high impact journals, as well as publications read by policy-makers.

The Panel recommends that this aspect be integrated effectively into the CPWF's overall capacity building strategy.

The Panel recommends that the CPWF establishes a new, realistic programme vision and mission statement and a set of internal programme objectives that have a strong causal link with programme activities, i.e. the objectives can be reached primarily by the programme alone. Standard results chain models should be applied to link programme activities to these objectives. The degree to which these objectives can be reached should be used as one measure of success for the CPWF, e.g., based on a classical logframe approach.

The Panel recommends that the CPWF rearranges and adapts its current set of visionary objectives into a set of global development goals to which the CPWF aims to contribute. It should be made clear, e.g., by establishing causal chains linking the internal programme objectives to these overarching development goals, in what way additional CPWF activities facilitate or enable players external to the Challenge Programme to work towards these goals. Based on a clear description of these activities, a reliable indicator system should be developed to measure the programme performance in terms of facilitation and enabling.

The Panel recommends the inclusion of an obligatory ex-post evaluation component, if possible through an external expert, as a standard requirement for projects. An appropriate portion of the project budget should be reserved for this purpose. This component should include a cost-benefit assessment.

The Panel recommends the abandonment of the notion to measure development impact of the CPWF on a global level. Instead, the CPWF should implement regular ex-post evaluations on reaching internal programme goals as defined above. This standard approach should be complemented by the assessment of the CPWF activities in enabling and facilitating development impact on the basis of its internal programme goals.

Governance and Management-related Recommendations

The Review Panel recommends that the voting policy for virtual CSC meetings be clarified by requiring active electronic voting by its members.

The Review Panel recommends that the CSC increase the proportion of female CSC members up to 50% where this is feasible in terms of expertise and institutional representations whilst maintaining a balanced developing country representation.

The Panel recommends that the CSC be chaired by an independent senior, well-established and well-respected professional without any institutional ties to the Challenge Programme. Apart from his/her independence, this person should have a long and successful track record as management leader and as board chair and must be acquainted with the CPWF research and development issues.

The Panel recommends that the CSC sets up an Audit Committee, led by an independent chair that includes the Programme Coordinator, the programme manager and the IWMI audit board chair. The CSC audit committee should report directly to the CSC, or to the CSC Executive Committee. The chair of the audit committee should be a senior finance professional with considerable audit experience and at the same time have a good understanding of the CPWF or similar Programmes.

The Panel recommends that the independent CSC chair in consultation with the IWMI Director General conducts the performance evaluation of the Programme Coordinator and determines the terms of his employment.

The Panel recommends that the Programme Coordinator is put in charge of the performance evaluation of the other CPWF Management Team members, of the Theme Leaders and of the Basin Coordinators, and shares this responsibility with the respective host institutions. The evaluation criteria should be based on the TOR for the respective position in the CPWF. In addition, the Programme Management Team should assume project leadership responsibilities for all CPWF projects in order to centralize responsibility and accountability for CPWF projects in the Management Team.

The Panel recommends that, under the leadership of the new CSC chair, an Executive Committee is formed, consisting of

- The new CSC chair
- The chair of the CSC Audit Committee
- One representative elected by the five Consortium CGIAR Centres
- One representative elected by the six NARES and the one RBO Consortium members
- One representative selected by the four ARI Consortium members
- One representative selected by the two NGO Consortium members
- One well-known international expert familiar with the management issues of some of the CPWF Benchmark Basins and water-food interrelationships
- The Director General of IWMI or an IWMI board member as main host centre representative

Search and election of independent representatives for the stakeholder groups (i.e. not belonging to any institution in that group) should be encouraged and the selection should be opened up to the whole CSC if no representatives can be found in reasonable time. The Executive Committee TOR should contain at least the mandate for strategy development, Evaluation and Auditing and the authority to take decisions on CPWF operational matters that exceed the authority of the CPWF Management Team. The four elected representatives should have the necessary expertise to provide valuable input according to this TOR. The Executive Committee should meet virtually or in person with high frequency (e.g. every three months). It should be understood that the IWMI representative is member of the Executive Committee as liaison to the host centre board and therefore has no formal vote.

The Panel recommends that, under the leadership of the new CSC chair, the roles of the current Expert Panel be reviewed and reassessed in terms of future needs of the CPWF. It may be necessary to reconstitute this panel as an "Scientific Advisory Panel" with members having very specific qualifications, expertise and time-commitment which will match the specific scientific requirements of the CPWF.

The Panel suggests that, after these initial steps, the CPWF embark on a more thorough reform of its governance under the leadership of the new chair and the Executive Committee. The key elements of this reform could be:

- The evolution of the Executive Committee into a CPWF board with full programmatic and budgetary functions and related accountability.
- The evolution of the present CSC into a stakeholder council that elects the board members and advises the board. The in-person meeting frequency for the stakeholder council can be lowered to e.g. one meeting every two years.
- Opening up of the Consortium to further key stakeholders leading to representation of all relevant CPWF stakeholders on the stakeholder council. The current roles and responsibilities Consortium members should be adapted accordingly.

Finance-related recommendations

The Panel recommends that a clear and transparent financial policy is established that – as a minimum – clarifies pass-through and administrative fee levels and their applicability to different expenditure types, the handling of CPWF accrued interest, and amounts to be charged for hosting-related services.

The Panel recommends that current financial reporting by IWMI for the Challenge Programme is checked for accuracy and that a format is established that reflects better the disbursement categories of the CPWF, including a clear separation of programmatic and non-programmatic disbursements in line with CGIAR guidelines.

The Panel recommends that the CPWF and IWMI implements the recommendations of the CGIAR Internal Audit Unit that audited the CPWF in September 2006 with focus on the acceleration of availability of reliable financial information.

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List of Abbreviations

ARC	Agricultural Research Council
AREO	Agricultural Research and Education Organization
ARI	Advanced Research Institute
BFP	Basin Focal Projects
CARE	Cooperative for Assistance and Relief Everywhere
CGIAR	Consultative Group on International Agricultural Research
CGIAR AGM	CGIAR Annual General Meeting
CGIAR IAU	CGIAR Internal Audit Unit
CIAT	International Center for Tropical Agriculture (Centro International de Agricultura Tropical)
CONDESAN	Consortium for the Sustainable Development of the Andean Ecoregion (Consorcio para el Desarrollo Sostenible de la Ecorregión Andina)
CP	Challenge Programme
CPWF	Challenge Programme on Water and Food
CSC	Consortium Steering Committee
CSIR WRI	Council for Scientific and Industrial Research, Water Research Institute
CSIRO	Commonwealth Scientific and Industrial Research Organization
DFID	Department for International Development
EC	European Community
EMBRAPA	Brazilian Agricultural Research Corporation (Empresa Brasileira de Pesquisa Agropecuária)
ICAR	Indian Council of Agricultural Research
IFAD	International Fund for Agricultural Development
IFPRI	International Food Policy Research Institute
IFS	International Foundation for Science
IRD	Institut de recherche pour le développement
IRRI	International Rice Research Institute
IWMI	International Water Management Institute
JIRCAS	Japan International Research Center for Agricultural Sciences
JVA	Joint Venture Agreement
MRC	Mekong River Commission
NARES	National Agricultural Research and Extension Systems
NGO	Non-Governmental Organization
NWRC	National Water Research Center of Egypt
ODA	Official Development Assistance
OECD DAC	Organization for Economic Co-operation and Development, Development Assistance Committee
RBO	River Basin Organization
SEI	Stockholm Environment Institute
UC DAVIS	University of California, Davis
USAID	United States Agency for International Development
WorldFish	WorldFish Center (previously ICLARM = International Center for Living Aquatic Resources Management)
YRCC	Yellow River Conservancy Commission

PART I:

INTRODUCTION AND BACKGROUND TO THE REVIEW

1. Introduction and Background to the Review

The Science Council of the CGIAR commissioned an external review of the CGIAR Challenge Programme on Water and Food (CPWF). It was conducted by Professor Asit K. Biswas, Third World Centre for Water Management, Mexico, (Chair), Dr. Markus Palenberg, Global Public Policy Institute, Berlin, Germany, (Governance and Management), and Professor Jeff Bennett, Australian National University, Canberra, (Environment). The terms of reference for the members of the Review Panel are shown in Annexes 1 and 2.

The details of those contacted by the Review Panel are shown in Annex 3. The main in-person contacts made by the Panel were as follows.

From 1-3 April, the Chair met with the CPWF Coordinator in Mexico, to receive a general briefing about the Programme and develop plans for contacts and visits. The Chair also contacted the other review members by telephone. From 19 to 24 April (19-21 April in the case of Prof. Bennett), the Review Panel met with the CPWF leaders and key staff of the lead centre, IWMI, in Colombo, Sri Lanka. Following this series of meetings, the Chair and the CPWF Coordinator met with leaders and researchers of six CPWF projects in the Ganges basin in a workshop format, in New Delhi, 26 April. This workshop was followed by field visits on 27 and 28 April to the Lucknow and the Bhopal areas to review two other CPWF projects. The Chair also took this opportunity to meet with the Prime Minister and Water Minister of India to gauge their knowledge and interest in the CPWF projects, and potential application of the knowledge that is being generated by this programme in the Ganges basin for poverty alleviation efforts in the country.

Subsequently, Prof. Bennett made a field visit to the Mekong delta, in Vietnam, 18-21 May, together with the CPWF Coordinator, management team and theme leaders. He visited two projects, followed by presentations from six other CPWF projects active in the Mekong basin on 22 May.

In addition, from 11-13 June, Prof Biswas and Dr. Palenberg met with a group of 13 key CPWF members, representing the management team, theme leaders, and other technical coordinators, in Rome, for an exhaustive and intensive sets of discussions which focused on wide-ranging aspects of the operation and management of the CPWF, including its:

- past and current activities;
- future plans;
- potential outputs and impacts of the projects, and how these can be evaluated;
- governance structure and its appropriateness;
- opportunities and constraints of the Programme;
- scientific contents of the programme, and implementation of the results of the projects to achieve its goals; and
- synthesis and dissemination of the results.

These in-depth discussions were candid, and were conducted with a constructive and holistic spirit.

In addition to the personal interactions with the CPWF participants and the field visits, the Review Panel conducted an online survey on (launched 27 May, closed 11 June) targeted at 25 present and former representatives of the main CPWF governance body, the Consortium Steering Committee (CSC), as well as at 24 individuals involved in CPWF management. While the response rate of the management group was satisfactory (67%), the response rate of the governance group was somewhat poor (20%) even though a reminder was sent and the deadline was extended. Responses from the latter group were judged to be statistically unrepresentative by the Review Panel and were therefore not used in any quantitative analysis. In order to obtain governance-relevant information, the Panel held in-depth telephone interviews with 10 present and former CSC-representatives, including both the former and present chairs.

The Panel also examined a broad range of programme documents. It should be noted that the Panel had a limited time to carry out its work. Thus, it had to be selective in terms of analysing documents that were available. Some of these documents were made available to the Panel members in hard copies, including papers nominated by CPWF as being representative outputs from each of the Themes. In addition, the CPWF Secretariat made available on their web-page a series of documents that were considered to be useful for the review process. A list of these documents is attached as Annex 4. This list will give some idea as to the extent and coverage of the present evaluation in terms of analyses of selective documentations.

1.1. Challenge Programmes of CGIAR

In 2001, the Consultative Group on International Agricultural Research (CGIAR) decided to incorporate a programmatic approach to research planning and funding to complement the existing approaches. The result was the formulation of a set of Challenge Programmes (CPs). A CP is a time-bound, independently-governed programme of high-impact research that targets the CGIAR goals in relation to complex issues of overwhelming global and/or regional significance, and requires partnerships among a wide range of institutions in order to deliver its products. CPs are expected to improve the CGIAR's relevance and impact, better target and integrate existing activities, achieve greater efficiency and cohesion among CGIAR Centres, widen and improve their partnerships with non-CGIAR research partners and mobilize more stable and long term financing. Beginning in 2003, three CPs were approved for implementation, of which the Challenge Programme on Water and Food (CPWF) was one. CPWF's inception phase commenced in November 2002, and its full implementation phase started in January 2004. The CPWF was proposed as a three-phase, 15-year endeavour, that is due to conclude at the end of 2018.

1.2. Water and Food Challenge

Water scarcity is one of the most pressing issues facing humanity at present. Poverty, food insecurity, environmental degradation and disease are often interlinked and can

be mutually reinforcing. How people share and manage water for various purposes is therefore one key factor in resolving many other development-related challenges. Water is an important element in ensuring people´s health and wealth, and yet the most extreme shortages are many times experienced by the poor people in developing countries, where the agricultural sector accounts for 70–90% of all water use. During the next 20 years, food production needs to increase by over 30%, much of it in these same water-scarce developing countries. Concurrently, growing and urbanizing populations will need more and more water for household consumption, power generation, industrial production and the maintenance of essential ecological services.

It is now generally accepted that the past and the present water development and management practices and processes have produced both positive and negative economic, social, and environmental impacts, much of which have not been evaluated scientifically and comprehensively over the long-term. What is thus needed is reliable scientific information on how limited water resources can be most efficiently managed under different physical, climatic, institutional, social, economic and environmental conditions in order that the overall net benefits to society can be maximised, especially in terms of food production, poverty alleviation and environmental conservation.

Efficient water management is important for agricultural production. The agricultural sector accounts for nearly two-thirds of the current global water use. Thus, to meet the food requirements of an increasing and more prosperous population, it is essential that adequate and reliable water supply is available for the agricultural sector in the coming years. On a global basis, in recent years, water allocation to the agricultural sector, as a percentage of total water allocation, has been declining steadily. However, in quantitative terms, total water withdrawal for agricultural uses has been increasing. In addition, some existing agricultural practices in terms of water management cannot be considered to be sustainable (for example, steadily declining groundwater levels, increasing water contamination due to agro-chemicals, development of salinity and waterlogging in irrigated areas, consequent degradation of related ecological systems, etc). In the light of these developments, and to meet the needs of a growing population, more food must be produced using less water in a way that improves rural livelihoods and protects the environment.

1.3. Challenge Programme on Water and Food (CPWF)

The CPWF is an attempt to resolve the complex and pressing challenge identified above by improving water productivity in the agricultural sector. Accordingly, the objective stipulated for the CPWF in the revised Full Proposal of 2002 (p. vii) is

> *"To increase the productivity of water for food and livelihoods, in a manner that is environmentally sustainable and socially acceptable."*

This objective was further refined into a sequence of immediate objectives relating to food security, poverty alleviation, improved health and environment security. Subsequent documentation has more or less maintained this overall thrust towards increased water productivity, reduction of poverty and environmental enhancement.

The preferred goal statement in the present Phase 2 working document extends the original goal as follows

> *"To increase the productivity of water for food and livelihoods, in a manner that is environmentally sustainable and socially acceptable, and to identify mechanisms for translating improved water productivity into widely-felt benefits for the poor and the environment."*

An alternative option considered, but so far rejected because it sounded more like the goal of a CG centre was:

> *"To change the way the people manage agricultural water in river basins to improve livelihoods and food security, by increasing their ability to adapt to water related shocks and stresses in river basins and exploit opportunities.*

The CPWF is an international, multi-institutional, research-for-development initiative which aims to change the way water is managed and developed to meet food security goals in order to leave more water for other users, including the environment. Its overall goal is to contribute to efforts by the global community to increase food production to achieve internationally adopted food security and poverty eradication targets by 2015, while simultaneously ensuring that the global diversions of water to agriculture are maintained at the level of the year 2000. Thus, viewed from any direction, the CPWF is a real challenge if its objectives and expectations are to be realised.

Within the CPWF, a central concept that has been used is that of water productivity. Most projects, Themes and basins use this concept in one way or another. Water productivity has been defined as agricultural output per unit of water depleted. Crop water productivity is a measure of the ratio of crop outputs and services per unit volume of water depleted. Similarly, livestock water productivity is defined as the ratio of livestock outputs and services per unit volume of water depleted. Crop and livestock outputs and services can be measured in value terms when water has multiple uses. Water depletion is estimated in similar ways regardless of whether the water is used in crop production, livestock or fisheries production, or urban and industrial use. In all cases, the amount of water depleted is that made unavailable for reuse.

The Programme places strong emphasis on north-south and south-south cooperation and partnerships. Led by a consortium that at present has 18 member institutions, the CPWF works with a broad range of partner institutions in research and development, bringing together natural and social scientists, development specialists and river basin communities in Africa, Asia and Latin America. At present, there are over 200 partner institutions and this number is steadily increasing. Participation in the CPWF is open to national research organizations and universities, NGOs, international research groups, private firms and CGIAR centres. Over 60% of the research funding is disbursed through a competitive grant scheme.

The CPWF seeks to create and disseminate international public goods (IPGs) helpful in achieving food security, reducing poverty, improving livelihoods, reducing agriculture–related pollution, and enhancing environmental security.

1.4. Overview of CPWF Programme organization

During the first phase (2003-8) the CPWF has organized its work in a matrix of five Themes and nine Benchmark Basins. Research is conducted either through projects or through synthesis research across projects (at theme, basin or Program level). This introduction will describe themes, basins and projects in turn.

1.4.1. Themes

CPWF Themes are a means for addressing different aspects of the water and food challenge and serve to package information at different scales on issues related to water productivity. The CPWF Research Strategy concentrates its attention on five thematic areas, each one led by a specialist "theme leader" from a different CGIAR center (IRRI, CIAT, WorldFish, IWMI and IFPRI). Theme leaders lead collaborative efforts to understand how the main drivers affecting water and food security evolve over time, and how changes in these drivers will affect future water and food security.

The five Themes are discussed next.

Theme 1: Crop water productivity improvement. Theme 1 seeks to improve crop water productivity by addressing problems of abiotic stress, e.g., drought, salinity, and nutrient deficiencies. Means for achieving this include crop genetic improvement for stress tolerance, crop and agroecosystem management, landscape management, innovative institutions, and supporting policies. The challenge confronting Theme 1 is rather broader than might appear on the surface. It is not merely to develop technologies that improve crop water productivity – but rather, to do so in ways that increase food security, reduce poverty, and improve the resilience of farm family livelihoods to unanticipated shocks, e.g., weather and price variability – while simultaneously sustaining or increasing the volume of clean water available for downstream use.

Theme 2: Water and people in catchments. Theme 2 is concerned with water, poverty and risk in catchments. It focuses attention on the multiple ways that people manage water between the plot and the basin scale. Formal or informal institutions often exist for the governance of springs, streams, ponds, wetlands, potable water systems, and other water resources. In many instances, there are opportunities for improving their equity and efficiency. At times, institutions may not be in place to "internalize" important "externalities", e.g., when upstream land and water management practices affect people downstream. Theme 2 seeks to identify institutional and technological innovations that improve people's capacity to manage water collectively, with special attention paid to ensuring that the needs of women and the poor are not overlooked.

Theme 3: Aquatic ecosystems and fisheries. Theme 3 focuses on fisheries and aquatic ecosystems, their contribution to poor peoples' livelihoods, the value of the ecological services that they provide, and the ways in which estimates of these values are (or are not) taken into account when decisions are made regarding water use. Aquatic environments are a key source of nutrition for many of the world's poor – often, they are the sole source of protein for these communities. Research under this Theme investigates environmental water requirements; to value ecosystem goods and services; and to seek innovative ways in which to improve the productivity of aquatic ecosystems through policies, institutions, and governance.

Theme 4: Integrated basin water management systems. Theme 4 helps develop technologies and management strategies compatible with the principles of Integrated Water Resource Management (IWRM). It seeks innovative institutional arrangements and decision-support tools and information to help establish IWRM strategies in basins. These strategies are based on the fact that, within a river basin, water resources become available and are used for a succession of purposes, e.g., production of plants, animals and fish; rural and urban direct consumption; industrial use and power generation; river transport; and the preservation of wildlife habitat and ecological processes. There may be sizeable opportunities for enhancing water productivity through multiple and sequential uses of water as it cascades through the basin. Effective water resource management at the basin scale takes account, where possible, of medium- to long-term processes of change, e.g., population growth, migration, urbanization, economic growth, and opportunities for water development.

Theme 5: Global and national water and food systems. Theme 5 is concerned with those international, national and regional policies and institutions "beyond the basin scale" that directly or indirectly influence water and food – and how these policies and institutions can be shaped so that the poor benefit from, rather than being harmed by, the powerful and ubiquitous processes of global change. Theme 5 research covers two kinds of policies and the links between them: policies specific to the water sector, such as water institutions, economic incentives, and investment strategies; and policies that lie outside the water sector, but indirectly affect water availability and quality, such as those on trade, climate, and macroeconomic issues. This Theme also concerns itself with investments and financing for agricultural water development and water supply; transboundary issues, whether defined in classical terms of national boundaries, or in increasingly important boundaries of sectors and sub-national boundaries; and changes in the global water cycle and opportunities to adapt to these changes.

1.4.2. Benchmark Basins

The reality "on the ground" is provided through focusing CPWF work in nine Benchmark Basins which are also intended to be the focus of inter-institutional networking and links among projects.

According to the CPWF, research to address issues of water productivity is best conducted in the context of an entire river basin. How water is managed within a

basin can have huge effects on agricultural productivity and sustainability, livelihoods, income distribution, and the provision of ecosystem services – defined here as the provisioning, regulating, cultural and supporting functions of ecosystems. An integrated approach is essential to understand how these interrelate with each other and with human activity.

Nine Benchmark Basins have been selected that the CPWF claims present diverse biophysical, socioeconomic and institutional settings. These are the Andes system of basins, and the Indus-Ganges, Karkheh, Limpopo, Mekong, Nile, São Francisco, Volta and Yellow river basins. The selected basins cover Africa, Asia and Latin America. Some basins, such as the Volta or the Limpopo, combine intense poverty with extreme water scarcity in areas dominated by rainfed agriculture. Others, such as the Indus-Ganges or the Yellow River, feature large populations of poor people that are increasingly affected by water and land degradation in both irrigated and rainfed areas.

Each benchmark basin has a CPWF basin coordinator from an institution that is either national (ARC South Africa, NWRC Egypt, WRI- CSIR Ghana, AREO Iran, ICAR India, YRCC China, Embrapa Brazil) or regional (Mekong River Commission, Consortium for the Sustainable Development of the Andean Region).

Additional to the nine Benchmark Basins, CPWF also includes other basins when they provide suitable "laboratories" for research on particular topics. CPWF Phase 1 guidelines allow up to 25% of research funding to be invested outside the Benchmark Basins, although at present the proportion is only about 5% of investment – in basins in Honduras, Vietnam and Bhutan. An additional investment in the Niger basin has been negotiated as a condition of French government funding, for which the competitive process is at present on-going.

1.4.3. CPWF Projects

Much of CPWF's activity is conducted through research projects contracted to a wide range of institutions. Each project has a "project leader" who is a member of the "project lead institution" that signs the contract to conduct the agreed work. An typical project is reported by the CPWF to have seven institutions participating, including an average of 1.5 CG centres, four NARES (including government research or development institutions and universities, public and private), and on average slightly less than one advanced research institute and one national or international NGO. All the project institutions contribute one or more "project investigators" to the project.

Presently there are projects of three types active in the CPWF, described below: "basin focal projects", "first call projects" and "small grants for impact". Additionally "capacity building" is a component of many projects and in 2007 is starting its own projects.

Basin focal projects. These are designed to conduct basin-wide analysis of agricultural water use and identify strategic opportunities for poverty alleviation through improvements in agricultural water productivity. By defining specific problems of water and agriculture in basins, the people they affect and the areas over which they occur, BFPs translate the global goals of the CPWF into specific research

objectives for each basin**.** BFPs add value to individual research project outputs and identify opportunities for impact through research from both current and future projects. The Basin Focal Projects (BFPs) provide the strategic overview and the "glue" among CPWF activities within each basin. By late 2007, there will be one in each benchmark basin, one in the Niger basin and a coordination project to seek cross-basin lessons. BFPs were conceived in 2005 in the second year of programme implementation when CPWF realized that the "first call" projects (see below) did not alone provide sufficiently integrated understanding in each basin. The first four BFPs and the coordination project were commissioned and were contracted in late 2005; the other six were due to be selected competitively in 2006, but were delayed due to procurement issues.

First call projects. The greater part of the CPWF research agenda is implemented through specific projects that were evaluated and selected through a competitive grant process. CPWF's first call for project proposals, using the broad priorities set by thematic working groups and (to a lesser degree) by basin stakeholder workshops was launched at the beginning of the programme inception phase in December 2002. By October 2003, it yielded a portfolio of 50 high quality projects, of which 30, covering all basins and themes, currently receive funding. These projects are a major part of the present CPWF and represent half of the total investment in Phase 1. Each project works in one or more themes and in one or more Benchmark Basins. CPWF reports that approximately half of the competitively selected projects form the first call work in two or more basins and over half across two or more themes. Additionally, it reports that half of the CPWF funding in these projects flows to national institutions (NARES and NGOs), 42% to CGIAR centres and 8% to ARIs.

A smaller, second competitive call with tightly focused priorities to fill gaps in the programme research portfolio is due to select and contract 8-12 smaller projects by late 2007. It too was delayed for one year by difficulties with procurement rules.

Small grants for impact. These were selected through a single competitive call to national NGOs and NARES in 2005. Fourteen were identified out of 120 eligible; they represent in total a very small part (1.5%) of first phase investments. They seek to understand and enhance the adoption of high potential interventions for increasing agricultural water productivity and provide a discussion point from which CPWF participants can guide applied research to ensure greater impact. Projects are selected based on their ability to identify existing small-scale or local-level water and agricultural management strategies or technologies that have the potential to improve agricultural water productivity at some wider scale.

Capacity building. This aspect of the Programme seeks to strengthen the integrative research skills of CPWF partners and other stakeholders to identify, investigate, analyze and answer applied water and food questions within the basin context. CPWF capacity building takes advantage of existing resources within the Programme's research portfolio, and the research and training infrastructure that exists in the Benchmark Basins, in order to ensure that the impacts of capacity building activities are sustained, adapted, and expanded upon by our partners.

The programme is unquestionably ambitious, and the approach is innovative. However, like all ambitious and innovative programmes, it faces many challenges if

its objectives and goals are to be fulfilled within the timeframe stipulated. The present review is an analysis of the progress the Programme has made thus far and the opportunities and constraints it faces in the coming years in meeting its goals and objectives.

PART II:

PROGRAMMATIC ISSUES

2. Programme Strategy

2.1. Programme Objectives

The Challenge Programme on Water and Food is an ambitious, inter-institutional, inter-sectoral, inter-regional programme with objectives that, while laudable, are exceptionally wide-ranging. The danger of such a broadly defined objective is that defining a research strategy that can be coordinated effectively and capable of achieving sufficient depth to deliver useful outcomes becomes problematic. The focus that was initially considered, that of increasing water productivity, is potentially problematic. The expression 'more crop per drop' previously championed and then abandoned by IWMI in its search for a more holistic base was also considered by CPWF during its early phase. The continuation of this water productivity alone focus would be problematic since it poses a threat to sound analysis. The reason is because water is only one resource, or input, that is involved in agricultural production. Others include manufactured capital such as machinery, human capital involving both the quantity and quality of the labour input and the other elements of natural capital including the soil resource. Productivity as a concept needs to incorporate the multiple roles played by all resource inputs. A focus on water may lead to policies that lower the amount of water applied to achieve a given crop yield but only because other resources (such as capital or fertilizer) have been used as water substitutes. Such substitution may not be in the best interests of farmer livelihoods if the substitute resources are scarcer than water, potentially indicated by a higher cost per unit of output. Put simply, the link between water productivity and poverty is not necessarily direct. It is not always the case that water is the limiting resource in efforts to improve farmer livelihoods.

The CPWF is aware of these issues. The Basin Focal Projects have brought focus to the complexity of the water poverty relationship, as can be seen in BFP Working Papers 1 to 4. In particular BFP Working Paper No. 1, makes an attempt to reach a useful understanding of water productivity. In addition, the 2006 Synthesis Report cautions against drawing simple conclusions in terms of water productivity-poverty linkages (see pages 13, 20, 42 and 68). But there appears that there is some disconnection between the CPWF stated objectives regarding the analysis of water and poverty and what is happening in a number of the projects. This disconnect needs to be resolved.

In addition, some projects that are more from the plant and soil focus, do not take water aspects sufficiently into account. For a Programme that deals with water and food, this is an issue that requires further consideration from the CPWF management team.

The CPWF management is aware of these problems. Given that most of the projects under the First Call are at their mid-way points, a determined attempt by the management team is required now to address these issues. It is also imperative that action is taken to ensure they do not arise under the Second Call.

The chance of the CPWF being able to meet its objectives is significantly reduced by the broad specification of those objectives and the present approach by some projects

to the water-poverty link. First, with such a broadly specified objective, the danger is that research projects become diffuse across the range of possible areas of interest. The chance to delve deeply into well defined specific topics may be lost. Additionally, the focus of water productivity rather than water as a part of the wealth creation process for farmers may limit the uptake of research results because of the omission of the financial aspect of adoption. This is a key omission in terms of projects specifying their adoption pathways.

The Panel recommends that future developments of the Programme be more closely specified to well defined areas of research activity to avoid the problems associated with an overly broad specification of its objectives, .

The process of defining those areas requires detailed ex ante assessment of research prospects.

The Panel recommends that the focus of water productivity be broadened to include issues beyond "crop per drop". Water should be considered as one of the multiple factors influencing the food production and wealth creation processes.

Part of that consideration would be the application of economic assessment tools to test the viability of resource use changes proposed under research projects. Such viability assessments would test if proposed changes actually generate improved farmer livelihoods and hence provide some indication of likely adoption rates.

2.2. Knowledge Strategy

The CPWF is a knowledge-based programme, which has three closely interrelated and interdependent knowledge-based components:

- knowledge generation;
- knowledge synthesis; and
- knowledge dissemination and application.

Each of these four components affects the others, and, is, in turn, affected by the others. The success of the programme, especially in terms of the achievement of its goals and objectives depends not only on any one specific aspect of the above-mentioned four components, but also on concurrent satisfaction of all the four aspects. For example, knowledge generation (meaning solid scientific soundness of the programme as a whole) may be good, but if simultaneously the other three components are not adequately considered and reflected in the overall programme, its overall impacts will be significantly less than what may otherwise have been the case.

In the following sections, some priority issues relevant to the overall strategy employed by the CPWF in striving to achieve its objectives will be discussed. Subsequently, specific issues relating to knowledge generation, synthesis and applications and dissemination will be considered.

2.3. Relationships between the CPWF and the CGIAR Centres

The Panel was requested to assess the added value of the CPWF compared to what might have been achieved by the CGIAR Centres, without the CPWF, especially by IWMI and IFPRI. Prior to the initiation of CPWF, IWMI conducted research on water management in a holistic, catchment wide context and both IFPRI and IWMI worked on agricultural water policy issues.

The 2002 Interim Science Council Working Document "Water and the CGIAR"[1] describes the situation well, and stresses that while IWMI were naturally foremost in water research, virtually all centers had an interest:

> *"Actually, recent initiatives at the global scale by IWMI highlight the potential of the CGIAR to act as a focal point in some critical issues. Renewed efforts in water research are now undergoing in most, if not all of the other 15 CGIAR Centres".*

The document further stated:

> *"While other international organizations are very active in many international initiatives, the CGIAR is one of the few that could contribute much needed research information in many world areas. The CGIAR must focus more on water in relation to the plight of the poor in particular."*

The initial proposal to establish the CPWF stressed the scale of change required for the CGIAR to make significant contributions to water and food issues. A shift was argued to be needed in two fundamental aspects.

First, greater knowledge was deemed to be required about broad aspects of the food and water system. To achieve this, it was proposed to engage not just organizations with a sound knowledge of hydrology and water resources, but also those with considerable knowledge of agricultural systems, and how people change natural resource management.

Second, it was argued that a change was required in the type and breadth of partnerships, engaging not just with the NARES that had long been associated with CGIAR, but many other types of actors including ARIs, international NGOs and some (though still insufficient) water research organisations. The goal was for the twelve CGIAR Centres to be engaged in competitive bidding that would bring new partners to the research task.

The development of the CPWF proposal in 2001 was led – and perhaps dominated by - IWMI and IFPRI. The five CGIAR Consortium Centers (IRRI, CIAT, World Fish, IWMI and IFPRI) contributed to the development of Background Working Papers. This rapid development of ideas in five themes required prior experience and knowledge of the water-food systems from many Centres and from ARIs and NARES.

[1] http://www.sciencecouncil.cgiar.org/publications/pdf/0123ARev3.pdf

The broad agenda of the CPWF is illustrated by the experiences of ILRI. Livestock-water related issues do not appear to have been seriously considered by CGIAR or ILRI until the initiation of the CPWF. ILRI has recognized that the CPWF was the main driver that led it to establish a new sub-research theme in this area which was later endorsed by the CGIAR Science Council. Through CPWF support, ILRI leads a successful research project on livestock-water relations in collaboration with other CG Centres, NARES and NGOs. This change for ILRI may not have been catalyzed by IWMI or IFPRI, acting either singly or together.

Beyond such developments, the modus operandi of CPWF is different from that of single CG centres. CPWF is a Research Programme that has attracted and continues to attract a large number of willing institutions with a framework and a partnership to cooperate on research activities linking nature and society in an interdisciplinary and multisectoral environment. The comparative advantage of CPWF lies in its transdisciplinary and trans-regional partnership with multiple institutions.

Beyond CGIAR considerations, comments from several non-CGIAR research institutions indicate that the CPWF should not be viewed solely from the point-of-view of the CGIAR system. At present, just under half of CPWF funding (and 42% of competitively-assigned research funding) goes to CGIAR centres. For NARES, the CPWF has provided an opportunity to be important, equal and sometimes leading partners in projects that affect their countries, thus helping south-driven research that is a policy of the CGIAR Science Council.

A fundamental question that can be asked is if the CG Centres could have done what they are doing under the CPWF through their existing or enhanced partnership arrangements. The question can be answered in two ways: theoretically and practically.

In theoretical terms, the mission statements and objectives of the CG Centres are very broad. Conceptually, there was nothing preventing the CG Centres from undertaking research activities that are now being carried out under the CPWF individually, or in partnerships with others. Their mandates are broad enough to incorporate most of the CPWF activities. This can be illustrated by IWMI and CPWF mandates.

The initial idea for the CPWF originated within IWMI, and it has been vigorously championed by IWMI. Therefore, not surprisingly, there are some similarities in the mission statements and strategies of IWMI and CPWF.

For comparative purposes, IWMI's mission statement in 1991 was expressed as:

> *"To contribute to food security and poverty eradication by fostering the sustainable increase in the productivity of water through the management of irrigation and other water use in river basins."*

This was subsequently revised to focus on the water-food-environment nexus:

> *"to improve the management of land and water resources for food, livelihoods and nature".*

Hence, while the refinement of the IWMI mission statement has taken some emphasis away from water productivity, it still remains as a prominent feature of its focus. Similarly, the CPWF objective features water productivity but includes social and environmental elements. It is therefore difficult to tease apart the CPWF objective from the IWMI mission. Just as the IWMI mission is sufficiently broad ranging to be not only highly ambitious but also lacking as a point of reference for defining research direction, so too does the CPWF objective leave open a remarkably wide range of potential research areas.

It is not an easy task to define specific research directions when the objectives and missions of the two could logically include a remarkably wide-range of research areas. In addition, both refer to river basins and water productivity, explicitly or implicitly.

In practical terms, while the mission statements and objectives of IWMI and CPWF have considerable similarities, the approach used by the CPWF to develop projects and the nature of some of its projects have been different. The CPWF projects have tended to be more multi-institutional with an open call process for developing research projects, somewhat more diverse than IWMI in terms of issues considered, and more wide-ranging through involvement in the nine specific benchmarks basins. In addition, the CPWF has made a deliberate attempt to foster closer interlinkages between the various CG centres and to increase their research interest in water-related issues. In addition, the CPWF is a time-bound programme, lean in staffing and having no headquarters, whereas IWMI is a permanent institution with “normal” staffing levels, headquarters facilities, and regular staff members. Thus, the two are different in terms of how they have approached their tasks. In addition, IWMI is a full-fledged institution and the CPWF is a time-bound programme.

Indeed, the same argument can be extended to other CG Centres given that some of the current activities of the CPWF could well have been housed within the other CG Centres. This is especially true given that responsibilities for CPWF Themes have been assigned to five separate CG Centres. For instance, can Theme 1 projects be equally well carried out under IRRI auspices as they are under the CPWF? And Theme 5 projects by IFPRI?

To address this issue, the motivation for the establishment of the CPWF needs to be examined. The opportunity to establish the Programme can be viewed as being driven from two perspectives. The first is that research into Water and Food would be advantaged by drawing in more skills/experience than those that were available to IWMI, including those provided by partnership arrangements with NARES and ARIs. This is a supply side issue. For this to be the case, the structure of the CPWF must have been sufficiently different from IWMI’s to allow a change in the supply of research services. The implication of that case is that IWMI’s existing partnership strategy was not sufficiently well developed to pursue CPWF-type of activities. Nor were its staffing level and expertise sufficient to enable it to undertake such research projects. Resource constraints and institutional inertia may have constituted additional impediments. Hence, the need to establish the CPWF can be seen as a reflection of the inadequacy of the structures and operations of the existing CG Centres, most notably, IWMI.

It is likely that the existence of CPWF funding forced a more collaborative attitude onto Centres and collaborators and so established a precedent for taking advantage of available synergies. Given that the barriers to inter-Centre collaboration are now being steadily broken down by the CP approach, time extensions to the CPWF, beyond what is proposed at present, should not be necessary because the Centres should be able to refine their partnership strategies in order to exploit the research synergies established by the conclusion of the programme.

The second perspective on CPWF establishment motivation is from the demand side. The CPWF offered a new opportunity to "package" what IWMI was striving to achieve (Water-Food-Environment nexus) so that donors would be more attracted to provide research funds. Discussions with donors revealed that there were differences in perceptions of funding possibilities across the two entities. The CPWF was seen as being more closely connected to the application of funding to projects intended to lead from research into development and so better suited to specific project funding. IWMI in contrast was, for some donors, the target for "core" funding at the broader conceptual level, especially in terms of international public goods aspect of research.

There are clearly possibilities of mixtures of both of these supply and demand perspectives to explain the formation of and incentives for the CPWF. For instance, with more partnerships and the synergies of co-operative research activities, donors are more likely to provide more funds. Accordingly, it is essential that the outputs and outcomes of the CPWF projects are demonstrably different from the products of other CG Centres. Otherwise, the donors may be reluctant to continue to support both. That would be the upshot of a situation in which the demand side perspective predominates.

The Panel recommends that the CPWF should be maintained as a time limited entity that precipitates greater levels of collaboration between the Centres and other research and development partners.

With these motivations in mind, the CPWF's capacity to achieve its goals of developing closer linkages across the CG Centres should be considered. In doing so, the cohesion of the Programme becomes an important issue. Several projects remain in the typical mould of the individual centres with a Centre partnering with NARES and/or ARIs. Furthermore, the amount of collaboration/synergising occurring across projects needs to be substantially increased. Attempts at bringing together Theme Leaders and Basin Co-ordinators are a good beginning but these remain at an early stage. This is not surprising given that many individual projects are still in their formative stages. Nor is it surprising given that Theme leadership has been very fluid over the period of the CPWF with little time being available for the current team to put collaborative processes in place. That said, it is now essential to ensure that the projects with similar objectives and approached have accelerated interactions. For instance, PN25 and PN50 address very similar issues using different approaches and both are within the Mekong, yet, their interactions have been limited. This lack of contact could also be because they have been allocated to different Themes. The same comments apply to many of the IRRI-centred projects in Theme 1 that share a rice breeding focus.

The Panel recommends that more collaboration should be a prerequisite for the continuation of many existing CPWF projects and for newly commissioned research work.

The development of collaboration is not necessarily a straightforward task because of the incentive structures of the CPWF. Given the existing loose affiliation of interests that come together under the CPWF, the danger is that it comes to be viewed as a "common pool resource" in which all parties have some interest but none would be willing to devote a great deal of effort to maintaining because such efforts produce diluted results for their 'home' organisation. For example, effort by IWMI to secure ongoing funding for the CPWF yields itself some benefits but those efforts also provide benefit to other CG Centres, NARES and ARIs that may well be viewed as competitors in funding procurement. The prospect of a 'competitive' rather than a 'collaborative' environment has thus been enhanced by the formation of the CPWF. Whereas prior to the CPWF, IWMI had primary responsibility for water issues amongst the CG system, now – and as a result of the CPWF - more CG Centres, NARES and ARIs have built their water research capacity and may well compete with IWMI for available research funds.

The prospect therefore is that with no driving "champion" from within any of the CG Centres, and without an independent Director or manager within the CPWF, funding efforts for the CPWF may well be hampered: why put effort into raising funds for other organizations when it could be raised for your own Centre? If all the Centres and the ARIs start thinking this way and with capacity to address water issues, duplication and competition may result. This is not necessarily destructive as Centres competing with each other may end up providing better research at lower cost. However, the prospect is for donors to be confused by multiple approaches. Already the distinction between IWMI and the CPWF has been shown to be potentially confusing given the similarities in their objectives/missions. Such confusion would be multiplied with the entry of other Centres and partners competing on the same research "territory". The appointment of an independent Chair to the CPWF and forming arrangements that generate appropriate independent incentives for the coordinator of the CPWF are therefore important to the Programme's on-going success. These are recommendations that are further elaborated in the management chapter of this review.

That said, it is important to recognise that the CPWF has made important headway in avoiding research effort duplication through the collaboration it has ensured. Too often in developing countries, research efforts are wasted through duplication. Collaborative agreements between Centres, NARES and ARIs established under CPWF projects, along with vigorous extension efforts, have been important in making sure that multiple agencies are not simultaneously pursuing the same tasks. Solid Theme, River Basin and overall leadership in the CPWF is important in maintaining this avoidance. In this regard, an important role for the Programme's leadership group will be to ensure that inter-linkages are recognized and explored. For instance, there is general acknowledgement in the 2006 Synthesis report that the catchment wide impacts of wide-spread adoption of water productivity enhancement measures and local water harvesting technologies will need analysis. However, the recognition has not been matched yet by the allocation of research capacity or resources to the task. Before recommendations regarding adoption of practices are developed in single

projects, these wider impacts demand attention. This is especially the case between Theme 1 projects and Themes 2 and 4 and even Theme 5. One case at point is PN16 on aerobic rice breeding. Questions regarding catchment wide effects are raised in that project but not addressed. In addition, the development of this type of rice cultivar will have (potentially at least) implications for the displacement of other crops. Such displacement would also have water balance implications as well as social impacts. These impacts need to be assessed.

In many such cases where such interactions are possible, Theme Leaders are well aware of the potential but there exists a significant disconnect between the determination of research direction through funding decisions and the Programme management team, particularly at the Theme Leader and Basin Coordinator level. These research managers are to a large extent removed from the project selection process. Theme Leaders had no input to the initial project selection process of the first call. For the second call, their inputs were diluted through the inputs of the Advisory Group and then the Steering Committee. Hence Theme Leaders are being required to coordinate across a series of projects that they had minimal input in selecting. This significantly increases the difficulty of their task. Gaps in their perceptions of the task to be performed will be present. Selected projects will not be covering the array of issues deemed to be of importance by the Theme Leaders. Linking across projects and integrating projects across Basins are therefore likely to be tasks that remain largely unfunded. A remedy for this situation would be the earmarking of a portion of the overall project budget to be used by Theme Leaders and Basin Coordinators to fill such linkage/integration gaps. This may be through requesting existing project leaders to extend the scope of their project or to commission smaller, linkage style projects. Such augmentations would considerably strengthen the capacity of the CPWF to meet its goals. It may be possible to see the Basin Focal Projects performing this role however those projects have tended to be engaged in Basin wide research endeavours rather than specifically addressing the Theme Leaders co-ordination/linkage requirements.

The Panel recommends that a specific budgetary allocation be made available for Theme Leaders to bid for the commissioning of specific linkage/integration research tasks.

It is the view of the Panel that the CPWF should seek to differentiate its activities and results from those of collaborating CG Centres on a consistent basis. Accordingly, the CPWF should make determined and sustained efforts to establish its identity, visibility and credibility. This can best be done through the results, outputs and impacts of its projects. Accordingly, it is important that the CPWF takes special care to "brand" its projects and activities, especially in terms of good science resulting in usable and implementable outputs. Without special attention from the management team to these issues, and appropriate allocation of resources, this may not happen in any significant scale.

2.4. International Public Good Aspects

Donor pressure is for the CPWF to produce readily identifiable and quickly realised outcomes from their investments in research. Achieving this goal is desirable in terms

of securing funding but puts the CPWF in danger of breaching the CGIAR's requirement of a focus on the production of international public good (IPG) research outcomes. This is a problem faced by all CG Centres and CPs. However it is perhaps even more acute for CPs because of the requirement to involve multiple partners who potentially (especially in the case of the NARES) have localized, immediate outcomes as their highest priorities. Part of the issue here is that across the CG Centres and the CPs there appears to be a problem in the development of a clear demarcation of the definition of IPGs. Whilst the Science Council has made it clear that the primary function of the Centres is to produce IPG research outcomes there remains considerable confusion as to the point at which a research outcome ceases to be international and public and becomes local and private. This confusion is understandable given that definitions of these characteristics of research outcomes are not 'black and white'. Rather, research outcomes lie along a multidimensional continuum that embodies geographical scale and scope and the prospect of rights to outcomes being excludable or non excludable. This confusion gives scope to Centres and the CPWF to move toward the local and private ends of the spectrum where funding opportunities are likely to be richer.

The Panel recommends that the Science Council should give stronger direction as to what constitutes IPGs, in terms of the continuum, which would assist in the definition of research objectives and the reinforcement of that delineation through the course of the Programme.

The partnership strategies used in the CPWF do however provide the opportunity for IPG focused centres such as IWMI to partner extension focused NARES and so avoid the potential conflict between funding and IPG goals. It is unclear, however, that this opportunity is not already available through existing CG Centre initiatives. For instance IWMI explicitly involves partners in its research projects to enhance the extension of outputs. There is no "barrier" to CG Centres seeking partnerships. Rather, it is encouraged. This point again illustrates the need for the CPWF to retain its time limited status. Partnerships developed during the CPWF should be taken forward in future research initiatives undertaken by CG Centres, with a strong delineation of tasks between the CG Centres, focusing on the international public good aspects of the research, and particularly the NARES, focusing on the related research extension activities and the application of broad conceptual findings to the particulars of local circumstances. Potential also exists for CG Centres to partner with private sector operations that are able to transform public good research findings into profit making development schemes. This type of partnership arrangement has not been observed by the panel but its potential deserves assessment as a 'public-private' consortium. It may offer significant advantages to the CPWF in terms of providing a mechanism under which the distinction between private and public focused research activities can be clearly delineated.

The Panel recommends that the potential for CPWF involvement in forming public-private consortiums to enhance the international public goods aspect of research should be investigated.

2.5. Focus of CPWF Projects

As noted earlier, the CPWF covers nine Benchmark Basins, most of which are transboundary in nature. These nine basins are spread over three continents: Andean system and Sao Francisco in Latin America; Indo-Gangetic, Mekong, Huang He (Yellow River) and Karkheh in Asia; and Limpopo, Nile and Volta in Africa.

In spite of the fact that these nine basins have been selected, there are some fundamental questions that need to be asked and answered as to the logic and rationale behind the selection of these specific so-called Benchmark Basins, both in terms of numbers and also the final selection of a specific basin. These are very diverse group of basins in terms of several factors, among which are the following.

Scale – Some are geographically extensive, like the Indo-Gangetic "basin", but others are much smaller, like the Karkheh. Furthermore, hydrologically, it is difficult to consider Indo-Gangetic basin as one basin: it constitutes of two major river systems: Indus and the Ganges-Brahmaputra-Meghna (GBM) systems. Both of these are very large basins. The GBM basin alone covers nearly 1.75 million km^2 over 5 countries: China, Nepal, Bhutan, India and Bangladesh. It alone is the second largest hydrologic system in the world, containing nearly 700 million people or more than 10 percent of the global population. The GBM basin accounts for nearly 40 percent of the poor people in the developing world. One of the questions that needs to be asked is the potential making of significant impacts over such an extensive basin spread over at least six countries. At a practical level, it has not been possible to handle the Ganges Basin (in contrast to GBM as a whole) because of its scale and transboundary nature. Furthermore, it has been difficult to manage even one of the main tributary of the Ganges: the Yamuna in India. It had to be divided into Upper and Lower Yamuna basins. Even after such division, it has not been an easy task to manage. Accordingly, it is difficult to see the logic of adding the GBM basin with the Indus basin to create a Indo-Gangetic "benchmark basin". The logic, rationale and the science for such amalgamation is not clear. Nor is it clear, what are the advantages of creating and selecting such an "artificial basin" in terms of a CPWF programme.

Similarly, the Nile is a major river system covering 10 countries, with very different problems, interests, issues and priorities. It has not been easy to consider the management of the White Nile, or the Blue Nile, individually. Consideration of such a large river basin as a whole, for research, appears to offer somewhat limited advantages.

Transboundary nature – Many of the nine Benchmark Basins selected are transboundary in nature, where treaties do not exist in terms of water allocation. It contributes to a set of difficult constraints in terms of research and development work.

For example, for the Indo-Gangetic "benchmark basin", there is an agreement on water allocation on the Indus System between India and Pakistan, through the Indus River Treaty of 1960. However, a corresponding treaty on the Ganges, let alone the Brahmaputra or the Meghna, does not exist. In the absence of a treaty, hydrological data on the Ganges and its tributaries that are linked to Nepal and Bangladesh are considered to be state secrets that fall under the official secrets act of India. Even most senior Indian water officials do not have access to such "sensitive" data, let alone staff

members of international institutions, non-water ministry officials and research institutions. In the absence of access to flow data (both quantity and quality), it is almost impossible to do serious research on water and irrigation management, except at a much smaller scale. Under these constraints, the selection of even the Ganges basin raises some questions and poses many challenges, most of which are political in nature.

Politics and not biophysical science – Use of the waters of the major river systems that are transboundary in nature, like the Indo-Gangetic, Limpopo, Mekong, Nile and Volta are driven primarily by political considerations: biophysical science plays a part, but only a limited part. In addition to the Indo-Gangetic "basin", treaties on water allocation on the overall Limpopo, Mekong or Nile do not exist. Thus, using their waters to increase food production will depend, to a significant extent, more on future political developments and mutual collaborative agreements than on purely biophysical scientific research, irrespective of its quality.

Political science, law and economics are important areas of research consideration for transboundary basins, even for exclusively national basins in federated states where provinces have jurisdictions over water, and not the central government (for example, India).

The Panel recommends that the politics, law and economics of transboundary basin issues be research areas that are more vigorously pursued in the CPWF.

Selection of specific Benchmark Basins – The criteria used to select the Benchmark Basins (for example, why was the Mekong selected and not the Salween, or the Sao Francisco, but not the La Plata?) were simply too broad and general. Consequently, the research comparative advantages of the river basins selected over the ones that were not selected in the various regions are difficult to assess.

Number of Benchmark Basins selected – The framework analysis used to select the nine Benchmark Basins was not sufficiently rigorous. Accordingly, it would not be difficult to use the same criteria, and select more river basins in the developing world. In other words, the selection criteria were overtly inclusive, rather than exclusive. Very few major river basins would have been excluded by the use of the criteria used for selecting the basins.

In retrospect, it would have been more useful to start the CPWF programme with a serious framework analysis, including formulation of more specific criteria, to decide:

1. whether the "Benchmark Basin" concept was the best in terms of subject-matter issues for research, and for delineating the geographical areas within which research projects were to be organized; and
2. if following such an analysis, and if the Benchmark Basins approach was considered to be the best one, which specific river basins, and also how many, should have been selected to ensure that the CPWF objectives could have been achieved in a timely and cost-effective manner. It would have been desirable to consider very specifically the advantages, disadvantages and constraints of focusing research projects in very large basins that are shared by five or more countries.

Another fundamental question the Panel that remains unanswered is the logic of considering the specific Benchmark Basins, especially as the projects selected thus far, with the exception of the basin focal projects and some four to five others, do not consider the basins as a whole. Projects were considered for approval as long as they were located within these basins. In other words, prima facie, it appears that the basins simply limit the geographical areas within which most projects must be located. Accordingly, the approach in most projects is not a holistic or integrated one in terms of how best to manage the land, water and biotic resources specifically within even the sub-basins of the nine selected basins for alleviating poverty and hunger, or for environmental conservation. The exceptions are the basin focal projects, initiated in 2006 to respond to the challenge of taking an integrated view. This means that other forms of geographical delineations would have been equally appropriate. This makes the tasks of the basin coordinators very difficult. In retrospect, its may have been advisable to start with a basin focus, and carry out Basin Focal Projects first. This may have produced better coherence amongst projects.

It should, however, be noted that because of the sheer scales of some of the Benchmark Basins selected, and their transboundary nature, it will be simply impossible to consider them, in an integrated fashion. In addition, based on past and recent experiences, it is highly unlikely that treaties between all the co-basin countries of the rivers like the Ganges, Limpopo, Mekong or Nile, could be signed in terms of water allocation *before* the currently stipulated expiry date of the CPWF in 2018. In the absence of treaties, water management in such basins becomes a very difficult task, which further raises the issues of their selection.

Since the CPWF is now under way, and the first project set is a *fait accompli* in terms of the nine Benchmark Basins, the most practical recommendation could be to prioritise the appropriateness of the nine Benchmark Basins and specific project activities in terms of certain performance indicators and requirements. Given the breadth of the CPWF objectives and the criteria used for selecting the Benchmark Basins, it is difficult to bring specificity to the selection of basins and then projects.

The CPWF, however, has a key comparative advantage vis-à-vis other internationally-supported research activities for selecting these basins. Because of the political constraints, sensitivities and technical and managerial complexities, donors have mostly shied away from supporting research and development activities in some of the transboundary Benchmark Basins like the Ganges, where no treaty exists, especially in terms of water management. The support of the CPWF may enhance the research facilities and capabilities of national researchers and institutions, and also produce results which may go a considerable way to meeting the CPWF goals. However, very similar results could have been obtained by the selection of more appropriate and selective geographical delineations.

The two projects visited by the Chair of the Review Panel in the Ganges basin (reclamation of sodic soil for improved agricultural production near Lucknow, and management of fisheries in tropical reservoirs near Bhopal) are highly likely to contribute to the fulfilment of the CPWF objectives in terms of poverty and hunger alleviation at the local level, and environmental conservation. These likely positive developments would not have happened without the CPWF support. Equally,

however, very similar projects could have been conceived outside the Indo-Gangetic "basin", or within a much smaller area of the Ganges basin. In all probability, this may have produced at the very least similar results, and possibly better. Thus, the advantages of selecting Indo-Gangetic basins are not very clear to the Panel.

The Review Panel recommends a critical re-assessment of the Benchmark Basin concept, taking into account the evolving experience of the basin focal projects, as well as the current choice of the Benchmark Basins and with the assistance of experts external to the Programme Consortium. The Panel suggests a re-evaluation of how to work best within the basins. The new concept should mainly guide future project selection, but should allow for value creation from the current project portfolio. It may not be too late to do a basin analysis to better tie the projects together and identify priority areas of research which are likely to support achievements of the CPWF objectives the best. This, ideally, should have been carried out at the beginning of the Programme.

3. Programme Effectiveness

3.1. Knowledge Generation

Over its life-period, the aim of the CPWF is to generate considerable new knowledge. The expectation is that this knowledge will be used to improve the lifestyle of people in developing countries and also maintain, or improve, the overall environmental quality.

In order to ensure that the level and quality of knowledge generated that is being generated are scientifically sound, usable and most appropriate for the nine basins, many factors need to be considered. This will include consideration of several inter-related steps, among which are following.

Project identification and selection process – The CPWF considers both commissioned and competitive projects. For both types of projects, it is essential that an appropriate framework for R&D is available, within which specific projects can be selected through a competitive process or by commission. The project selection process must be carefully structured and equally must be transparent for optimal results and acceptance.

The rationale behind the selection of the nine Benchmark Basins was questioned in some detail earlier. *Prima facie*, it appears that some prioritisation might have been useful in terms of the basins selected through the developments of specific criteria. If any new basins are to be added, there should be some very good rationale for their inclusion.

In the view of the Panel, the framework used for the first call can be considered to be too broad, especially considering the plethora of issues associated with the nine Benchmark Basins. The framework for the second call shows some tightening of the focus, but more focusing and integration is still required.

In both the first and the second call, one area that received limited attention is how the water and land resources of an entire basin can be managed so that the total productivity can be maximized, and poverty and hunger alleviation can be maximized. Since several of the basins are transboundary in nature, national and international institutions have mostly shied away from this type of research that covers the entire basin. Such projects may contribute to the development of water allocation treaties on specific rivers where they do not exist at present. It could also then be a unique component of the CPWF Programme, which neither the CG Centres nor the NARES could undertake individually. It is also highly unlikely that this type of research on holistic management of major basins can be done through a competitive research grant process. If this is considered to be an important research area, the CPWF, in all probability, will have to develop such a project proactively with appropriate institutions, following discussions with the co-basin countries.

The Panel finds that the CPWF has taken into consideration the analyses and the results of the Comprehensive Assessment of Water Management in Agriculture in its work programme and activities in an appropriate manner.

In this context, the Panel believes that had an independent scientific advisory panel, as proposed later in this report, been in existence, it may have proved to be very useful in terms of identifying future research directions. It could have measurably helped in terms of focusing and prioritising the various research activities; it could have also identified properly new areas of research on future water-food related problems which are now receiving inadequate attention; and it could have also enhanced the probability of reaching more closely defined goals and objectives of the programme by considering emerging water-food related problems, rather than focusing exclusively on the problems of the past and the present.

The Panel is concerned that sufficient awareness of the existence of CPWF funding amongst the international agricultural or water research community did not exist for the first call or second call. This means that the number of proposal that the CPWF received for the first call, and is likely to receive for the second call, has and will be inadequate. Furthermore, since the programme covers water *and* food, it is essential that an effort is made to familiarise both the food and water research communities of the existence of CPWF, including its activities, types of support it provides as well as outputs of research from existing projects. Such an effort is likely to produce at least two important results. First, the programme will have a much larger pool of proposals from which the best can be selected. Second, the research using community will become more aware of the programme, as a result of which they may be able to use and/or implement some of the results that are, or will be, coming out from the various CPWF projects in the years to come.

The issue of the reviewers used for the selection of the projects is discussed later in this report. The Panel believes that this aspect needs to be revisited and that it needs to be further strengthened in the future.

The consideration of the papers put forward by the CPWF for review by the Panel (see Annex 5) also makes clear the difficulties associated with classifying projects into themes. For example, the distinction between Themes 1 and 2 is not very clear. Theme 5 cuts across all themes given its policy focus. Discussions on environmental flows may be more appropriate in Theme 3 rather than Theme 5. To ensure strong integration across projects, it may be advisable to reconsider the thematic structure of the Programme, as the panel understands is being done in identifying cross-theme topics for Phase 2.

This point is further exemplified by the inclusion of PN38 “Safeguarding Public Health Concerns, Livelihoods and Productivity in Wastewater Irrigated Urban and Peri-Urban Vegetable Farming in Ghana” in Theme 4. In the 2007 IWMI EPMR, the relevance of the analysis of health impacts from peri-urban irrigation using waste water was questioned as an appropriate theme. The recommendation was made that the research area should be integrated into a more general water, environment and health theme. The same concerns are expressed here regarding this project. First, there appears to be little by way of catchment integration interest in the project so its position in Theme 4 is curious. Second, the project’s relevance to the wider CGIAR

interests is questioned. Finally, the project provides an example of how what was an essentially IWMI field of interest has been folded into the CPWF to enable a continuation of the research.

Climate change is the focus of some CPWF research projects. This is not surprising given the extent of scientific and donor interest in this topic. However throughout the Programme, climate change is perceived as deleterious, with measures to address it needing to be researched. While seldom recognized, it is also the case that there may be advantages arising from climate change. These need to be considered in terms of how societies may be able to take full advantage of them. There is also a danger in the approach taken by the Programme that research effort is dedicated to specific and certain climate change adaptation or avoidance measures when the issue remains stochastic. A more appropriate research framework is one that incorporates risks and uncertainties that arise from the prospect of climatic variability. The risk of future climate change should not be taken as a rationale for diverting the Programme's focus away from the core research objective of alleviating current poverty under prevailing climatic conditions.

Some of the concerns relating to thematic issues in the CPWF are exemplified in projects focusing on the Mekong River Basin that was visited by one of the Panel Members.

First a number of the projects were found to have such strong links with their 'parent' CG Centre that it was difficult to determine what made them different from Centre based projects. For instance, PN 7, PN11 and PN 16 are all IRRI based projects that have rice breeding at their cores and have well established IRRI antecedents. That is not to question these projects' merits but rather to question the impact of CP funding as opposed to the operation of the CG Centres in a 'business as usual' setting. This is an important facet of project and programme evaluation. One point of difference between these CP funded projects and their 'parent' projects is that they involve more extension activities and a greater spread of applications across the Benchmark Basins to show the applicability of fundamental results. While this is no doubt a valuable contribution, it is more of an extension contribution than an IPG research contribution and needs to be assessed in that light from the CGIAR perspective.

Second, a focus on outcomes was found to be lacking in a number of the projects. For example, PN25 that deals with agent based modelling as a resource use planning tool has been demonstrated as applicable in the Mekong context but the project lacks, at least to date, a context for application and a strategy for adoption. Put simply, the outcomes of the research are not well defined and so are difficult to judge. Similarly PN16, the project that looks into a System of Temperate and Tropical Aerobic Rice (STAR), has so concentrated on achieving water productivity improvements that the project result's applicability in varying farming systems has been neglected. This is particularly true in terms of STAR's financial performance relative to traditional aerobic crops. Furthermore, the consequences of large scale adoption have not been integrated into the research project, as would be expected in a Programme where such basin wide impacts are key in the objective statements. Again, this is not to question the merits of the project but rather to call for the focus of the research effort to take on a more outcome orientated approach.

Following on from this concern regarding an outcome focus is the concentration of projects on water productivity, often ignoring the impacts on production that are provided by other inputs such as manufactured capital, labour and social capital. This is true particularly of the small grant projects SG502 and SG504. Both of the projects focus on water productivity as the outcome rather than human well being objectives such as farm livelihood and environmental improvements. Quick checks on financial viability of capital and labour investments into water saving devices and practices can simply resolve issues created by this type of mis-focus and also aids in the assessment of likely rates of adoption. Such questions must be answered for adoption to be contemplated.

The fourth concern relates to the missed opportunities associated with projects being carried out within a Basin that could be enjoyed through integration. For instance, the basin wide impacts of the rice breeding efforts displayed in the IRRI based projects could well be a project in itself. Such a project would take an IRRI based project into the realm of IWMI with the prospect of innovative techniques and policy outcomes as envisaged by the CPWF. These opportunities are now being investigated by the Basin Coordinators but their realization may be problematic in terms of funding availability with Phase 2 projects not being selected with strong inputs from Basin Coordinators' or Theme Leaders' inputs.

Finally it is important to note that the research methods developed by some projects do not appear to have been subjected to rigorous assessment. For instance, PN50 (Multi Scale Mekong Water Governance) gives some impression of being an advocacy project rather than an analysis project. Participatory decision making involving networks is taken *a priori* by the research team as being 'good' and the project then sets about to establish this style of governance. The research process of establishing hypotheses from theory and then testing those hypotheses in the specifics of the prevailing context has not been followed. The consequential danger is that the research 'findings' will be rejected by policy makers with vested interests that are counter to participatory action because of their subjectivity.

One element of relevant research that does not achieve appropriate prominence in the CPWF portfolio is environmental and social value estimation. While Theme 3 gives recognition to the importance of the estimation of such non-marketed values, it is not apparent that any projects within the theme are addressing the issue. None of the other themes give the issue a mention. This appears incongruous to the Panel given that all the themes have a keen need for the estimation of all the values arising from alternative water management strategies, both marketed and non-marketed. This is particularly the case in Themes 2, 4 and 5 where there is potential for the exploration of various trade-offs that are integral to water management at the broader geographic scale. To analyse these trade-offs, particularly as they inform the selection of policy initiatives that will improve social well-being defined at its broadest, all the benefits and costs of the available alternatives require estimation. The process of estimation is also key to the development of project/programme evaluation processes. If research projects include components that focus on the estimation of values arising from their results being adopted, then the task of evaluating the research work's performance is also simplified.

The Panel recommends that the CPWF take steps to integrate environmental and social valuation exercises into projects in order to deepen their analytical component and to facilitate their ex post evaluation.

The Panel found that the research outputs nominated by the CPWF for review are not consistently of a high overall scientific standard. The publications are largely descriptive, rather than analytical. They will be of some use for policy-makers and development professionals, but need to be complemented by high quality analytical research publications demonstrating strong international public good outcomes. Part of the reason for this lack of analytical depth is the breadth of the objectives set for the Programme. This conclusion is however moderated by the caveat that most projects remain incomplete. Given that the Programme is still early in its projected life cycle, and assuming that the changes recommended by the Panel are carried out in a timely manner, the overall impacts can still be high, not only during its life-time, but equally well after the Programme is over. This is because application and spread of knowledge takes time, and there will be a time lag between the availability of knowledge, its application and then flow-through to impacts on the quality of life of the people and the environment.

The Panel did not have enough time to judge the linkages between what each individual project planned to do, types of outputs each is expected to deliver, and the financial resources that are being provided. Despite the difficult negotiation by the CPWF secretariat of cuts, in the first call selected projects, of between 5 and 40% of the budget originally requested, it appears in a few cases that the funding provided may have been somewhat generous. In other words, for some projects at least, it appears that similar products may have been obtained at a more economic level of funding. This is an issue that is worth considering very specifically during the project selection process under the second call. If it was not the practice for the first call, the reviewers should be asked to give their views on the appropriateness of funding commensurate to what each project plans to do and achieve.

3.2. Knowledge Synthesis

Since the CPWF covers a wide spectrum of activities spread over nine basins, it is essential that the scientific knowledge and the management experiences that are being generated are synthesized objectively, critically and comprehensively. Accordingly, it is essential that the results of the CPWF projects be synthesized in a variety of ways so that the potential users of their results get some idea of their coverage, relevance and usefulness. In order to achieve this objective, it will be desirable to prepare a series of synthesis documents targeted to specific type of users. It has been the practice of the CPWF to produce an annual synthesis report. This is a good beginning and the Panel considers it to be quite appropriate and adequate for the early part of the programme. However, much more needs to be done in the coming years since the research results that will be produced are likely to increase exponentially.

The current process used to prepare the annual synthesis report is a passive exercise that is based on the analyses of the progress reports that are received from various projects. The Panel understands that this is supplemented by first-hand information from Theme Leader visits to projects. They often do not reflect on the real situations

in terms of the research results that have come out or likely to come out, or the types of constraints faced and how they are overcome. For example, before visiting the two projects in the Indo-Gangetic basin, all the progress reports received from the projects were carefully analysed by the Panel Chair. The progress reports were found to be somewhat bland and contained minimum necessary scientific information and results. They neither gave a clear picture of the progress that is being made under the project, nor the constraints faced. On the basis of the progress reports that were reviewed for these two projects, a fair conclusion had to be that these two were average projects, or even slightly below average, which are unlikely to produce significant scientific and implementable results.

However, the Indian field visits resulted in a diametrically opposite conclusion: the projects appear to be on course to produce very good results which should directly contribute to the achievement of most of the CPWF goals. There are, of course, some constraints which need to be overcome, but these are not scientific or financial, but primarily of institutional type. For example, for the fisheries management project in a tropical reservoir, a main constraint for its success is likely to be the quantity of water available in the reservoir. The reservoir level needs to be higher to optimise fish production. However, the project is being handled by agricultural officials (fisheries management in India is vested with the Agricultural Department, who have no say on water quantity-related issues in the reservoirs, which are under the exclusive jurisdiction of the state Irrigation Department). Up to the time of this field visit, the project authorities had no interactions with the Irrigation Ministry responsible for water management. A quick telephone call indicated that the senior officials of the Irrigation Ministry were not even aware of the project. Again, it appears that the water professionals have not been associated with the project, even though their cooperation is essential for the success of the project. The relative absence of water institutions and water professionals in many of the CPWF activities, an issue raised elsewhere in this report, could very well be a generic problem of this Programme. This aspect requires a specific analysis.

An intensive interaction with the local fishers indicated that even though the project is comparatively new, their lives have already been positively impacted upon, and they are excited by the results of the project, which may improve their living standards dramatically. The project officials are confident that if the water issue can be resolved, the fish yield from the reservoirs can be increased by a factor of four on a sustainable basis.

However, an analysis of the progress reports indicates that neither its potential for success nor the constraints faced are noted. Since the CPWF annual synthesis document depends on the progress reports received from the projects, and if such information is not included, none of these developments can be reported in the annual synthesis document. Consequently, the document is unlikely to be as interesting and informative as it could have been. When enquired as to why the progress reports submitted to CPWF were so bland and perfunctory, it appears that the project considers these reports more as administrative requirements, which main purpose was to ensure regular flow of funds from the CPWF. It appears that not much serious effort is usually being made by not only this project, but also others, to make these reports informative and cover substantive issues.

The visit to sodic soil reclamation projects generated very similar results. The progress reports were equally bland and unexciting, but the project outputs thus far are exactly the reverse, especially in terms of the impacts on the incomes of the farmers around it.

Since the annual synthesis report is prepared on the basis of the reviews of the progress reports received from the projects, the synthesis simply cannot reflect the real progress and results from the different projects. In all probability, the real overall results and outputs from the CPWF projects are more interesting, as well as perhaps more substantive, than indicated in the annual synthesis reports.

The Panel recommends that the CPWF develop a proactive process, instead of the current passive process, to prepare its future synthesis reports.

Synthesis reports produced through a more dynamic and interactive process are likely to produce a more accurate picture of progress, and also do justice to the results of efforts made under the CPWF. Such reports are likely to attract much wider readership than what it is at present and thus ensure wider dissemination of knowledge.

An annual synthesis report can be considered to be adequate and appropriate during the early phase of the programme since the projects thus far were in the inception phase, and then in the early stages of implementation. However, many projects have now started to produce significant results.

The Panel recommends that consideration should be given to produce a series of synthesis reports for specifically targeted issues and audience.

These could be a synthesis of the results in many areas, for example, in terms of specific basins, and/or theme-wise synthesis across basins, including successes, constraints, outputs and impacts. This aspect needs further consideration from the CPWF management. It will also mean that adequate resources need to be earmarked for these types of activities.

Assuming such targeted synthesis reports could be produced, they can further be efficiently used as one form of south-south knowledge and experience transfer, and, also, for building proper capacities in the appropriate institutions. They can also go a long way to show to the donors the positive results and impacts of their support in terms of achieving the goals and objectives of the CPWF, which, in turn, can facilitate longer-term funding support from the donors.

3.3. Knowledge Dissemination and Application: Uptake of CPWF Results

Because of the very special nature of the CPWF, the uptake of the outputs resulting from its activities would be by several groups of stakeholders, the most important of which are likely to be the following:

- scientific community dealing with water and/or food related issues;

- development community interested in poverty and hunger alleviation and environmental conservation;
- policy-makers at different levels who would not only be interested in the results but also would be responsible for implementing them so that the CPWF objectives could be realised in the real world;
- grassroot stakeholders whose adoption of the results would improve their standard of living and quality of life; and
- international donor community.

Up to now, the CPWF Management Team has been primarily engaged in starting the programme and getting the various projects operational. Many of the projects have already started to produce results which could be used by the different categories of "clients" noted above. Based on the few CPWF projects visited by the members of the Review Panel, it appears likely that the cumulative outputs of its projects in all probability will increase exponentially in the coming months and years. Accordingly, a main challenge facing the Management Team is how best to develop an appropriate strategy which would include, inter alia,

- identify the important, usable and interesting results that are coming out from various projects;
- assist and advise the project leaders as to what may be the best alternatives to get the right information in appropriate detail and relevant language to the attention of the potential users of that information, including scaling of information depending upon the requirements of the potential users;
- assess the potential replicability of the results within other parts of the region where they were obtained, as well as outside the region;
- encourage the project leaders to document the enabling environment within which the results were successfully developed and applied, including the constraints faced and how they were overcome; and
- consider the necessity of language translation, especially for the grassroot stakeholders in appropriate levels of detail so that the information can be readily assimilated by the users, and then, hopefully, applied to improve their living standards; and also consider how practical information can be transferred to other farmers and fishers, many of whom are illiterate.

The Panel did not have time to review a critical mass of project documents to check that appropriate adoption of pathways and requisite funding are already earmarked for dissemination and uptake of results. If this is not the case, appropriate remedial actions should be taken for the current ongoing projects, and this be made mandatory for all new projects. The CPWF management may also require allocating resources to make this possible.

It is likely that the easiest group to reach may be the scientists, since the project leaders generally have mostly good scientific backgrounds, and the medium for the transfer of knowledge among the scientists is comparatively straightforward and well-established. These could be through national and/or international peer-reviewed journals, books and presentations at different scientific and policy-oriented conferences. If the quality of the outputs is good, their extensive scientific dissemination should not be a problem.

To a certain extent, the development community can be reached through publications as well. However, the journals and books that water and/or food professionals generally read, consult, or have access to, are not necessarily the same that are used by the development community. In addition, the levels of detail that are needed, as well as the depths of analyses required, may not be the same for the water and the food scientists and the development professionals. Thus, scaling of information will require considerable attention if the appropriate professions are to be reached, and the uptake of the results are important requirements. In other words, the delivery channels for water, food or development professionals are not necessarily identical. In addition, a major constraint for all professionals is time. Thus, if the "language" of the publications is not appropriate for the target group of people, the chances of attracting the attention of the right professionals will decline steadily, and thus the uptake of the results.

For the policy-makers, the approaches have to be different, and getting their attention is not an easy task, and is becoming more and more difficult with the passage of time. And yet, if the implementation of the results is an important consideration, as is the case for the CPWF, it may consider two alternatives. First, in order to get the attention of the policy-makers, one must have regular access to them. A personal meeting with a policy-maker, during which how the results of a project can be used to improve the situation for which he/she is responsible for, can be discussed, has a far greater chance that the results will be used, compared to sending them a two to four page note, which generally may not go beyond their assistants. In addition, if the solutions become part of the national or regional policy, their implementation, and thus their impacts, are likely to be widespread and may be felt quicker than otherwise may have been possible. Thus, reaching the policy-makers has to be an important consideration for the project leaders. This may not be easy, but nevertheless it is a task that must be successfully accomplished if the goals and objectives of the programme are to be reached.

Second, if the CPWF or the project leaders do not have such high level access to policy-makers (in all probability this may be the case for majority of the projects), an alternative strategy could be to go through intermediaries who already have access. This will require that the CPWF will have to build up a network of influential "friends" who can present the results to the policy makers clearly and objectively, in the right language and with the right information context.

In addition, knowledge dissemination and application could be an important role for the NARES and appropriate national water institutions to play. By actively engaging the NARES and the water institutions in the knowledge dissemination and application processes, the CPWF can further ensure that its activities are more closely focused on the development of international public good research outcomes. Hence, the partnership agreements struck in the formation of a CPWF project should specify clearly the obligations of the NARES and appropriate water-related institutions to engage in the extension phase of the research process. They should also present the research results within the context of a larger perspective.

This strategy is consistent with the Science Council's stipulation that CG Centres and Challenge Programmes concentrate on research that delivers IPGs and partner with NARES and NGOs to deliver the application of research results to specific

applications. This could include encouraging partner NARES to take prime responsibility for publishing applied findings in regional and national journals and even more targeted outlets such as newspapers and magazines.

The Panel recommends that the CPWF builds into its partnership agreements the requirement for the national institutions to engage in application of research results to development.

The Panel recommends that the CPWF builds a network of influential friends in a formal way.

There are two major groups of policy-makers who have to be very specifically targeted for the implementation of the CPWF project results: those dealing with water and those dealing with food and agriculture. In almost all the countries associated with the nine Benchmark Basins, very different groups of policy-makers deal with these two issues, and the relationships between these two groups are often not the most cordial. Accordingly, both of these groups need to be very specifically targeted. NARES from both sectors may be required as research partners in order to overcome the 'silo-mentality' of isolationism that can be problematic in government agencies.

Based on the investigations of Indo-Gangetic and the Sao Francisco Benchmark Basins, it is evident that many of the senior agricultural officials are aware of the CPWF projects. However, the senior-most officials of the Ministry of Water Resources of the Government of India (including its Minister) and the National Water Authority (ANA) of Brazil, have either no knowledge, or limited knowledge, of the CPWF projects in their respective countries. There simply have not been perceptible and regular interactions between the groups responsible for the CPWF projects in these two countries, with their main water institutions and counterparts, who in the final analysis will have to implement many of the results. If the present situation continues, the probabilities that the Water Ministries will give the requisite push to have the results implemented are unlikely to be high.

The Review Panel naturally cannot generalise the situation in all the nine Benchmark Basins based on information from only two cases. However, it is highly likely that the situation may be somewhat similar in the other seven basins. This needs to be confirmed. However, since the initial projects are now mostly around mid-stage, the situation can be improved significantly by strong efforts from the relevant parties. It is not too late to rectify these problems, if a determined effort is made immediately. It this is not done, the uptake of the water institutions, *after* the projects are completed, is likely to be low. This needs immediate attention of the CPWF Management Team and Project Leaders but especially the Basin Coordinators.

A very different type of approach will be needed to increase the probability of uptake by grassroot stakeholders. In the two projects in the Indo-Gangetic "basin" that were visited by the Panel Chair, the interactions with these stakeholders, who are mostly illiterate farmers and fishers, had to be carried out exclusively in the local language. Since the Chair was able to communicate freely in the same language, the interest and the enthusiasm of the stakeholders were found to be infectious. This feeling and personal assessment would not have possible through the use of interpreters. The only complaint received centred on the fact the progress was not fast enough for them, and

that benefits were not spreading beyond the villages around the project. Thus, the appropriate language of communication is essential with the grassroots´ stakeholders, for whom written or printed communications would most likely be of limited value. Therefore, proper and appropriate means have to be devised to communicate the results to such stakeholders, which often may have to be project specific.

The Review Panel recommends that attention be given to assisting the NARES partners in the formulation and implementation of an overall uptake strategy.

This strategy may have to be tailored to specific basins, and sometimes may even to the specific projects for the mega-basins, to give them specificity and enhance the probability of implementation of the results. Even if the results of each project are scientifically of high calibre, without an uptake strategy and a sustained effort to implement them, the final impacts are likely to be sub-optimal. This will, of course, require a review of human resources (both in terms of expertise and time) available within the CPWF, and if necessary, additional resources should be made available.

It should be mentioned that during its interactions with the CPWF personnel, the Panel noted that they are very much aware of the importance of uptake of the project results, and they have already initiated several activities in this direction. However, these appear to be mostly discrete activities, which need to be integrated with an overall strategy, and then the strategy is to be implemented. The strategy must be practical, as opposed to theoretical or conceptual. It will require a sustained effort from the CPWF, especially as the projects are starting to produce results. As the Programme matures, there is likely to be exponential increase in scientific outputs which uptake will be essential for it to achieve its goals.

Needless to say, for these extra efforts, additional resources may be necessary. This needs to be carefully assessed. However, the issue of uptake has to be given high priority, backed by necessary resources. If the uptake process is not efficient, the main purpose of CPWF will be lost.

3.4. Assessment of Publications and Dissemination Strategy

Considering the “teething” troubles of formulating and implementing such a complex, large international programme, including its governance-related issues, and the fact that most of its first round of projects are more or less at the mid-term phase, it is not possible to draw definitive conclusions on what are likely to be the overall impacts over the lifetime of the programme. However, the Panel undertook a limited assessment of a selection of the outputs of the Programme in order to gain some insights into the quality of its knowledge generation process. The selection of outputs reviewed is drawn from Themes 2, 4 and 5. The outputs reviewed were nominated by the CPWF as being indicative of Theme outputs. It must be stressed that the Panel was not involved in this selection process and hence make no claim as to the representativeness of the nominated papers. Furthermore, the Panel fully recognizes that the CPWF is still in its ‘early days’ in terms of its ability to have papers published, especially when it is considered that some high-impact journals on water and food are taking extended periods to publish a paper post-submission. Equally, many of the projects are still at a stage when final outputs are yet to be produced.

Hence, the Panel acknowledges the difficulty of judging performance on the basis of published work. With these caveats, reviews of selected articles are provided in Annex 5.

The publications reviewed for this assessment are mostly descriptive. While for some projects this is indicative of their stage, even review papers can conclude with an examination of the relevance of the overview so conducted to the overall research goals. This element is absent in many of the papers reviewed. This will be of concern if the research work is unable to go to the next level of analysis. It raises serious doubts for the Panel in terms of the Programme's likely impact. The lack of analytical depth is consistent with concerns arising from the broad nature of the objectives set for the CPWF. This is an immediate issue that the Theme Leaders and Basin Coordinators should give special attention so that the Programme develops the necessary analytical power in its research efforts to deliver impacts.

A further general observation made from the assessment is that the CPWF management team should ensure that publications claimed to coming out under this Programme are indeed so. This is because, in many cases, the CPWF is not acknowledged as a funding source (even when other funding sources are mentioned). In others, CPWF funding is acknowledged for only a component of the results published. Some of the presentations at the Delhi workshop had only the IWMI logo, and *not* of the CPWF, even when IWMI was not the lead institution. At least, in a few cases, project teams appeared to be not fully familiar with the objectives, roles and general philosophy of CPWF activities, which may have contributed to this situation.

Much of this omission is probably inadvertent, since many international funding agencies now complain that publications resulting from their funding often are not being adequately acknowledged. The Panel believes this problem can be resolved if the CPWF makes it very clear to its partners that unless they acknowledge support to the CPWF, future funding will be in jeopardy. However, it the omission is deliberate by a few, two important issues may come up: ethics of disclosure by the researchers concerned and possible conflicts over intellectual property rights.

The Panel recommends that the CPWF should contact project leaders and make it clear that all the publications, power point presentations, media releases, signboards at the project sites, etc., must include appropriate acknowledgement of the CPWF.

When appropriate, the CPWF logo should also be used. The project teams must be made aware that CPWF is a Programme that uses funding to achieve its objectives, and not a general funding and support agency. Thus, proper acknowledgements should be made a mandatory condition for receiving CPWF support and it could be made an integral part of the contract between the CPWF and the institutions whose projects are supported. This condition should be strictly enforced.

This will significantly add to the establishment of the special identity, credibility and visibility of the CPWF at relatively low additional cost. It should be noted that the CPWF management team is now aware of this problem. However, steps should be taken to ensure that this situation does not continue from immediate effect.

Grey publications like Internal Working Papers, Research Reports and Work in Progress can be useful to get comments from the scientific and policy-making communities as to their quality and relevance. Some of these grey publications then lead to publications in peer-reviewed journals. However, as useful as they may be, these cannot be considered to be equivalent to peer-reviewed publications.

Some general observations regarding the journals in which CPWF outputs have thus far been published may be useful, beyond those nominated for review by the CPWF. Whilst the Panel had no time to carry out an in-depth analysis of the publications stemming out from the CPWF-activities – a task deemed to be inappropriate given the early stage of the Programme – it found that many of the journals in which CPWF findings are being published have low impact factors. For the Programme to increase its profile, visibility and credibility, the journals targeted for publications should be in the upper echelon of sources. This will also ensure that Programme outputs are international public goods. Furthermore, internal publications should not be viewed as appropriate publication targets.

The Panel considers that this feature of the CPWF publication process gives rise to concerns regarding the overall quality of the research being undertaken. This in turn causes concerns with respect to the level of impact likely to arise from the research effort. Recognition of the quality of outputs through peer review of resultant publications is a primary mechanism to ensure rigour, recognition, uptake and impact. This is especially true where papers are published in journals with an applications focus, such as *Water Resources Research* and *Land Economics*. Such journals have high Thompson ISI impact factors because of their regular use as sources for other work. This is a clear indication of the flow-on to other research work and hence the prospect of 'multiplied' impacts.

In addition, if the CPWF objectives are to be met, publications in development and policy-related areas have to be increased. Publications in high impact journals will be necessary but not sufficient. It will be important to publish the findings in national and regional journals and sometimes in languages other than English. For example, in the Indo-Gangetic Basin, journals like those of Indian Water Resources Society and Central Board of Irrigation and Power, are received by 20,000 to 25,000 members. *Economic and Political Weekly* has over 100,000 subscribers in India alone. While the impact factors of these journals are not known, their wide circulation in policy relevant communities ensure the effective communication of research results. The CPWF publication policy should specifically consider these type of issues, particularly in terms of encouraging partner NARES and NGOs to target these applied journals.

The Panel recommends that the CPWF establishes a publication strategy across all aspects of its activities to develop and encourage researchers to target high impact international scientific journals, as well as publications read by policy-makers, and in national or regional journals that are read extensively by water and food professionals. Publications in language other than English should be considered whenever necessary.

3.5. Capacity building

In the original CP proposal, capacity building was stipulated as an important goal, with the CPWF "playing a major role in building capacity for research in countries with severely restricted internal capacities.
At present, CPWF is approaching capacity building in three ways:

- advised minimum budget share for NAREs in funded research projects;
- requirement that research proposals include capacity-building plans; and
- assessment of capacity in projects during monitoring and evaluation.

The Programme has appointed a full-time capacity building officer to intensify its activities in this direction. Much of the capacity building is now taking place through workshops, courses, formal training, and exchange visits and scientists. From the information analysed, 163 students from 24 countries are now attending 44 different institutions of higher education.

The Panel believes these are steps in the right direction. However, capacity building should be reviewed in a wider context than what appears at present. Much of the focus thus far has been a building capacity of the project teams. A much wider perspective of capacity building will be desirable to enhance the added value of the Programme.

As more and more results come out from the various research activities, it will be desirable that these results are synthesized in terms of intercomparison of experiences from different basins on specific topics. These could be supplemented with an analysis of the replicability of the results in other parts of the same basin and also other basins, both within and outside the CPWF. These authoritative syntheses of research results in specific subject matter areas can then be used for building up of the knowledge base and capacity of professionals in water and food sectors all over the developing world.

The Panel recommends that this aspect be integrated effectively into the CPWF's overall capacity building strategy.

This may require some additional resources, but the Panel believes that this additional step can significantly add to the overall cost-effectiveness of the Programme.

3.6. Evaluation

In 2004, a detailed concept for a CPWF monitoring and evaluation system was developed by the management, with assistance of an external consultant. This was adopted during the 4th CSC meeting in March 2004. The concept was based on monitoring and evaluation at three levels inside the CPWF:

- On a project level, monitoring on the basis of the managing centre's requirements are described, relying on technical performance and uptake verification by Theme Leaders and Basin Coordinators and concrete milestone plans for each project.

- Process (or programme management) level monitoring is intended to measure and track the performance of the CPWF management and the secretariat, including the planning and contracting of research and in terms of inducing institutional change, based on a series of indicators proposed in the same document.
- On a programme level, the evaluation of overall CPWF impact, both through adoption of CPWF research results and through "a new system of water and food research" is proposed based on a draft programme-level logframe, including proposed indicators on all levels of the causal chain (activities to impacts).

On all three levels, external reviews were proposed. On the programme level, these reviews should also be independent in the sense that the reviewers should ideally come from outside the CGIAR system.

This concept has largely given rise to the current CPWF monitoring system that has been described in the management section of this review. It has also provided an outline of how programme-level ex-ante evaluation and ex-post impact assessments could be organized.

The tools and processes ex-ante evaluation and ex-post impact evaluation in use by the CPWF are discussed and assessed next.

3.6.1. Ex-ante Evaluation

The CPWF is using and developing three ex-ante evaluation tools. This work is financed as a separate project within the Basin Focal Projects: the Impact Assessment Project.

At the project level, *impact pathways*, i.e. causal pathways connecting intended project outcomes and impacts with the projects activities, are constructed with interested project teams in the initial project phases. In addition to the impact pathways, a network analysis is done to graphically depict the current and future institutional network.

The *extrapolation domain analysis* aims at globally identifying regions that share relevant boundary conditions (socio-economic, institutional and agro-ecological) in order to determine the regional scale to which outcomes and impact of single CPWF projects can potentially be scaled up.

Through *scenario analysis* the change of relevant conditions on an entire basin are extrapolated over time.

The Review Panel has not assessed the quality of project level impact pathways generated under the Impact Assessment Project. It finds nevertheless that, in principle, the approach can be useful since it allows to detect project design weaknesses and focuses attention on the activities and boundary conditions necessary to achieve the intended outcomes and impacts.

As discussed in more detail in the section on programme strategy, the Panel also suggests to complement the present approach that is entirely based on outcomes or impacts by an ex-ante cost benefit analysis that will allow to determine (within the uncertainties based on model assumptions) whether the project investment will deliver net benefits to society.

The Panel also finds that the extrapolation domain and the scenario analysis potentially useful. In both cases, however, the results will not yield benefits, if not used as basis for further research or implementation. This aspect needs further scrutiny and attention.

The proposal for a monitoring and evaluation system presented by the CPWF Secretariat in 2004 contained another ex-ante component, an ex-ante assessment of the overall programme impact. It followed a top-down approach, starting with the overall programme vision, its quantifiable goals, and assessing what levels of overall impacts are likely to be achieved during the first programme phase and during the programme lifetime.

The Panel strongly agrees with the need for such an assessment and finds that the CPWF presently lacks a realistic assessment and understanding of its potential impacts and the needed approach. This can be partly tracked back to the original programme objectives that are examined in detail below.

The original proposal defines the programme objectives as follows:

> ***Development objective:*** *To increase the productivity of water for food and livelihoods, in a manner that is environmentally sustainable and socially acceptable.*
>
> ***Intermediate objective:*** *To maintain the level of global diversions of water to agriculture at the level of the year 2000, while increasing food production, to achieve internationally adopted targets for decreasing malnourishment and rural poverty by the year 2015, particularly in rural and peri-urban areas in Benchmark Basins with low average incomes and high physical, economic or environmental water scarcity or water stress, with a specific focus on low-income groups within these areas.*
>
> *The* ***immediate objectives*** *of the CP Water and Food:*
>
> *1. Food security for all at household level.*
> *2. Poverty alleviation, through increased sustainable livelihoods in rural and peri-urban areas.*
> *3. Improved health, through better nutrition, lower agriculture-related pollution and reduced water-related diseases.*
> *4. Environmental security through improved water quality as well as the maintenance of water related ecosystem services, including biodiversity.*
> *These form the four key dimensions in which progress towards the overall goal is measured.*

The Panel finds that, while confusing in terms of terminology[2], these statements seem visionary rather than objectives against which programme success can be measured.

In the above statements, an intended global impact of the CPWF on food security, poverty, health and environment is stated and global levels of water diversions to agriculture are to be kept at the level of 2000.

The surface covered by CPWF Benchmark Basins covers only a part of the global agricultural surface. Only a regional fraction within each CPWF basins is addressed – and is directly impacted – by projects in themes 1 to 3, because themes 4 and 5 address issues of basin-wide or global nature they are unlikely to create direct development impact. The original CPWF objectives are very ambitious and it is difficult to see how the CPWF can achieve them by itself, even if all its existing and proposed projects deliver more than what was initially expected. It should be noted that globally CPWF is a minor player, and it will be impossible for it to achieve the stipulated objectives. It can contribute towards these lofty objectives, but it cannot achieve them. Thus, the programme objectives need to be adjusted to what is realistically possible for such a limited and comparatively small programme.

Most interviews with CSC and CPWF management confirmed this assessment, while in some cases the above goals were taken literally.

In the Panel's view, it would be desirable to separate CPWF objectives into two classes.

On the one hand, there are programme objectives that can be reached primarily by the programme alone. Towards this set of objectives, CPWF acts in the role of an implementer, fully responsible for success, and a standard performance evaluation system can be implemented. These objectives require tight definition in order to facilitate the assessment process.

On the other hand, overall, visionary programme objectives can only be reached through considerable support of players external to the CPWF, on which CPWF has no say or control. Here the CPWF has an indirect role as facilitator and enabler, while the main contributions towards the visionary programme objectives will be made by others. The CPWF, at best, can act as a catalysts and facilitator in achieving these larger objectives.

According to the Panel's observations, the first set of objectives has remained largely undefined. These goals are, however, crucial for any programme success measurement. While, in the Panel's view, the CPWF cannot be held accountable for reaching the stipulated visionary objectives, it can be held accountable for reaching the first set of goals. These can, therefore be used for programme performance and success measurement, using appropriate techniques.

2 The statements termed „immediate objectives" represent the intended programme impact and as such are at the end of a causal impact chain and should rather be called "programme development impact". The statement termed "development objective" in fact is not related to development but rather represents an intermediate result that drives the intended programme impact. Finally, the statement termed "intermediate objective" represents indicators that measure programme outputs and impacts.

Programme performance towards the visionary objectives should be measured on the performance in reaching the first set of objectives and, additionally, through the performance of the CPWF while acting as facilitator and enabler.

It may be useful to consider using this approach as a basis for overall CPWF strategy development as well.

The Panel recommends that the CPWF establishes a new, realistic programme vision and mission statement, and a set of internal programme objectives that have a strong causal link with programme activities, i.e. the objectives can be reached primarily by the programme alone. Standard results chain models should be applied to link programme activities to these objectives. The degree to which these objectives can be reached should be used as one measure of success for the CPWF, e.g., based on a classical logframe approach.

The Panel recommends that the CPWF rearranges and adapts its current set of visionary objectives into a set of global development goals to which the CPWF aims to contribute. It should be made clear, e.g., by establishing causal chains linking the internal programme objectives to these overarching development goals, in what way additional CPWF activities facilitate or enable players external to the Challenge Programme to work towards these goals. Based on a clear description of these activities, a reliable indicator system should be developed to measure the programme performance in terms of facilitation and enabling.

3.6.2. Ex-post Evaluation

With one exception, the CPWF has not planned or begun any ex-post outcome or impact evaluation on the programme or project level in the past.

On a project level, an external project review is included as a voluntary option in project contracts. To the knowledge of the Panel, no such review has been initiated to date.

On a programme level, the CPWF management has been struggling (not unsurprisingly in the view of the Panel) with the complexities of achieving the visionary programme goals. It should be noted that the potentially small contribution the CPWF can make to these goals is nearly impossible to filter out against other (stronger) background effects.

The Review Panel strongly recommends that the CPWF focus attention and resources on ex-post evaluation at the project and programme level.

At a project level, ex-post reviews, if possible, performed by independent experts, should become a standard practice. A part of the project budget[3] should be reserved for these activities. For ongoing projects without such a budget component, additional

3 E.g. ranging from a few percent of the project budget for large projects in the order of magnitude of a million US$ to about 10% for smaller projects in the order of magnitude of 100.000 US$.

budget should be made available for this purpose. The Panel advises to include a pragmatic cost-benefit component into these evaluations.

The Panel recognizes that the majority of the CPWF research projects are still in progress and often at an early stage of development. Hence even against a revised set of objectives, their outputs and outcomes are yet to be finalized and clearly defined. This presents difficulties in the ex post evaluation of the projects given that the expected outcomes and hence benefits and costs of the research projects are not yet clearly defined. However, as the end of the research projects approaches, researchers develop a better idea of what is likely to be the outcomes.

It is critical that in the evaluation process, these outcomes are considered as changes that have been initiated by CPWF funding. This is the marginal analysis approach and must be applied. Put simply, it requires the ex post evaluation to consider benefits and costs with and without the CPWF. Importantly, this requires the evaluation to standardise the counter factual or do-nothing option. This is a challenging exercise especially because many of the CPWF projects have antecedents in their 'home' Centres. Hence, it will involve projecting the fate of research projects that had been running up to the time the CPWF commenced, had they not been successful in securing CPWF funding to keep going.

A number of projects had already been running for several years prior to their being funded under the CPWF. Claiming all the benefits associated with those projects against the costs of the CPWF investment would be an overstatement of the Programme's contribution. Similarly, some projects are receiving CPWF funding in addition to other funding sources. Caution needs to be applied there too in attributing benefits proportional to cost inputs.

It should also be noted that current efforts to develop impact pathways for projects is no substitute for cost benefit analysis that weighs up the investments made in projects against their expected benefits to society, as described in more detail in the section on programme strategy. This is a critical next step in the evaluation process and one that needs to be taken sooner rather than later if it is to be of use to research planning and future reviews of the Programme. Pathway analysis and the checking off of project goals and objectives are precursors to full social cost benefit analysis. They provide important information regarding the types of benefits and costs likely to be achieved and perhaps the probabilities associated with those benefits and costs arising. However, they do not provide quantification of the benefits and costs and without such quantification, the relative magnitudes of the benefits and costs and hence the return to society from the research investment cannot be assessed.

It is important to note that the pathway analysis of projects has only recently commenced. The implication from this is that project planning did not include this step. This indicates poor ex ante planning and assessment: not only are we yet to know how well projects are travelling down adoption pathways but without these pathways being defined ex ante, the chances of successful adoption are reduced because barriers along the pathways have not been defined and strategies to deal with them developed.

The estimation of costs and benefits associated with research initiatives is by no means straight forward. The exercise in itself is currently a research issue. As recommended earlier in this review, the CPWF should devote resources across the suite of existing and future projects to the task of researching the estimation of research benefits and costs. This is especially true of the types of benefits and costs that are particularly challenging in the context of water and food management – the non-marketed, social and environmental impacts of research. While some research on the suite of techniques designed to estimate these values has been carried out, it has primarily been in developing country contexts. A worthwhile contribution to natural resource and research management could be made if the CPWF was able to devote resources specifically to this area of research. While it is earmarked as an area of importance in Theme 3, a concerted effort across themes and in the research management precincts of the Programme would be advisable. Indeed because it is such a pervasive issue across the CG Centres, the Panel suggests that the Science Council evaluation unit commission specific research into social and environmental valuation.

Evaluating the existing suite of projects on an ex post basis will provide useful information for the planning of future research initiatives. The information ex post evaluations generate will prove to be valuable as inputs into ex ante evaluations of proposals for new research work. Put simply, lessons from past experience are invaluable as inputs into current decision making regarding the future.

At a programme level, the notion of measuring development impact of programme activities on a global level should be abandoned. Instead, a regular, standard ex-post evaluation for reaching internal programme goals (as defined above) should be implemented. This should be complemented by the assessment of the CPWF activities in enabling and facilitating development impact.

Recently, the CPWF has initiated a cost-benefit evaluation project as an extension of the Impact Assessment Project, aiming at determining economic quantities such as rate of return and payback time, for selected projects as well as at a basin level. While being generally in line with the above recommendations, the Panel is sceptical about the level of assumption that will be needed to achieve the stated project goals, e.g. in terms of estimating financial savings for donors through improved development investment decisions catalyzed by CPWF research. The Panel therefore suggests to re-examine the goals of this specific project in order to catalyze more tangible research results.

The Panel recommends the inclusion of an obligatory ex-post evaluation component, if possible through an external expert, as a standard requirement for projects. An appropriate portion of the project budget should be reserved for this purpose. This component should include a cost-benefit assessment.

The Panel recommends the abandonment of the notion to measure development impact of the CPWF on a global level. Instead, the CPWF should implement regular ex-post evaluations on reaching internal programme goals as defined above. This standard approach should be complemented by the assessment of the CPWF activities in enabling and facilitating development impact on the basis of its internal programme goals.

PART III:

GOVERNANCE, MANAGEMENT AND FINANCE ISSUES

4. Governance and Management of the CPWF

The CGIAR defines Challenge Programmes as follows (CGIAR website, visited on 28.07.2007):

> *A CGIAR Challenge Programme (CP) is a time-bound, independently-governed programme of high-impact research that targets the CGIAR goals in relation to complex issues of overwhelming global and/or regional significance, and requires partnerships among a wide range of institutions in order to deliver its products.*

Since Challenge Programmes have a finite lifetime, it seems reasonable to avoid heavy setup and close-down costs, e.g. related to the establishment of an independent legal entity and the build-up of administrative and back office capacity within the Challenge Programme. Instead, the present Challenge Programmes have opted for virtual organizations that outsource key operative functions such as human resources management (employment of programme staff), accounting, handling of funds, legal services (contracting), etc. to participating centres.

The structures and the compositions of the governance bodies vary widely between the existing Challenge Programmes, ranging from independent advisory boards to steering committees composed entirely of institutional representatives. In some cases, subcommittees, e.g. Executive Committees, exist. Functions and depths of involvement of the respective governance bodies range from active and detailed involvement in various programme aspects to strongly relying on the host centres for governance.

The governance and management setup will be discussed next, followed by a comprehensive analysis of the arrangements in place. Recommendations are presented at the end of a section or, if requiring additional context, at the end of this chapter.

4.1. Overall Governance and Management Setup

The CPWF is organized in a decentralized fashion as an unincorporated joint venture of 18 Consortium partners. Consortium members include the following:

- 5 research centres of the Consultative Group on International Agricultural Research (CGIAR Centres);
- 6 National Agricultural Research and Extension Systems (NARES) institutions;
- 1 River Basin Organization (RBO);
- 4 Advanced Research Institutes (ARIs);
- 2 international Non-Governmental Organizations (NGOs).

Under this arrangement, the CPWF is not a separate legal entity. Consortium members are individually liable for “their share” of the joint venture.

The Consortium has established a Consortium Steering Committee (CSC), consisting of one representative of each Consortium member. The CSC acts as the main governance body of the CPWF.

Each Consortium partner has certain responsibilities for the CPWF that are defined in the original programme proposal (presented at the CGIAR AGM in October 2002) and in the Joint Venture Agreement, signed between June 14 and July 12, 2002, by the 18 original Consortium members.

The International Water Management Institute (IWMI), as the lead centre, plays a central and pivotal role in the CPWF. It legally represents the Challenge Programme, manages programme funds, chairs the CSC and "negotiates, manages and administers the Challenge Programme" on behalf of the Consortium members.

The five CGIAR Centres (including IWMI) in the Consortium lead the corresponding CGIAR themes. These are shown in Table 1.

Table 1. Themes and leading centres

Theme number	**Theme name**	**Theme leading centre**
1	Crop water productivity improvement	IRRI
2	Water and people in catchments	CIAT
3	Aquatic ecosystems and fisheries	WorldFish
4	Integrated basin water management systems	IWMI
5	Global and national water and food systems	IFPRI

NARES and RBOs in the Consortium lead and coordinate the Challenge Programme work in the Benchmark Basins. Two Benchmark Basins are not represented in the Consortium but are listed in Table 2 here for the sake of completeness.

Table 2. Benchmark Basins and institutional information

Benchmark basin	**Institution name**	**Institution type**	**Consortium member?**
Andean System	CONDESAN	NARES	No
Indo-Gangetic	ICAR	NARES	Yes
Karkheh	AREO	NARES	Yes
Limpopo	ARC	NARES	Yes
Mekong	MRC	RBO	Yes
Nile	NWRC	NARES	Yes
Sao Francisco	EMBRAPA	NARES	Yes
Volta	CSIR	NARES	No
Yellow	YRCC	NARES	Yes

The Consortium further consists of ARIs and NGOs without affiliation to specific themes or Benchmark Basins with in the CPWF. This is shown in Table 3.

Table 3. ARIs and NGOs in CPWF

Name of institution	Type of institution
CSIRO	ARI
IRD	ARI
JIRCAS	ARI
UC-Davis	ARI
CARE	NGO
SEI	NGO

The governance and management of the CPWF will be analyzed next.

4.2. CPWF Governance

4.2.1. CSC Composition and Processes

The Consortium Steering Committee consists of one institutional representative of each Consortium member, mostly senior managers from those institutions. The CSC is chaired by the representative of IWMI. While CSC members are appointed as individuals by the Consortium members, representatives may replace these members at specific CSC meetings.

In 2003, an additional member, the Mekong River Commission (MRC), was added to the Consortium[4].

In 2006, the World Resources Institute (WRI) declared its intention to leave the Consortium, but, according to the Joint Venture Agreement, remained a member of the CSC for a year. In other words, it was a CSC member during its 6th meeting, in May 2006, but left the CSC shortly thereafter.

Attendance at the CSC meeting has been generally high. For example, all Consortium members were represented during the 1st and 3rd meetings. The lowest attendance could be observed during the 5th meeting with a 74% attendance rate, still above the quorum of 2/3 of all members needed for a CSC meeting to constitute a valid CSC meeting. Table 4 shows an overview of the attendance at various CSC meetings.

The CSC meeting frequency was originally 2 per year, as laid out in the Joint Venture Agreement. During its 4th meeting (March 2004), the CSC decided to revert to one in-person and one virtual meeting each year. This was complemented by additional virtual ad-hoc meetings as and when needed.

4 Addendum 1 to the Joint Venture Agreement.

Table 4. Record of attendances at first seven meetings (based on CSC meeting minutes[5])

		1	2	3	4	5	6	7
Consortium institution	**Type of institution**	**Nov-02**	**Jun 2003**	**Oct 2003**	**Mar 2004**	**Mar 2005**	**May 2006**	**Mar 2007**
CIAT, Colombia	CGIAR Centre	Pachico	Pachico	Pachico	Voss/Cook	Pachico	Pachico	Pachico
IFPRI, USA	CGIAR Centre	Rosegrant	von Braun	Meinzen-Dick	Meinzen-Dick		von Braun	Rosegrant
IRRI, Philippines	CGIAR Centre	Wang	Wang	Wang	Bennett	Wang	Wang	Bouman
IWMI, Sri Lanka	CGIAR Centre	Rijsberman	Rijsberman	Rijsberman	Rijsberman	Rijsberman	Rijsberman	Molden (phone)
WorldFish Centre, Malaysia	CGIAR Centre	Dugan	Dugan	Dugan	Dugan		Dugan	Dugan
ARC, South Africa	NARES	Louw	Molope	Molope	Molope	Molope	Molope	Molope
EMBRAPA, Brazil	NARES	Lopes	Barbosa	Barbosa	Barbosa	Barbosa	Barbosa	Cardoso
AREO, Iran	NARES	Ashrafi	Kesharvarz	Kesharvarz	Kesharvarz	Kesharvarz		
NWRC, Egypt	NARES	Mustafar	El-Kady	El- Gamal	El-Kady	El-Kady	El-Atfy	El-Atfy
ICAR, India	NARES	Sharma	Sharma/Samra	Samra	Samra		Samra	
YRCC, China	NARES	Xiaoyan		Xiaoyan		Xiaoyan	Xiaoyan	
MRC, Laos	IRBO	*(MRC was added in 2003)*		Geheb	Geheb	Geheb	Geheb	Hung
CSIRO, Australia	ARI	Chartres	Chartres	Chartres	Chartres	Chartres	Chartres	Kirby
IRD, France	ARI	Chasseriaux	Chasseriaux	Palmier	Palmier	Palmier	Palmier	Albergel/ Palmier
JIRCAS, Japan	ARI	Ito	Ito	Ito	Ito	Toriyama	Ito	Ito
UC Davies, USA	ARI	Wallender	Brown	Hill	Hill	Hill	Hill	Hill
CARE International, USA	International NGO	Kaul	Kaul	Kaul			Lochery	Lochery
SEI	International NGO	Huber-Lee	Huber-Lee	Huber-Lee	Huber-Lee	Rockstrom		
WRI	International NGO	Zurita	Revenga	Henninger	Henninger			(exited)
Total number of Consortium institutions		**18**	**18**	**19**	**19**	**19**	**19**	**18**
Members attending (representatives counted as well)		**18**	**17**	**19**	**17**	**14**	**16**	**14**
Attendance in percent		**100%**	**94%**	**100%**	**89%**	**74%**	**84%**	**78%**

This reduced meeting frequency, in addition to CSC membership rotation and the possibility to send representatives has led to the fact that in no case more than eight CSC members, and, in 2007, only three CSC members had personally attended three consecutive CSC meetings in a row. This may not have been a positive development

5 Draft minutes for the 7th CSC meeting.

since it may have reduced institutional memory in terms of discussions at CSC, continuity of discussions and the interlinkages between different meetings, as well as for specific subjects.

The CSC is clearly not gender-balanced. Only one current CSC member is a woman while 17 are men. [6]

Representations of developed and developing countries are reasonably balanced between ODA-receiving and other countries: 8 CSC members (44%) have a citizenship of an ODA-receiving country[7] and 11 (61%) are representing institutions headquartered in ODA-receiving countries.

The Joint Venture Agreement defines CSC voting arrangements through the following set of rules:

- two-thirds of CSC members need to be present in a meeting to constitute quorum;
- CSC decisions are taken by vote with a simple majority (if a vote is tied, the casting vote is with the Chair); and
- amendments to the Joint Venture Agreement requires approval by two-thirds of the CSC members present at a meeting.

In practice, however, CSC decision making has proved to be consensus based. Discussions normally continue, and solutions are adapted under the leadership of the CSC chair, when broad agreements are reached.

During its 4th meeting in March 2004, the CSC deliberated on the possibility of forming a smaller Executive Committee that could represent and act on behalf of the CSC in between its meetings. At that meeting, the suggestion to create such an Executive Committee was voted down. Instead, it was decided to hold the next CSC meeting as a virtual meeting. During the 5th meeting in March 2005, the CSC was undecided between having regular virtual meetings or forming an Executive Committee instead[8]. In the end, the idea of an Executive Committee was never implemented and the practice of virtual meetings was adopted. It must be noted however, that no virtual meeting guidelines or rules have been established by the CSC.

Virtual CSC meetings typically start with a proposal by the Chair or the CPWF Management Team which is commented upon by e-mails by the CSC members. If the responses received seem to indicate consensus, the Chair summarizes and asks for final comments, or approval. If no comments are received from CSC members after some time, their approval is taken for granted automatically.

6 It should be noted, however, that CPWF management has made good progress in achieving gender balance: 50% of the Management Team is female.
7 Based on the "OECD DAC list of ODA Recipients", effective from 2006 for reporting on flows in 2006 and 2007.
8 The first vote on the matter ended 8 (in favor of Executive Committee) to 5 (in favor of virtual meetings) but led to further discussion. A second vote ended 6 (in favor of Executive Committee) to 8 (in favor of virtual meetings)

Responsiveness of CSC members during virtual meetings has sometimes been low. In several cases, the number of CSC members that commented or indicated agreement or disagreement did not represent the necessary 2/3 quorum needed to constitute a valid CSC meeting.

The Review Panel does not share that the interpretation that unanswered e-mails can be taken as affirmative answers and, therefore, recommends that the voting policy for virtual CSC meetings be clarified, e.g., by requiring active answers from CSC members who wish to participate in that meeting, after an adequate period for commenting and adaptation of the proposal. In this way, a formal quorum, as well as valid voting, would be established.

The Review Panel recommends that the voting policy for virtual CSC meetings be clarified by requiring active electronic voting by its members.

The Review Panel recommends that the CSC increase the proportion of female CSC members up to 50% where this is feasible in terms of expertise and institutional representations whilst maintaining a balanced developing country representation.

4.2.2. Advantages and Disadvantages of Institutional Representation of Consortium members on the CSC

All 18 CSC members are representatives of CPWF Consortium institutions. This reflects the original idea of organizing the CPWF as a decentralized partnership that relies on the Consortium members for a series of functions, as defined by the Joint Venture Agreement, instead of building up capacity for these functions within the CPWF Secretariat or the Management Team itself. Apart from their overall participation in CPWF projects, these functions include legal representation, human resources management, financial services and project supervision.

In return for these responsibilities, representatives of the same institutions constitute the main governance body for the CPWF.

It should be noted that during the planning phase for the CPWF, the idea of opening up the CGIAR System to programme stakeholders, such as NARES, ARIs and NGOs, was considered to be very important. To that end, the CPWF governance setup, including the representation of the 13 non-CGIAR institutions in the Consortium and into the CSC contributed successfully to inviting this specific group of stakeholders external to the CGIAR system to the table.

The Review Panel is generally supportive of the idea of a Consortium as a partnership model for the CPWF. However, it appears that the CSC, in its present form, does not represent the optimal option for the CPWF main governance body for the following three reasons.

The CSC itself had acknowledged the crucial importance of CSC members “to put aside their institutional interests to make crucial and sensitive decisions that have the interest of the programme at heart, even though they may not be the best for their

home institution".[9] However, interviews held with a series of CSC members, in some cases, clearly indicated that their CSC participation was driven by their own, funding-related institutional interests rather than by the CPWF programme goals and interests.

A survey undertaken by the Review Panel supports this finding. The answers shown here are those of the CPWF Management Team, Theme Leaders and Basin Coordinators. While the survey was also sent to 25 current and former CSC members (or representatives), only five answers were received that cannot be taken to represent overall views of CSC with sufficient statistical significance. Therefore, these are omitted here. The list of respondents to the questionnaire survey is shown in Annex 6. The complete survey results can be seen in Annex 7.

The answers to the question "To what extent does this [the CSC's] setup lead to potential conflict of interest in the sense that CSC decisions may be driven by institutional interests of CSC members rather than programmatic interests?" are shown in Table 5.

Table 5. Institutional and programmatic interests in CSC decisions

CSC subgroup	CSC decisions tend to be mainly driven by institutional interests of this CSC subgroup	Some institutional interests of this subgroup tend to be reflected in CSC decisions	CSC decisions are taken independent of institutional interests of this subgroup	Number of respondents (percent of all management group respondents)
CGIAR Centres in the CSC	54%	38%	8%	N = 13 (81%)
IWMI in the CSC	8%	85%	8%	N = 13 (81%)
NARES in the CSS		50%	50%	N = 12 (75%)
ARIs in the CSC	8%	69%	23%	N = 13 (81%)
NGOs in the CSC		38%	62%	N = 13 (81%)
RBOs in the CSC		29%	71%	N = 13 (81%)

The survey indicated that a slight majority of the CPWF managers perceived that CSC decisions are mainly driven by the interests of the CGIAR Centres that are its members. Only 8% considered CSC decisions were taken independently from institutional interests of that sub-group. Asked specifically about to what degree CSC decisions were driven by the institutional interests of IWMI, a vast majority (85%) perceived that some institutional IWMI interests were being reflected in CSC decisions, but that the IWMI interests were not the main driver. In terms of driving CSC decisions through their respective institutional interests, ARIs and NARES are perceived to have some weight, while the majority of respondents indicated that NGO and RBO institutional interests have no influence on the CSC decisions.

9 Minutes of the 3rd CSC meeting in October 2003. At the same time, however, the opinion that this was fully the case was expressed.

It is important to mention, however, that some institutional interests are entirely legitimate and also important for ensuring the success of the programme. An example for such a legitimate institutional interest is IWMI's interest in safeguarding the programme's legal and financial integrity, simply because IWMI, as the host centre, carries both the legal and fiduciary responsibility on behalf of the CPWF. Another example would be the avoidance of duplication of research efforts within IWMI and the CPWF. Institutional interest and requirements in such cases cannot be compromised.

While in certain cases institutional interests of the Consortium members may overlap with the Challenge Programme interests, in other cases these interests might be in opposition. A simple, but entirely hypothetical example could be a proposed reduction of research intensity in a theme or within a benchmark basin. This decision, even if it could be beneficial to the Challenge Programme, could be in opposition to the institutional interests of the involved centres or basin organizations, since it could lead to reduced budgets from the Challenge Programme for these institutions.

The Review Panel finds that the level of economical institutional interests observed in the CSC discussions and decisions have the potential to delay, or even block critical reform processes. Even if a minority of the CSC members opposed a critical decision, the consensus-based approach to decision-making that has been the normal CSC practice thus far could potentially lead to the rejection of dilution of a strong and good reform proposal. This could, potentially, reduce the added value for the Challenge Programme, and its possible future outputs and impacts.

A second concern the Review Panel has regarding the current CSC working setup is that members may be perceived to have a conflict of interest regarding direct budget allocation decisions for individual projects, since these might economically benefit Consortium member institutions. A similar perception might occur in the case of programme strategy decisions that shift the programme focus towards some members' competence fields. A substantial amount of programme funds is allocated, either through directly commissioned projects or through competitive mechanisms, to the Consortium members. Accordingly, at least conceptually, there could be perceived, or real, conflicts of interest. E.g., until the year end of 2006, 97% of disbursed programme resources were channelled through Consortium members[10] and more than 50% remained with Consortium members[11]. In a recent external audit of the CPWF competitive grants process that led to the cancellation of a competitive call, a potential conflict of interest inherent in a situation where institutions represented in the CSC compete for competitive grants with "outside" institutions has been highlighted as well.

10 Of course, all CPWF funds pass through IWMI accounts first since IWMI handles the Challenge Programme revenues. The above calculation is based on "International Water Management Institute, Financial Statements 31. December 2006", pp. 16 and 17 indicating funds disbursed by IWMI on behalf of the CPWF (including funds disbursed to IWMI itself).

11 The CPWF Management Team, based on budget numbers, estimated that between 52% and 56% of funds ultimately remained with Consortium members, including all CPWF cost types.

It should be noted, however, that the Panel did not observe any misbehaviour by any person or institution consulted for this review[12]. The Panel finds, however, that this potential conflict of interest may pose considerable reputational risk for the CPWF, as well as its external perception of being and independent and objective body. This stems mainly from the fact that, while the Consortium approach has considerably opened up the CGIAR system, it has created a new closed system in terms of access to the Consortium and the CSC membership.

A third disadvantage of institutional representation in the CSC is that full stakeholder representation in the CPWF Consortium is effectively impeded. The main reason for not opening up the Consortium further is probably due to the attempt to keep the CSC to a reasonable size both in terms of cost and of effectiveness. Each new Consortium member would automatically also become CSC member. The CSC decided, for example, not to invite two NARES, CONDESAN and CSIR, that represent the Andes and Volta Benchmark Basins, into the Consortium and extended an invitation to the MRC (Mekong basin) only after extensive discussions. The admission of further stakeholders and stakeholder groups has not been discussed. In the Panel's perspective, this setup may lead to a situation where important stakeholders are "left outside", both in terms of perceived access to programme resources as well as in terms of participation in, and influence on, overall programme strategy.

The Panel is making a series of recommendations regarding these issues that will be presented in the subsequent sections, after providing a more complete analysis of the governance and management context.

4.2.3. Key Governance Functions and Related Accountability within the CPWF

Responsibility for the main governance functions of the CPWF rests primarily with the CSC, and also partly with the Consortium members. Such a division of governance functions is not unusual for hosted Programmes.

In the case of the CPWF, IWMI legally represents the programme, and operationally handles and reports on the programme's finances. As such, the IWMI Board carries the ultimate legal and fiduciary responsibility, and accountability, for the CPWF. Accordingly, IWMI has a duty to oversee these aspects of the programme.

The CPWF, in its original proposal, had decentralized some governance functions even further, involving several Consortium members being given responsibility for specific functions.

While the exact functions of governance and the detailed separation between governance and management functions differ from programme to programme, the following six typical governance functions can be identified[13]. As an overview and

12 The terms of reference for the external review did not include any auditing of potential misbehaviour. However, the Panel would have reported any misbehaviour, if any would have come to its attention.

13 See Sourcebook for Evaluating Global and Regional Partnership Programmes (Independent Evaluation Group, OECD/DAC Network on Development Evaluation, 2006); adapted from the OECD Principles of Corporate Governance (2004).

introduction to the further discussion, the table below summarizes the satisfaction of CPWF management for each governance function.

In the survey carried out by the Review Panel, CPWF managers, i.e the Management Team, the Theme Leaders and the Basin Coordinators, were requested to "Please indicate your satisfaction with the performance of the Consortium Steering Committee (CSC) in terms of the following functions" The result of this survey is shown in Table 6.

Table 6. Satisfaction with the performance of CSC

Core governance function	Highly satisfied	Slightly satisfied	Slightly dissatisfied	Strongly dissatisfied	Number of respondents (percent of all management group respondents)
Giving strategic direction	14%	64%	21%		N = 14 (88%)
Exercising management oversight	29%	43%	29%		N = 14 (88%)
Fostering stakeholder participation	17%	42%	42%		N = 11 (69%)
Risk management	8%	54%	38%		N = 13 (81%)
Conflict management	23%	38%	38%		N = 13 (81%)
Audit and evaluation	36%	64%			N = 11 (69%)

Overall, the performance of the CSC for typical governance functions received mixed ratings from the CPWF management.

This was reflected in some interviews that the Panel held with CSC members, indicating dissatisfaction with the overall CSC performance. Other CSC members interviewed showed overall satisfaction.

The survey performance assessments for four functions considered (risk and conflict management, fostering stakeholder participation and giving strategic direction) are even biased towards "slightly dissatisfied" rather than to "highly satisfied".

The Panel finds it of concern that the CSC did not receive a majority of "highly satisfied" ratings for even one of the six governance functions considered.

The governance functions considered are analyzed next in more detail.

Giving Strategic Direction. The original vision and strategic direction of the CPWF was mainly driven by a small group of people that conceived the CPWF idea, and then designed the initial programme, which then, based on broad scientific feedback, lead to the original programme proposal and to the Joint Venture Agreement.

For further development of the strategic direction, the Joint Venture Agreement lists amongst the responsibilities of the CSC (5d, vi-viii):

- *Approval of annual budgets and workplans developed by the Challenge Programme Management Team for whatever activities are required for the coordination and day to day management of the Challenge Programme.*
- *Issue calls for proposals, establish criteria for the review of proposals, and approve the composition of the review panels.*
- *Awarding research grants to project proposals received in response to calls for proposals published by the Challenge Programme Joint Venture, guided by the results of independent review and evaluation.*

Clearly, the CSC does not have a clear responsibility for actively developing CPWF strategy, but rather acts through approval of pre-defined work plans. The overall role of the CSC, as described in the Joint Venture Agreement also does not explicitly include a strategy-defining role:

> *For the purposes of managing and administering the Challenge Programme, the Members shall establish a Consortium Steering Committee (…)*

The same document also lays out the responsibilities of the Consortium Members for the CPWF. These responsibilities do not include a strategy-development role.

During its 5th meeting, the CSC was presented with draft terms of reference that gave the CSC a greater responsibility for developing and articulating the long term vision for the CPWF, as well as clarifying the responsibilities of CPWF management. These terms of reference, however, have never been adopted.

By and large the CSC members interviewed for this review confirmed that, despite some interest (e.g. in the recent second phase proposal), no active development of CPWF strategy through the CSC has been possible thus far. As one CSC member put it: “The CSC is not set up, nor does it have the time, to go through all the necessary issues”. Some CSC members perceive the annual meeting frequency to cause extremely long learning curves for new CSC members. It was also observed that some CSC members lacked a deep understanding of CPWF matters.

General responsiveness of the CSC members, apart from in-person meetings, seems to be rather low, as indicated by the virtual CSC meeting participation discussed above and by a low response rate of 20% on the survey for this review. If these two items are considered as indicators of interest of the CSC members in the CPWF, the rating would not be very high.

As is noted later in this review, this lack of active strategy development by the CSC has only partly been compensated by inputs from the CPWF management.

This in turn has led to some degree of differing opinions and uncertainties about the programme goals and the strategy to be used to reach these goals, both amongst the CPWF governance and amongst the CPWF management. This is discussed in more detail in the section on Evaluation.

Overall, the Panel finds that the capacity of the CPWF governance for strategic direction setting needs to be improved considerably.

Exercising Management Oversight. The responsibility for management oversight is split between the CSC, the CGIAR Centres leading the CPWF themes, and the NARES leading the work in the CPWF Benchmark Basins.

The CSC's mandate for management oversight is not explicit in the Joint Venture Agreement. In terms of responsibilities, the Agreement stipulates (5d, v and xi):

- *Establishment of the Challenge Programme Management Team, led by the Challenge Programme Coordinator and consisting of the Coordinator, Theme Lead Researchers and Benchmark Basin Coordinators.*
- *Overseeing the implementation of the Challenge Programme (…)*

While the CSC is responsible for setting up the Programme Management Team, a similar responsibility is attributed to IMWI for setting up the Programme Secretariat (JVA: 5d, ii). Concerning authority over the programme management staff, the responsibilities are extensively distributed (JVA: 5d, i, iii, iv).

- *Appointing a Challenge Programme Coordinator on the proposal of the Leading Member. The Leading Member [IWMI] will be entitled to subsequently remove him/her from that position and propose a replacement to the Consortium Steering Committee. The Challenge Programme Coordinator shall report to the Consortium Steering Committee on the performance and progress of the work of the Challenge Programme as and when required by that Committee, but at least once a year.*
- *Appointing Theme Lead Researchers on the proposal of the five CGIAR Centres that lead the five Themes (IWMI, IFPRI, CIAT, ICLARM and IRRI). The CG Centre will be entitled to subsequently remove him/her from that position and propose a replacement to the Consortium Steering Committee.*
- *Appointing Benchmark Basin Coordinators on the proposal of the Members that lead the work in the Benchmark Basins (ICAR, ARC, YRCC, NWRC, Embrapa, AREEO) and other Participating Organizations that may be asked to lead work in additional Benchmark Basins. The NARES will be entitled to subsequently remove him/her from that position and propose a replacement to the Consortium Steering Committee.*

In short, while the CSC appoints the Programme Coordinator, the Theme Leaders and the Basin Coordinators, these CPWF managers are nominated and, more importantly, can be removed from their positions by their respective institutions.

Traditionally, these managers are employed by the respective institutions on a full or part-time basis on behalf of the CPWF. Responsibility for their performance

evaluation lies with their respective host institutions: the CPWF has limited, if any, say in this evaluation.

In the case of the Programme Coordinator, the performance evaluation is done by the Director General of IWMI, who also acts as Chair of the CSC.

The Panel finds that this setup has contributed to a "two masters problem", i.e. to a situation of unclear, or overlapping, responsibilities between the CSC on the one hand and the institutions employing the respective managers on the other hand.

For example, in the case of the Programme Coordinator, 40% of survey respondents[14] from the CPWF management agreed with the statement that the Coordinator was "100% responsible towards the CSC", while 33% were of the opinion that "responsibility is evenly distributed towards IWMI and CSC" (27% opted for "mainly responsible towards CSC"). While identifying the CSC as the main authority responsible for the Programme Coordinator, the result clearly shows a situation of overlapping responsibilities.

The Review Panel finds that the degree of influence IWMI management can, or could, exert on the Programme Coordinator potentially problematic. The Panel sees several reasons for this problem:

- *Ambiguity in the vertical chain of command*. On the one hand, the Coordinator reports to, and receives, instructions from the CSC. On the other hand, the responsibility for his performance evaluation lies in the hands of his superiors in centre line management, i.e., with the Director General of IWMI. As far as the Panel is concerned, no undue influence of IWMI management on the Programme Coordinator can be observed thus far. However this situation does not represent a structural guarantee for the future.
- *Potentially reduced management efficiency.* The CPWF Coordinator might need to serve and please "two masters" at the same time. In case the views and the inputs of the superiors differ, the Coordinator must either try to satisfy all sides in parallel, or seek arbitration. In both cases, a reduction in management efficiency is likely, compared to a situation with a simple and unambiguous chain of command.
- *Reputation risk.* The Director General of IWMI is in a potential conflict-of-interest situation for the performance evaluation of the CPWF Coordinator. This conflict of interest becomes real when the Coordinator performs well according to the CPWF standards and requirements, but performs poorly in terms of IWMI's own interests. While this potential conflict of interest is primarily an issue to be considered by IWMI, it does pose a reputational risk for the CPWF as well. It could be argued from an external viewpoint that centre management has the possibility, at least theoretically, to bypass the CSC by exerting direct or indirect influence on the Programme Coordinator.

A similar analysis holds true for four of the Management Team members, Theme Leaders and Basin Coordinators, with the exception that their responsibilities are split

14 N=15 out of a total of 16 respondents from CPWF management answered this question.

between their respective employers on the one hand and the Programme Coordinator on the other hand.

In interviews performed for this review, perhaps not surprisingly, a strong split in opinion regarding performance evaluation responsibility for CPWF management could be observed. While CPWF Managing Center management strongly supported the current situation, with center managers being fully responsible for the evaluation of Theme Leaders, the CPWF Management Team and CSC members from other institutions supported a model where the Coordinator is in charge of performance evaluation of CPWF staff.

Fostering Stakeholder Participation. As pointed out earlier, the very idea of a Consortium has effectively brought together a set of programme stakeholders. For reaching out beyond this initial group, the Joint Venture Agreement spells out direct and indirect responsibilities for fostering stakeholder participation. The NARES members of the CSC have the responsibility to:

> *establish a stakeholder group within their Benchmark Basin that will help to prioritise the research agenda for each benchmark basin as well as guide the Challenge Programme in achieving impact*

The CGIAR Centres and the NARES present in the Consortium have the responsibility to:

> *coordinate linkages, if applicable, between the Challenge Programme, the Comprehensive Assessment of Water Management for Agriculture, and the Dialogue on Water, Food and Environment and other relevant initiatives*

In addition to this, IWMI, as the leading centre, has the additional responsibilities to:

> *initiate and coordinate global research workshops and regional workshops to be held throughout the duration of the Challenge Programme*
>
> *initiate and coordinate the communication and outreach of the results of the Challenge Programme*

The ARIs present in the Consortium have the responsibilities to:

> *organize linkages to the global change and other relevant research activities related to water and food that they are involved in*

Because of the limited time available for this review, the Panel was unable to verify to what extent the Consortium members have fulfilled the responsibilities that have been assigned to them. From the survey results, it appears that, at least from a management perspective, the satisfaction level with the CSC in terms of fostering stakeholder participation is low, averaging below “slightly satisfied”.

From a structural point of view, as pointed out earlier, the one-to-one connection of Consortium and CSC membership effectively impedes a further opening-up of the

Consortium to represent all relevant programme stakeholders, if the CSC is to remain limited in size.

Risk Management. The CPWF risk management policy in terms of programme fund disbursement is largely defined in the Joint Venture Agreement.

IMWI, as a lead member of the Consortium, holds the overall responsibility for the control of programme fund disbursements (JVA: 7e, ii):

> *No act in the implementation of the project shall be undertaken unless and until the Leading Member certifies that funds are available in accordance with such budget for the payment of any expenses incurred by such act, save that any Member may perform such act at its own risk.*

Potential liabilities are born by the individual Consortium members (JVA: 13, first paragraph):

> *Each Member enters into this agreement as Members of an unincorporated joint venture and is liable for its share (and not any other Members') of the contribution to the Joint Venture.*

The CPWF standard clauses and procedures, used as a reference document for project contracting, contains a clause giving the CPWF the right to interrupt, or terminate, project funding in case donor funding is not forthcoming.

The current oversight over application of the risk management policy elements, as well as the adaptation of the policy, is currently carried out by the CPWF Secretariat in cooperation with the IWMI finance department.

According to the observations of the Review Panel, the CSC has not played an active role in overseeing programme disbursements. The Panel finds that the CSC should extend its oversight function to programme fund disbursements, as discussed in more detail in the audit section of this report.

In terms of ensuring an adequate future funding level, the CPWF has, amongst other, strongly relied on the fund raising activities of the former CSC chair.

The Panel encourages the CSC to play more active role in the CPWF fundraising efforts.

Conflict Management. The Joint Venture Agreement defines a detailed conflict resolution policy, based on internal resolution of the CSC during two consecutive meetings and subsequent mediation and binding arbitration efforts.

From the management perspective, satisfaction levels with the conflict resolution performance of the CSC average below "slightly satisfied".

As far as the Panel could determine, arbitration was never needed and differences of opinion have mostly been solved internally by mediation of the CSC chair. From interviews with the CSC members, the former CSC Chair has been described as

powerful, a great facilitator and in some cases as dominant. In isolated cases, the latter characteristic has led to a situation of unresolved conflicts, e.g. about the overall CPWF governance.

Audit. A central audit function is not explicitly mentioned in the original proposal or in the Joint Venture Agreement. While the proposal spells out project-level audit requirements for both finances and IP, no programme-level financial audit functions are explicitly described in either document.

IWMI, as the lead and the host centre, has taken over most audit functions for the Challenge Programme. Based on audited statements from the project implementers, including the managing centres, IWMI collates the overall cash receipts and expenses for the Challenge Programme. In terms of external audits, the CPWF has undergone two audits that were external to both the Challenge Programme and IWMI.

Surprisingly, before 2006, the Challenge Programme cash receipts and expenses were reported as integral part of the IWMI books and no separate Challenge Programme report was prepared and audited. Since 2006, however, Challenge Programme finances have been separated more clearly from the IWMI finances, and a supplement sheet is included in the IWMI's audited financial report that gives an overview of the Challenge Programme finances (see section on financial management and financial health for further details).

Based on the information that was available and analysed, the Panel feels that the CSC has not executed an audit function in the past. This is in spite of the fact that the Joint Venture Agreements states that the CSC has the responsibility to: *"Overseeing the implementation of the Challenge Programme (…)"*. This responsibility has apparently not been extended to an auditing role.

In the Panel's view, there are several reasons why an audit function under the auspices of the CSC would be advantageous for the CPWF.

Firstly, it would provide some degree of checks and balances between the CPWF and the host centre IWMI. In the Panel's view, the Challenge Programme currently does not have the capacity to independently confirm the accuracy of CPWF financial records and accounting. While IWMI's annual financial report is externally audited as a standard, it – and the audit – does not focus on financial matters from a Challenge Programme perspective, e.g. assessing the accuracy of fees charged to the Challenge Programme for hosting and administration services or the accuracy of the attribution of accrued programme interest. Building this capacity would not lead to a large increase in costs, since the CPWF's independent audit function could be based on the externally audited IWMI financial statements. It would, however, lead to an independent confirmation of the accuracy of the Challenge Programme's reporting and the integrity of its processes, e.g. to the programme donors in line with principles of good and transparent governance.

Secondly, a stronger audit focus on the CPWF governance level would allow the CPWF to define its financial information needs and to clarify and update financial policies. During the preparation of this report, the Panel has had considerable difficulties in obtaining reliable financial information regarding the CPWF. While the

CPWF Coordinator and Manager and the IWMI Head of Finance and Administration were trying to be of assistance, it seemed that some basic financial information was not available at all, or had to be generated from IWMI databases with considerable amount of effort. At the time this report was finalized, contradictory information had been received e.g. on (audited) financial statements (addendum to IWMI financial report 2006), no clear separation of overall programme cash disbursements into programmatic and non-programmatic disbursements could be obtained and no clarity, was obtained concerning the question on what programme funds the 4% project management fees could be charged by managing centres. It also seems that all interest accrued by the Challenge Programme cash has been credited into IWMI books without a formal decision. It must be pointed out, however, that IWMI is moving to a new accounting and finance system that may alleviate some of the constraints mentioned above. The Panel finds nevertheless that both in terms of the definition of financial information needs, as well as in terms of clarifying or defining financial policies, the CPWF would benefit from increased focus and capacity for audit functions at the governance level.

Evaluation. Only the evaluation function of the CPWF governance will be discussed herein. The CPWF evaluation system will be assed in a separate section on evaluation.

Evaluation has been on the agenda of the CSC from its very first meeting in November 2002. Furthermore, it has remained an agenda item for every CSC meeting ever since.

In the initial years, the CSC decisions focused on the development of a Monitoring and Evaluation plan, later also explicitly including an impact assessment component.

During its 4th meeting in 2004, a detailed concept for a CPWF monitoring and evaluation system was presented. Although adopted in the same meeting, some parts[15] of this concept were discussed critically in the 5th meeting, and a basin-level ex-ante component was added[16]. During the 6th meeting, a new approach was presented and adopted, that focused entirely on ex-ante impact planning.

As pointed out in the separate section on evaluation, the Panel finds that the CPWF does not have a programme level system of measuring and verifying success towards programme goals in place. While being intimately connected with the lack in strategy development capacity observed before, the Panel also finds that the meeting frequency, the size and the composition of the CSC have not been conducive to the formulation of programme vision, goals and an impact logic and subsequent results definition and results measurement for the CPWF.

As further pointed out, the Panel also finds that the current project level and evaluation monitoring, needs to be improved significantly. The current approach lacks depth and hence impact.

A Centre Commissioned External Review that was planned for year end 2006 might have raised this issues earlier, but was never implemented. The Management Team

15 Programme level impact assessment based on a logframe approach.
16 Refer to BFP ex-ante impact assessment proposal.

explained this by the fact that by then the External Review had been scheduled that Science Council and CGIAR Secretariat guidelines were perceived to indicate that CPs were not expected to undertake CCERs.

Overall, as pointed out above, the Review Panel considers an increase in evaluation focus and oversight capacity on the CPWF governance level necessary.

4.2.4. The CSC Expert Panel: Safeguarding Science in the CPWF

In June 2003 the CSC decided that

> *a small panel of independent experts will be formed that will verify and ratify the selection of reviewers with respect to their expertise and independence. This Panel will report to the CSC directly (through the Chair where necessary in between meetings).*[17]

The expert panel consisting of 4 scientists was formed in October 2003 as a standing panel. It does not depend on in-person meetings but the panel members rather communicate by email whenever necessary.

The original task of the expert panel consisted in ensuring scientific quality in the allocation of funding to research projects, e.g. through the verification and ratification of reviewers for competitive tender processes or through oversight of commissioned research. Through its independence and neutrality towards the different Consortium members, it provided legitimacy to CSC funding decisions. As an additional task, the expert panel advises the Management Team on the overall CPWF research strategy and on the priorities for the second competitive call. It has also commented on the CPWF research strategy in 2005[18].

The Panel finds that an Expert Advisory Panel needs to play a crucial and central role in the CPWF, but that, based on the Panel's observations, the capacity and the performance of the current Expert Panel are not adequate.

As noted earlier, despite some similarities with IWMI, the CPWF is a new and somewhat different kind of programme. The "means" that will be used to reach the rather ambitious objectives set for the Programme are good science, the results of which can be implemented to achieve the ends. Accordingly, even though science is not the "end", but the means that will be used to reach the "ends", the quality of science and the scientific findings of the various projects that are being carried out under the aegis of the CPWF will play very critical roles to assure the success of the Programme. To paraphrase Martin Luther King, means often predetermine the ends. If the means that is the science behind the project, are not good, the end objectives will not be easy to reach.

17 Meeting minutes of the 2nd CSC meeting in June 2003.
18 See "Proposed Terms of Reference for CSC, CPMT and others" and "Expert Panel recommendations on the Research Strategy" in "Briefing papers for 5th CSC meeting" in March 2005.

It is thus essential that the quality of the scientific work in the CPWF is consistently of a high calibre throughout its entire limited life. However, realistically, unless a determined and sustained effort is made to ensure a high quality of scientific research, the results are unlikely to meet the expectations of the originators and supporters of the programme. This will not be an easy task since the CPWF includes a multiplicity of institutions, located in different parts of the world, with varying degrees of expertise and experience, working on different complex but interrelated issues, with numerous specialists from different disciplines tackling a very broadly defined objective with limited resources. The coordination and integration of these efforts and actors to ensure good quality scientific outputs will not be an easy task under the best of circumstances.

Accordingly, the CPWF, if it is to be successful, must set up a process, or processes, which must continually endeavour to ensure that high quality of scientific outputs result from all its projects on a consistent basis. The Review Panel feels that this process is now not in place. What exists at present needs to be improved and expanded very substantially in the coming months.

The present situation within the CPWF has developed incrementally because of various reasons among which are the following.

First, as pointed out earlier, members of the Consortium have not, for the most part, provided the necessary leadership on a sustained basis to ensure that the projects selected produce good and implementable scientific results. Irrespective of any earlier expectations, it is highly unlikely, at least based on the past performance, that either the Consortium or CSC members will be able, or even willing, to devote the necessary time to regularly review the various projects to assure that they are using cutting-edge and/or latest scientific knowledge (both natural and social sciences and appropriate methodology) for design and implementation of various projects. Hence the scientific results of the projects need to be peer reviewed to assure their qualities with the goal of having at least the 'flag ship' outputs of each project being published in high impact factor, peer reviewed international journals. Publications in journals and as books should not be the only criteria for scientific excellence and/or their potential application to reach the end objectives of the Programme but they remain a pivotal point of quality judgement and provide a good measure of how well the Programme is performing in the production of international public good research outcomes.

Second, CPWF management, i.e. the Management Team, Theme Leaders and Basin Coordinators, appear to be almost full-time occupied with their normal administrative, management and coordinating duties. They simply do not have enough time to review specific projects to ensure that the scientific approaches that are being used are sound, and that the results and outputs can withstand rigorous scientific scrutiny. Even though the Management Team in general is scientifically sound, a few members may not be able to vouch for scientific quality of the project design or operation with acceptable degree of confidence. Since the Programme Coordinator does not have the authority to hire or fire the Team members, or even is partially responsible for the preparation of their annual performance reports, except perhaps by moral persuasion, he has very limited power, if any, to improve the current situation. In addition, the Management Team does not have all the scientific expertise necessary to objectively assess the scientific qualities of the projects, especially when the multi-disciplinary

and multisectoral nature of the projects are considered, as well as their geographical spreads, which require special knowledge in terms of local conditions because of the implementation requirements of the outputs.

Third, while there is an Expert Panel, its real roles in ensuring good science have thus far been very limited. In addition, the expertise of some of its members does not match the needs of the CPWF for any overall scientific oversight, because expertise and needs sometimes do not match. For example, it is very difficult to see the potential role of an expert on water supply and sanitation, when it is not an important component of the CPWF. Except for one member, the Expert Panel has somewhat limited knowledge of the nine basins being considered, at least in a practical sense.

Fourth, the scientific backgrounds of many of the reviewers of the projects during the selection process are not necessarily the most appropriate. Whereas they could be considered appropriate for reviewing the GEF-type of projects on international waters, many of them cannot be considered to have the necessary special knowledge and experience to judge CPWF-type of projects. This is because the requirements and objective of GEF and CPWF are fundamentally different. The fact that all these reviewers were approved by the Expert Advisory Panel raises a fundamental question on the present way of functioning of this Panel.

Since the scientific aspects of the CPWF are important, the Review Panel feels that this aspect will require special attention in the immediate future. If the scientific approaches used are not the best, the outputs are likely to be of limited, or even of marginal, use in terms of application. It is thus essential that a process be put into place so that the scientific aspects of the CPWF are safeguarded in the most optimal way.

To this end, the Review Panel recommends that the roles of the Expert Advisory Panel be reviewed and reassessed in terms of future needs of the CPWF. It may be necessary to reconstitute this panel with members having very specific qualifications and expertise which will match the specific scientific requirements of the CPWF. These requirements could include:

- acknowledged international reputation in the areas directly linked with the CPWF goals, objectives and activities;
- good first-hand knowledge and appreciation of the opportunities, constraints and complexities associated with at least one of the nine CPWF basins; and
- willing to reserve considerable amounts of their time each year to give independent and objective advice to the CPWF on the scientific approaches of the projects and the scientific nature and quality of the outputs, as well as on the scientific components of future strategies and therefore fill the critical gap outlined above,

The number of members of this Panel will depend upon the extent of work programme with which the Panel will be entrusted, and the complementarity of their total expertise in terms of knowledge, both scientific and basin-specific. The Review Panel did not have time to delve into this aspect in greater detail, but perhaps six members may be adequate for a carefully selected Expert Advisory Panel. This group could perhaps be renamed as Scientific Advisory Panel.

Such a Scientific Advisory Panel could report to the CSC, and will have a significantly more "hands on" advisory roles on the activities of CPWF, compared to the existing situation. This Panel should be proactive rather than passive. For example, it could recommend good scientific reviewers for specific types of projects, rather than play a passive role in approving/disapproving a list of names of reviewers that are submitted to them by the CPWF Secretariat for clearance. Equally, it could provide advice on the strategic future directions of the CPWF, especially in terms of science and oversee the scientific components of programme and project evaluations. For all of these roles, an institutional independence of the Scientific Panel Members would be necessary.

A properly selected Scientific Advisory Panel, with active, knowledgeable and committed members, and whose expertise complement each other in terms of overall requirements of the CPWF, can safeguard the scientific content of the CPWF and can contribute to enhancing its scientific reputation very significantly.

4.3. CPWF Management

4.3.1. Management Structure

The CPWF is managed as a matrix organization. Five Theme Leaders coordinate and synthesize the respective CPWF themes. Each of the nine Benchmark Basins is represented by a Basin Coordinator[19]. Normally, a CPWF project touches at least one theme and one river basin, as indicated in table 7.

Table 7. Basin/Theme management matrix (taken from the original CPWF proposal)

Themes : / Basins :	Agro-ecosystems	Upper Catchments	Aquatic Ecosystems	River basins	National and global policies
Yellow River	←				→
Mekong				Project X	
Indo-Gangetic plains					
Limpopo		Project Y			
Volta					
Nile					
Etc.	↓				

While all Theme Leaders and Basin Coordinators were originally part of the CPWF Management Team, during the 5th CSC meeting, in March 2005, the Management Team was restricted to 2 full time and 4 part time managers, namely:

- Programme Coordinator (fulltime);
- Programme Manager (fulltime);
- Theme Leader representative in the Management Team;

19 Currently, one of the Basin Coordinator position is staffed by an acting coordinator.

- Basin Coordinator representative in the Management Team; and
- two other representatives.

Overall, the time-commitment to programme management activities for the part-time managers varies between 15% and 35%, leading to about 3 full-time equivalents (FTEs) in total.

Partly due to the CPWF's managing centres approach, these 6 managers are located in 5 different sites, rendering team logistics rather difficult.

4.3.2. Overall Performance of CPWF Management

The Review Panel had the opportunity to interact closely with the Programme Coordinator and the Management Team of the CPWF. There is no question that the current Team consists of experienced professionals who are not only dedicated but also strongly believe in the importance and relevance of the Programme. The Panel was equally impressed by the performance and fortitude of the Team when it faced a difficult programme period because of a critical external audit report in 2006.

In spite of its experience and capacity, it has not been possible for the Management Team to formulate and implement a forward-looking programme strategy. Nor has it managed to overcome the programmatic and governance constraints noted in this evaluation report, even though it is evident that the Team has been aware of many of these deficiencies for quite some time. At present, the Team executes the decisions of the CSC, including activities like implementation of competitive grants, preparation of required programme-related documentations, coordination of research activities and results. In addition, the Management Team has to carry out all the requisite administrative requirements, which appear to be quite substantial.

Members of the CPWF governance interviewed for this review gave a somewhat mixed rating on the performance of the Management Team. While acknowledging a high degree of dedication, competence and professionalism, several CSC members expressed some concern on the inadequacy of setting and implementing a well thought-through strategic direction for the programme.

The Review Panel sees a series of reasons for this perceived lack of programme leadership by the Management Team.

First, the CPWF was set up as a decentralised Consortium, which was to be lead by IWMI. The initial philosophy was to keep the Team and the Secretariat lean, with primarily a coordinating function rather than leadership responsibilities. The real leadership was expected to be provided by IWMI and other Consortium members. This has not happened, at least to any noticeable extent.

Second, as noted earlier, the CSC or individual Consortium members have not provided to any significant extent the strategic inputs needed for the CPWF. The current perceived gap in setting strategic direction of the CPWF is a direct result of these shortcomings, combined with the primarily coordinative mandate of the Management Team.

Third, the absence of a clear and powerful vertical chain of command linking the CSC to the Programme Coordinator, then the Programme Coordinator to the Management Team, and further to the Theme Leaders and Basin Coordinators, effectively has lead to the CPWF management members acting as observers and catalysts rather than as fully accountable managers, with appropriate decision-making powers. As pointed out earlier, the Programme Coordinator does not have the authority to hire or fire the Team members, or is even partially responsible for the preparation of their annual performance reports, except perhaps by moral persuasion.

Fourth, the Management Team, even though aware of many of the constraints identified in this report, does itself not have the power and authority to rectify them. However, the Review Panel feels the Team could have made a more sustained effort to have these constraints changed by the appropriate bodies. The Team should become more pro-active and persistent on such issues.

The Review Panel had no time to assess the individual qualifications of the Management Team members in any depth. However, based on limited interactions with the Team members, we are satisfied with the qualities of most of the members.

Overall, the Panel finds that the CPWF Management Team needs to play a considerably stronger proactive leadership role within the CPWF, defining, proposing and, when approved, implementing relevant programme reform and taking full ownership and responsibility for programme implementation down to the project level. This also implies that the Team members will have enough time, beside their own administrative, managerial and coordinating activities, to do some strategic thinking. This does not appear to be the case at present since the Management Team appears to have very limited time, or opportunity, to do any serious, medium- to long-term thinking. Some CSC members interviewed for this clearly have expressed their lack of understanding for this situation, simply indicating that the Management Team should have the time to do this or attributing the situation to a lack of prioritization of strategic tasks. The Panel believes this is an important issue that needs to be urgently addressed, if the CPWF is to meet its stipulated objectives.

4.3.3. Location of the CPWF Secretariat

From the inception of the CPWF, the Challenge Programme's Secretariat has been hosted by IWMI. Since IWMI is the CPWF's lead centre with legal and financial responsibilities, this seemed a natural choice.

While not having analyzed the advantages and the disadvantages of the current Secretariat location, some issues relating to the location of the CPWF Secretariat and the ensuing working conditions have been observed by or brought to the attention of the Panel. Since these might reduce CPWF management performance they warrant closer attention.

Firstly, international travel to and from Colombo, Sri Lanka, (IWMI's headquarter and the CPWF Secretariat location) is difficult and has become more so due to the gradually worsening civil strife. This puts additional strain on the Programme Coordinator and the Programme Manager for their frequent travel arrangements and renders CPWF meetings in the Secretariat generally difficult.

Secondly, logistical and financial services provided by IWMI to the Secretariat seem to contain ample room for improvement. For example, no air-conditioning is available after 5pm (in a tropical country) and the shared building facilities seem in a rather run-down state. Concerning financial services, the responsiveness and the quality of information provided by the IWMI finance department for the Challenge Programme has been the source of repeated complaints by the Secretariat staff and the Review Panel itself has experienced difficulties in obtaining the financial information needed for this report. While some of the finance-related difficulties might be alleviated by IMWI's current transition to a new financial and accounting system, others would require additional efforts.

Based on these very selective observations, the Review Panel suggests to conduct a balanced re-examination of the advantages and disadvantages of the CPWF Secretariat location. This assessment should include a careful analysis of scientific and logistical advantages of the current arrangement as well as reasons for change and options for alternative locations. It should also contain a rough financial cost-benefit estimate for a potential relocation scenario. The option of increasing the CPWF's institutional independence, e.g. by creating a new legal entity, will most likely not only give rise to additional cost, but also incentivize the continuation of the CPWF beyond its planned lifetime. The panel therefore is of the opinion that, in any case, a hosting arrangement, and not the build-up of independent institutional capacity, should be sought.

The Panel suggests to conduct this assessment after the first two steps of the CPWF governance reform (see last section of this chapter).

4.3.4. Project Monitoring

In the past, CPWF management has only been partly responsible for financial and technical project progress oversight. Currently, the CPWF is reforming the monitoring arrangements. In what follows, we describe the original setup and the currently implemented reformed process.

In the original, decentralized approach, the project leader of a CPWF project reported on technical and financial project performance on a semi-annual basis to the responsible managing centre and to the Theme Leader and the Basin Coordinator responsible for the project. In case more than one theme or basin was relevant, reports could also be sent to a second Theme Leader or Basin Coordinator.

The CPWF Secretariat had asked to be copied on these reports but did not always receive them.

The respective Theme Leader and Basin Coordinator then provided the managing centre with comments on their assessment of project progress. The managing centre itself was in charge of overall project monitoring for its theme based on the technical and on the financial report, and on the comments provided by the Theme Leaders and Basin Coordinators. For these services, the managing centres could charge an overhead on contracted research of four percent, as agreed upon in the Joint Venture Agreement.

The monitoring for Basin Focal Projects and Small Grants projects are considerably simpler and consist of progress reports being sent directly to the responsible coordinators.

Currently, the CPWF Secretariat is implementing a simplified approach, avoiding the managing centre concept for project progress reporting and centralizing both technical and financial reporting on the CPWF Secretariat and IWMI.

According to this new approach, project leaders (also those situated in a CGIAR Centre) send their technical and financial reports directly to the CPWF Secretariat, that also receives comments by the responsible Theme Leaders and Basin Coordinators. The reasons for this adaptation of the original technical and financial reporting scheme are twofold. On the one hand, these changes follow the recommendations made during an external audit commissioned by the CGIAR Secretariat. On the other hand, CPWF management and the Secretariat seemed dissatisfied with the level of technical and financial management and oversight over projects by the managing centres and saw added value for them in being more directly involved in project reporting. Managing centres too agreed that the process was not working well and supported the change.

While the Review Panel did not independently verify the quality and extent of project management and oversight of the managing centres for the projects within their respective themes, it finds that the simplified monitoring approach adds value, both in terms of removing potential conflicts of interest emerging from centres having to monitor both their own as well as other partner's projects, as well as in feeding back relevant information directly to the CPWF Secretariat.

In the Panel's view, the described approach can both improve individual project oversight and potential remedial action by establishing a closer feedback loop with the central programme management, as well as allowing for programme level monitoring by aggregating technical and financial performance information.

4.4. Summary and Recommendations

The previous sections have addressed a series of governance and management issues and some recommendations addressing specific aspects have been given.

The Panel, however, finds that the needed overall improvement of current CPWF governance and management performance cannot be achieved through isolated measures, but necessitates a thorough governance reform process.

In drafting the governance reform process, it is crucial to acknowledge that Challenge Programmes have a finite lifetime. This has two immediate consequences that restrict the solution space for governance reform.

Firstly, a governance reform process should lead to tangible results in a relatively short time, e.g. after 1 or 2 years, in order to allow the programme to benefit from improved governance in its remaining life span.

Secondly, the proposed solution should be pragmatic and efficient. It should build on and maintain those elements that are beneficial for the programme, such as the Consortium concept, and remedy those aspects that need improvement without creating unnecessary complexity. This includes that overall cost for governance should not increase. In making the recommendations below, the Panel stresses the need for cost-efficiency. The establishment of additional layers of administration is likely to generate additional costs, if not compensated by cost savings.

The recommended CPWF governance reform builds on 4 basic ideas that address the governance and management issues discussed in this chapter:

- strengthen the independence of CPWF governance from institutional interests;
- increase CPWF governance capacity for the critical functions of strategy development, evaluation and audit;
- ensure stakeholder representation on the basis of the Consortium model; and
- strengthen CPWF management.

The Review Panel recommends to reform CPWF governance and management in a 3 step process. Step 1 contains immediate action items and decision-making and implementation should start as soon as possible. Step 2 is based on step one and should therefore follow. Decisions regarding this step could e.g. be prepared and taken during the next CSC meeting in 2008. Finally, step 3 describes the transition of the current CPWF governance into a reformed CPWF governance model. A detailed implementation plan should be developed and adopted for the next CSC meeting in 2008 as well.

Step 1 recommendations:

The Panel recommends that the CSC be chaired by an independent senior, well-established and well-respected professional without any institutional ties to the Challenge Programme. Apart from his/her independence, this person should have a long and successful track record as management leader and as board chair and must be acquainted with the CPWF research and development issues.

The Panel recommends that the CSC sets up an Audit Committee, led by an independent chair that includes the Programme Coordinator, the programme manager and the IWMI audit board chair. The CSC audit committee should report directly to the CSC, or to the CSC Executive Committee. The chair of the audit committee should be a senior finance professional with considerable audit experience and at the same time have a good understanding of the CPWF or similar Programmes.

Step 2 recommendations:

The Panel recommends that the independent CSC chair in consultation with the IWMI Director General conducts the performance evaluation of the Programme Coordinator and determines the terms of his employment.

The Panel recommends that the Programme Coordinator is put in charge of the performance evaluation of the other CPWF Management Team members, of the Theme Leaders and of the Basin Coordinators, and shares this responsibility with the respective host institutions. The evaluation criteria should be based on the TOR for the respective position in the CPWF. In addition, the Programme Management Team should assume project leadership responsibilities for all CPWF projects in order to centralize responsibility and accountability for CPWF projects in the Management Team.

The Panel recommends that, under the leadership of the new CSC chair, an Executive Committee is formed, consisting of
The new CSC chair
The chair of the CSC Audit Committee
1 representative elected by the five Consortium CGIAR Centres
1 representative elected by the 6 NARES and the one RBO Consortium members
1 representative selected by the 4 ARI Consortium members
1 representative selected by the 2 NGO Consortium members
1 well-known international expert familiar with the management issues of some of the CPWF Benchmark Basins and water-food interrelationships.
The Director General of IWMI or an IWMI board member as main host centre representative
Search and election of *independent* representatives for the stakeholder groups (i.e. not belonging to any institution in that group) should be encouraged and the selection should be opened up to the whole CSC if no representatives can be found in reasonable time.
The Executive Committee TOR should contain at least the mandate for strategy development, Evaluation and Auditing and the authority to take decisions on CPWF operational matters that exceed the authority of the CPWF Management Team. The 4 elected representatives should have the necessary expertise to provide valuable input according to this TOR.
The Executive Committee should meet virtually or in person with high frequency (e.g. every three months).
It should be understood that the IWMI representative is member of the Executive Committee as liaison to the host centre board and therefore has no formal vote.

The Panel recommends that, under the leadership of the new CSC chair, the roles of the current Expert Panel be reviewed and reassessed in terms of future needs of the CPWF. It may be necessary to reconstitute this panel as an "Scientific Advisory Panel" with members having very specific qualifications, expertise and time-commitment which will match the specific scientific requirements of the CPWF.

Step 3 recommendation:

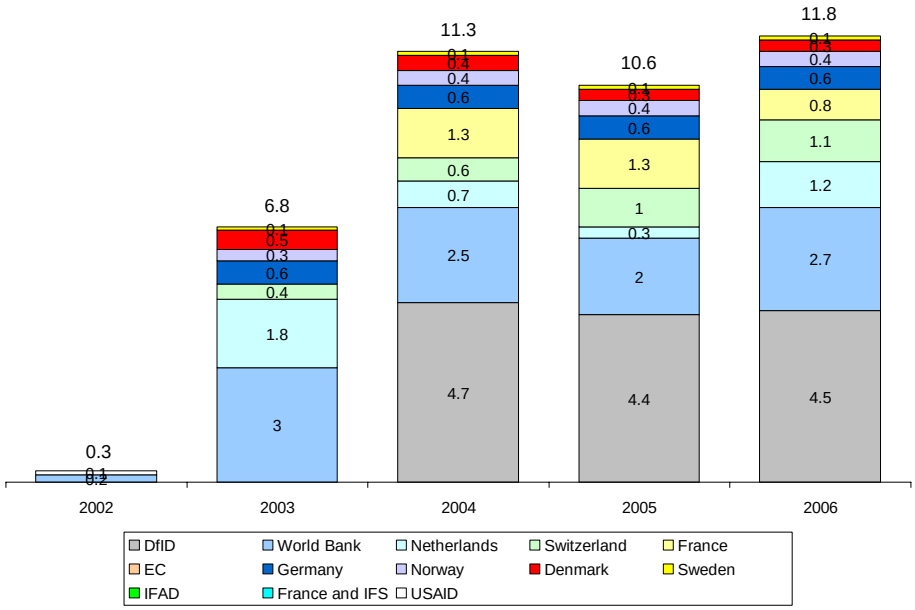
The Panel suggests that, after these initial steps, the CPWF embark on a more thorough reform of its governance under the leadership of the new chair and the Executive Committee. The key elements of this reform could be:
The evolution of the Executive Committee into a CPWF board with full programmatic and budgetary functions and related accountability.
The evolution of the present CSC into a stakeholder council that elects the board members and advises the board. The in-person meeting frequency for the stakeholder council can be lowered to e.g. one meeting every two years.
Opening up of the Consortium to further key stakeholders leading to representation of all relevant CPWF stakeholders on the stakeholder council. The current roles and responsibilities Consortium members should be adapted accordingly.

5. Resource Mobilization and Financial Health

5.1. Past Fund Raising Performance and Future Outlook

The CPWF raised substantial funding in the initial years of its existence. As shown in table 8, a total of 13 donors have committed a total 40.7 million US$ to the Challenge Programme for the 2002-2006 period.

Table 8. CPWF donor income 2002-2006 (all numbers in million US$, numbers might not add up due to rounding)



DFID has evolved into becoming the CPWF's main donor, having contributed 11.4 million US$ until 2006, representing 33% of the total committed CPWF income for 2002-2006, followed by the World Bank (10.4 million US$ or 26%) and the Netherlands (4.0 million US$ or 10%). Further major contributions (in excess of one million US$) were committed from France, Switzerland, Germany, Norway and Denmark.

In 2007 and 2008, the Challenge Programme expects a further 28.4 million US$, bringing total expected funds to 69.1 million US$ for Phase 1 (from programme inception until 2008).

The following table[20] shows the CPWF's "best guess" for expected donor funding for both phase 1 and 2 (phase 2 lasting from 2009 through 2013). Future donor funding was extrapolated by CPWF management by estimating the potential pledge size, and then discounting it with the estimated probability to actually obtain the funds. Donor income projection is shown in Table 9.

20 Numbers might not add up due to rounding.

Table 9. Donor income projections

Donor	**Phase 1: Probability-adjusted "best guess" (2003[21]-2008)** in million US$	**Phase 2: Probability-adjusted "best guess" (2009-2013)** in million US$	**Assumed pledge size for Phase 2 (and assumed probability)** in million US$ (in percent)
DFID	23.6	22.0	35.0 (63%)
World Bank	14.2	7.0	10.0 (70%)
Netherlands	6.4	2.8	7.0 (40%)
EC	5.8	11.6	20.0 (58%)
Switzerland	5.3	4.8	7.0 (69%)
France	4.1	3.0	6.0 (50%)
Germany	2.9	1.2	3.0 (40%)
Denmark	2.4	1.2	2.0 (60%)
Norway	2.2	2.2	3.2 (68%)
Sweden	1.3	2.0	4.5 (44%)
IFAD	0.9	0.8	2.0 (40%)
USAID	0.1	1.0	5.0 (20%)
Total (phase 1 donors)	**69.1**	**59.6**	**104.7 (57%)**
IFS		0.2	0.4 (40%)
Japan		0.4	2.0 (20%)
Canada		0.8	2.0 (40%)
Australia		0.8	2.0 (40%)
Private Foundations		6.0	15 (40%)
Other private		1.0	5.0 (20%)
Total (new donors)		**9.2**	**26.4 (33%)**
Total	**69.1**	**68.7**	**131.1 (52%)**

In Phase 2, the CPWF plans to rely on most of its Phase 1 donors, as well as on obtaining funding from a series of donors that have not been involved with the CPWF earlier.

Overall fundraising expectations, however, remain stable at about 13 to 14 million US$ per year. It must be born in mind, however, that the Phase 2 funding estimates are discounted with the probability with which this funding is expected to materialize

21 Contains US$ 0.3 from 2002.

and does not, in most cases, reflect the assumption that the pledge levels themselves are expected to decrease, in fact several are expected to increase.

Overall, the Review Panel finds that the CPWF has a balanced donor mix in the sense that no fundamental dependence on a single donor exists.

The obvious challenges for the CPWF are those of ensuring funding from existing donors as well as raising additional funds from new donors. As pointed out before, the fact that the former CSC chair, who played a key role in fundraising, is no longer with the CPWF. Thus fund-raising will be an important issue to consider in the future, especially in terms of person(s) that will be responsible for this function.

5.2. Performance against Budget

Original CPWF fundraising projections exceeded the currently expected Phase 1 funding of ca. 69 million US$ that was discussed above. In the original proposal, about 82 million US$ were estimated for Phase 1. Initial CPWF business planning was based on this amount[22].

One main reason for this fundraising underperformance against the original budget lies in the fact that an originally pledged grant from the Netherlands of 25 million Euro for phase 1 of the Challenge Programme was considerably reduced in size. Currently, a total of about 5 million Euro (6.4 million US$) are expected from the Netherlands for Phase 1. This amounts to one fifth of the initially expected amount.

Another reason is caused by a trade-off decision that Consortium members, e.g. the CGIAR Centres, have to make. Actively raising funds for the Challenge Programme might actually benefit single institutions less than trying to raise funds exclusively.

CPWF budgetary planning is following expected funding levels. E.g., in the 2005 Annual Report, 2 budgets were presented. A conservative budget based on total donor contributions for Phase 1 of 65 million US$ and a "target scenario" based on 75 million US$ donor income for Phase 1. Depending on expected donor funding, these budget scenarios are adapted year to year.

Most CPWF expenditures can indeed be adapted to available funding levels. In general, competitive tenders or commissioned research are only started if necessary funding is available. Individual project contracts follow the same logic and, in addition, contain the safety clause "*The CPWF Secretariat shall be entitled by notice to the Recipient to suspend in whole or in part, the disbursement of funds if for any reason contributions from the donor community designated for the CPWF are not received by the CPWF Secretariat.*", sheltering the CPWF financially against unexpected donor funding shortfalls.

An example for a CPWF budget (that exceeds the "best guess" discussed above for 2007 and 2008) is shown in table 10 below.

22 Decision 1.1 of the first CSC meeting in November 2002.

Table 10. CPWF "Conservative Budget", February 2007

All numbers in US$'000	2002	2003	2004	2005	2006	2007	2008	2008 for 09	Total
Income									
World Bank	200	3,000	2,500	2,000	2,700	2,000	2,000		14,400
Netherlands		1,829	653	315	1,200	856	600		5,453
France			1,334	1,334	800	500			3,968
Norway		347	441	440	440	440	440		2,548
Switzerland		385	632	1,041	1,080	1,080	1,080		5,298
Sweden		107	104	86	86	86	86		555
Denmark		506	363	332	340	340	340		2,221
Germany		625	625	625	625	200			2,700
IFAD						450	450		900
DFID			4,666	4,400	4,500	4,850	4,750		23,166
EC						3,600	1,800		5,400
USAID (USDA)	68								68
France and IFS (capacity building)				20		325			345
Probable funds (DFID and France)							3,000		3,000
Possible funds (Sweden)							1,000		1,000
Total income	**268**	**6,799**	**11,318**	**10,593**	**11,771**	**14,727**	**15,546**		**71,022**
Expenditures									
CP development	300								300
Secretariat	100	652	499	441	426	486	500		3,104
Total Secretariat	**400**	**652**	**499**	**441**	**426**	**486**	**500**		**3,404**
First call & additions (34 projects)			1,108	6,559	7,860	13,366	6,810	1,240	36,943
Small grants for impact					571	412			983
Basin focal projects				466	1,535	3,690	1,950	395	8,036
Second competitive call (2007)						1,000	2,200	800	4,000
Programme activities	232	978	490	344	763	891	635		4,333
Capacity building		85	18	53	194	219	100		669
Theme Leaders		1,398	793	742	1,140	1,288	1,200		6,561
Benchmark Basins		1,379	792	842	911	820	700		5,444
Research administration			22	200	160	159	93		634
Total research	**232**	**3,840**	**3,223**	**9,206**	**13,134**	**21,845**	**13,688**	**2,435**	**67,603**
Total expenditures	**632**	**4,492**	**3,722**	**9,647**	**13,560**	**22,331**	**14,188**	**2,435**	**71,007**
Surplus(/Deficit)	(364)	2,307	7,596	946	(1,789)	(7,604)	1,358	(2,435)	
Balance brought forward		(364)	1,943	9,539	10,485	8,696	1,092	2,450	
Balance carried forward	(364)	1,943	9,539	10,485	8,696	1,092	2,450	15	

As can be seen from tables 8 and 10, the actual income budgets for 2002-2006 totals 40.7 million US$. As shown in the next section, the cash received for the same period amounts to 36 million US$. While not entirely unusual for cash/budget comparisons, this rather large mismatch considers further examination. In the course of following up on this issue, the Management Team has reported a series of inconsistencies in the (audited) CPWF financial statement (addendum to the IWMI financial report 2006) that will be discussed in the next section.

5.3. Financial Management and Financial Health

The CPWF is essentially a virtual organization without fixed assets and without long-term liabilities. Surprisingly, until 2005, no separate audited financial statements existed for the CPWF, but instead CPWF finances were included into IWMI books. Since 2006, however, financial reports of the CPWF consist of an addendum page to the audited IWMI financial report, listing the yearly and cumulative evolution of CPWF cash. Before 2006, no separate standard report for the CPWF existed and CPWF cash was included in the IWMI cash balance.

The cash flow details for 2006, from the addendum to the IWMI financial report are shown in Table 11 below as received from the IWMI finance department with minor editorial changes. It must be pointed out, however, that some items in this (audited) statement were reported to be erroneous by the CPWF Management Team. For example, the NGO that leads project 17 is listed as donor and USAID (a CPWF donor) seems to be missing. Disbursements are not marked according to the CPWF categories (managing centres that lead themes, basin coordination, Basin Focal Projects, Small Grants Projects) and the disbursement item “Expenditure IWMI CP” represents a large lump sum containing funds disbursed for IWMI projects (to IWMI and to third parties) and for secretariat and programme expenses. In lack of another reliable source of financial information, the Panel decides to base the analysis of financial health on the tables presented below, that may contain errors, which however should remain minor.

The Panel strongly recommends to review and, if needed, to correct the points raised above.

Table 11. Cash receipts and disbursement (Source: IWMI)

Cash Receipts	**Funds received, 2006 (US$ 000's)**	**Cumulative receipts (US$ 000's)**
Danish	302	1,494
DFID	4,562	13,254
France	654	3,669
GTZ	443	1,333
Norway	320	1,765
Netherlands	127	1,480
Sweden [SIDA]	98	287

Switzerland [SDC]	1,050	2,091
WNT	59	189
IFAD – Project 50	10	10
World Bank	2,700	10,400
Total receipts	**10,325**	**35,972**
Cash Disbursements		
IRRI	2,344	6,276
CIAT	2,068	3,445
ICLARM	654	2,021
IFPRI	503	1,363
IWMI	392	1,402
Yellow River Basin	86	531
SAO Francisco Basin	19	83
LIMPOPO Basin	51	120
KARKHEH Basin		50
Nile Basin	49	495
Mekong River Commission	142	501
VOLTA Basin	75	132
ANDEAN Basin	146	449
Basin Focal Project	240	272
Indo Gangetic Basin	50	137
IRD	180	280
University of California	276	276
CSIRO	411	411
Centre for Ecology & Hydrology	30	60
Khon Kean University	60	60
INT DEV. Enterprises Cambodia	45	45
Sokoine University	45	45
Asian Int. Of Technology	45	45
World Neighbors	36	36
SAVANNA Agri Research Ins	49	49
IDE International - Nepal	45	45
Human People India	31	31
Inst for Sustainable Development	27	27
Fund Expression	24	24
CSDE	22	22
IDE International - India	45	45
St Jude Family Project	44	44
World Vision South Africa	45	45
	8,279	**18,867**
Expenditure IWMI CP	5,182	13,896
Administration Fees	103	501
Total Disbursements	**13,564**	**33,264**
Undisbursed Funds held by IWMI	**(3,239)**	**2,708**

Most of the CGIAR performance indicators of financial health are determined from the balance sheet of the individual centres. Since the CPWF is an unincorporated joint venture, the ratios cannot be directly applied as there is not a separate CPWF balance sheet. In a strict CGIAR accounting sense, CPWF itself is a restricted programme and as such cannot generate unrestricted net assets. Unrestricted net assets are generated by unrestricted funding surpluses.

The undisbursed funds shown in the table above may however be used as a proxy for the short-term liquidity financial indicator. As can be seen, IWMI has held 2.7 million US$ or the equivalent of 73 days[23] in cash at year end 2006 for the CPWF.

It has not become clear however how much of these funds are already committed to projects. The above indicator does not provide information about an "unallocated cash reserve", i.e. the amount of unallocated, uncommitted and unbudgeted funds that represent a CPWF cash reserve. For the programme management staff and CPWF governance, no risk management policy, e.g. a safety buffer covering these expenses for a limited time, seems to be in place.

It should be kept in mind, however, that the CPWF is not intended to become a permanent institution. Financial safety mechanisms, such as cash reserves, should reflect the time-bound nature of the programme. A cash reserve should therefore allow the programme to continue managing and funding critical research, and should cover all close-down costs. If no contingencies occur, such a reserve should enter the last years' budget.

Concerning overall cash management, it seems that the current CPWF accounting practices, the decentralized setup including 5 managing centres and the absence of a clear finance policy make up-to-date and precise cash management for the Challenge Programme difficult. The Panel finds that current practice needs improvement because of a series of issues.

Firstly, it should be noted that the above addendum lists cash *disbursements*, i.e. unaudited cash transfers from IWMI to project partners or managing centres. It does not give information on the *audited expenditures*. On the basis of audited expenditures, for example, the short term liquidity ("cash held") has evolved as shown in table 12.

Table 12. Overview of audited cash receipts and expenditures

All numbers in million US$	**Year end 2002**	**Year end 2003**	**Year end 2004**	**Year end 2005**	**Year end 2006**
Cash receipts	1.7	5.3	9.4	9.3	10.3
…cumulated	1.7	7.0	16.4	25.6	36.0
Expenditures	0.6	5.0	3.8	9.6	13.4
…cumulated	0.6	5.6	9.4	19.0	32.4
Cash held	**1.1**	**1.4**	**7.0**	**6.6**	**3.5**
… in days	**669**	**102**	**672**	**251**	**95**

23 Based on 365 days per year and the total CPWF disbursements in 2006.

For 2006, this yields a short-term liquidity about 0.8 million US$ larger than on the basis of cash disbursements as discussed above. This discrepancy is mainly due to the delay in receiving audited statements from the managing centres.

Secondly, managing centres may hold funds on behalf of the CPWF but no information on the current amount has been available.

Thirdly, the degree of detail in and the accuracy of cash statements is not sufficient, as pointed out earlier. For example, no further split-up of the "IWMI CP expenditures" (see table at beginning of this section) of close to 14 million US$ until 2006 that contain expenditures for project implementation as well as hosting related costs was available according to the IWMI finance department. Although repeatedly requested by the Panel, no breakdown of overall CPWF expenditures into programmatic and non-programmatic positions could be obtained[24]. By the time this report was finalized the information obtained indicated that e.g hosting related expenses and administrative fees had been booked into all cost types (programme activities, secretariat, and research). Therefore, inter alia, no quantitative analysis of the transaction cost ratio could be performed.

Fourthly, no clear financial policy seems in place that covers administrative fees, charges for hosting services or attribution of accrued Challenge Programme interest, as detailed for each of these points below.

While the Consortium Agreement specifies that managing centres can charge 4% for "administrative and management services related to management of the research contracts" on "contracted research", there seems to be no agreed policy in place that explains on exact what funds these fees can be charged. According to the CPWF Management Team, administrative fees are not charged consistently over the Challenge Programme.

It has also not become transparent to the Panel – although requested repeatedly – what the individual hosting-related charges, i.e. for office space and logistics, accounting, legal and other services are – and what indirect costs can be charged on top of them. Again, no agreed and policy seems to be in place, although a service agreement has been drafted by the CPWF Management Team as requested by an earlier audit[25] but has never been adopted. The Consortium Agreement does not make any statements regarding hosting charges.

It also seems that accrued Challenge Programme interest has not been reported in CPWF financial statements and has not entered CPWF financial planning. No policy on attribution of CPWF interest exists and the Consortium Agreement does not make any statements regarding the allocation of accrued Challenge Programme interest.

24 In the addendum of the 2006 IWMI financial report non-programmatic costs are partially contained in several line items.

25 "Report on an Audit of the Challenge Programme on Water and Food", CGIAR Internal Auditing Unit, September 2006.

Overall, the Panel finds that current CPWF financial management needs improvement. On the one hand, no clear financial policy exists. On the other hand, reliable financial information vital to the Challenge Programme is available only with considerable delay. Several of these issues have been analyzed in great detail in an audit by the CGIAR Internal Audit Unit in 2006.

The Panel recommends that a clear and transparent financial policy is established that – as a minimum – clarifies pass-through and administrative fee levels and their applicability to different expenditure types, the handling of CPWF accrued interest, and amounts to be charged for hosting-related services.

The Panel recommends that current financial reporting by IWMI for the Challenge Programme is checked for accuracy and that a format is established that reflects better the disbursement categories of the CPWF, including a clear separation of programmatic and non-programmatic disbursements in line with CGIAR guidelines.

The Panel recommends that the CPWF and IWMI implements the recommendations of the CGIAR Internal Audit Unit that audited the CPWF in September 2006 with focus on the acceleration of availability of reliable financial information.

ANNEXES

Annexes

Annex 1. CGIAR Challenge Program External Reviews (CPER) Guidelines

Background

Challenge Programs (CPs) are time-bound, independently-governed programs of high impact research that target CGIAR research goals and priorities and require partnerships with a wide range of organizations. CPs are meant to improve the CGIAR's relevance and impact, better target and integrate existing activities, achieve greater efficiency and cohesion among CGIAR Centers, widen and improve their partnerships with non-CGIAR research partners and mobilize more stable and long term financing.

Three CPs were approved for implementation beginning in 2003: Water and Food (W&F); HarvestPlus (HP+); and Generation (GCP). At AGM04, the Sub-Saharan Africa Challenge Program (SSA CP) was approved in principle for an 18-month inception phase. ExCo 6 (May 2004) requested the SC and the CGIAR Secretariat to synthesize some lessons learned from the three pilot CPs. One of the recommendations of the ensuing 2004 report was that "the current CPs be evaluated by an external panel after five years from start to assess the value added provided by the CP structure in terms of the effectiveness of partnerships and generation of outputs, evidence of adoption and impact of research, cost effectiveness of operations and sustained donor interest".

At the AGM 2005, the Group endorsed a set of 20 System Priorities to enhance the focus and cohesion of the CGIAR's research agenda. CPs may be an important option for the implementation of priority research and need to be reviewed also in this context to ensure that their rationale is validated by experience.

The guidelines for the CPERs have been prepared to address the particular characteristics of the programs that make their operations and governance distinctly different from those of the CGIAR Centers, and anticipating that CPs of different nature and duration will increasingly be used to implement a part of the CGIAR's research agenda, and help the CGIAR leverage external research capacities.

Issues

These guidelines provide the general principles that guide all CPERs. For each individual review, the specific Terms of Reference (TOR) will include both the generic issues listed below and a set of strategic issues identified through consultation with stakeholders, including the SC and the CGIAR Secretariat.

The CPER is aimed at informing the CGIAR members, stakeholders and other investors about the relevance of the program, and that the investment is sound, or

recommend measures to make it so. It will advise the program and its partners about the efficiency and effectiveness of their work and the appropriateness of their internal monitoring and evaluation, and make recommendations for improvements.
The CPER should address the overall scientific quality of the program, the program's effectiveness in reaching its research goals and the appropriateness of management and governance. The CPER should focus on the extent to which the key defining characteristics of a CP have been met: high-impact research; targets the CGIAR goals in relation to complex issues of overwhelming global and/or regional significance; requires partnerships among a wide range of institutions in order to deliver its products; is time-bound; and is independently-governed.

The individual CPERs are expected to provide inputs to a broader assessment or analysis of the extent to which the CP model is fulfilling its objectives, i.e. the purposes for which it was conceptualized and adopted.

The issues that the CPER needs to address can be clustered in two main categories:

Programmatic issues:

1. Is it likely that the CP research will eventually have a high impact based upon the conduct of the program to date? Has the CP clearly identified its direct and final beneficiaries? Were the CP's key assumptions/expected impact pathways concerning critical scientific and technological constraints, socioeconomic conditions, adoption, markets, researchers' motivation and donors' interests appropriate? Is there any evidence of progress along these pathways? Are there changes required to help increase the chances of success and the extent of impacts?

2. What has been the added scientific value from the CP; in particular, by the partnerships represented by the CP? What has been achieved by the CP that could not have been achieved without it, through Center activities or SWEPs? Is there any evidence of synergies and/or new modes of operation of the Centers involved in the CP? Can these synergies be improved?

3. Is the science in the CP overall and in the different components of high quality and are the scientific outputs recognised by peers? Does the CP, including all its partners, follow a clear policy of best practices regarding ethics and intellectual property?

4. Was the international public goods nature of the planned outputs clear at the outset and has this been reinforced from the conduct of the program?

5. To what extent have the objectives of the CP been achieved? Has the CP been effective in delivering outputs? Is there already evidence of adoption and other outcomes among the intended users? If there was a technology exchange process, how effective and efficient was it?

6. Is the CP cohesive, allocating a critical mass of resources to research with a clear set of goals in terms of outputs, outcomes, and impacts that can be monitored to measure collective progress at a system level? Was an appropriate M&E system included in the design of the CP and has it been implemented (including, inter alia, baseline data and outcome monitoring) in order to be in a position to generate,

disseminate and use credible and timely evidence concerning program impact?

7. In what ways has the CP contributed to capacity building of partners? Is capacity building included in the business plan and appropriately integrated into the program?

Management/governance/partnership issues:

1. Is there a clear, balanced, and formal governance structure involving research partners? Does it provide effective and adequate oversight, including financial oversight? Are there any perceived or real conflicts of interest in the governing body? Is there a clear and effective M&E system in place? What are the constraints and benefits for the CP (in terms of research, synergies, financial arrangements, etc) that result from the arrangements with the host institution?

2. What is the relationship between CP governance systems and the Boards of the Centers leading or participating in them?

3. Is the breadth of the CP in terms of partners optimal for reaching the objectives? Is there clarity of roles and responsibilities of all partners? Is there an effective system for internal knowledge sharing and communication across regions and research sites? Are the transaction costs in partnering well-managed?

4. What internal / external audit arrangements are in place, and do these cover site operations? For commissioned research, are the rules and mechanisms transparent? Is there a well-established, clearly defined and transparent internal control environment on implementing competitive grants?

5. How is the program's multi-year funding ensured? Is financial support diversified enough to avoid funding risks? How much is the deviation (if any) between budget and actual expenditures? What is the percentage of unidentified funding in budget at time of approval by the CP governing body? What is the proportion of transaction costs to expenditure/budget/funding?

The purpose and objectives of the CPER are to learn and to assess; hence the following general principles guide the conduct of the review:

• The Panel should take into account assessments made of the CP and available information such as MTP reviews, *ex ante* project reviews, reports to donors and any other information from internal monitoring and evaluation mechanisms.

• The Panel should identify key program assumptions, particularly those having implications for costs, benefits, outcomes and impact, indicating which items are expected to be included as costs or benefits, their expected magnitudes and time profiles.
• The Program needs to ensure that critical data on performance, benchmarks and context are available at the time of the CPER.

• The Panel needs to document any unexpected costs and benefits of the CP, including spillovers.

• The review process should involve adequate communication of the CPER with the CP both during the review and after it, and the results should be communicated using various approaches, preferably electronic means, reaching also external audiences.

Implementation

The CPERs are commissioned by the SC on behalf of the Group. They are organized jointly by the SC and the CGIAR Secretariat and their implementation is coordinated by the SC Secretariat. They complement the other elements of the CGIAR's Monitoring and Evaluation systems, namely the annual MTP review by the SC and the Performance Measurement System, which will be adjusted also to accommodate the CPs.

An external review panel of at least two, maximum three members will be assembled. The Panel Chair should have demonstrated experience and skills in research management as well as in scientific research. The profile of the Panel Chair would also depend on the nature of the CP's research as well as the stage that the CP is in, in its life cycle. S/he would have an understanding of international agricultural research for development; have excellent analytical capability, and excellent command of English. S/he should have experience in reviewing complex research programs and demonstrated capacity to lead an independent external review. The Panel member responsible for the governance, management and partnership component of the review should have expertise in program governance, management of multi-partner consortia and program funding.

The review team may include 1–2 consultants to cover specific aspects corresponding to the complexity of the concerned program in which the Panel requires ad hoc expertise. Thus, the review Panel will have more flexibility to deal with issues that may not require an expert to be on board for the full period of the review. In consultation with the SC and the CGIAR Secretariat the Panel will determine if there is a need for consultants, who subsequently are selected through a standard Panel selection process led by the SC. The TOR of these consultants should include time for consultations upfront and towards the end of the review process.

All Panel members and consultants participate in the review in their personal capacity and should have no conflict of interest with the CP. Causes of potential conflict include: current employment with a CGIAR Center or CP; previous employment or consultancy with the CP; employment with any of the CP partners; participation or consultancy in planning of the CP or its components; representative of a donor to the CP with any responsibility related to the program funding.

In addition to the generic questions presented in this document, additional review questions will be included in the TOR for each CPER. These would reflect the specific nature and focus of the CP and its research and review history. The CPER should provide information to guide decisions about continuing the program's activities.

The review will include one visit to the host institution of the CP and also a visit to at least one CP partner. It is essential that the CPER reviews the efficiency of the partnerships and captures both the internal partners' and external stakeholders' perceptions.

The report should be clear and succinct. It should explicitly address all the points of the TOR with sufficient analysis to support the conclusions; and present clear and explicit recommendations for improvement, or for bringing the CP to closure. The report should be brief and concise (not to exceed 60 pages), and should include a short Executive Summary (not more than 2 pages). Any supplementary evidence and/or tables could be included in an annex, but the text should be self-contained.

The CP will prepare a response to the Panel report. The SC and CGIAR Secretariats will prepare a commentary to the report prior to its submission to the ExCo and to the Group. The SC and the CGIAR Secretariat will monitor the follow-up of the CPER through the MTP and report their assessment to ExCo.

Background Documents that the CPER Panel is expected to use

1. CP specific Terms of Reference
2. CP full project proposal
3. SC commentary on CP full proposal
4. CP final Business plan
5. CP Annual reports
6. CP MTPs, including annual work plans
7. SC commentaries of CP MTPs
8. CP annual budgets
9. Description of competitive grants process
10. Major funding applications
11. Reports to donors
12. Donor assessments
13. Description of internal monitoring and evaluation processes
14. Internal monitoring and evaluation reports
15. List of program publications by category (to be decided)
16. List of program partners, the specific contribution to the research and the associated budget share
17. CGIAR documents of lessons learned from CPs (e.g. 2004)
18. Selected peer reviewed papers/books produced by the CP

27 February 2007

Annex 2. CGIAR External Review of the Water and Food Challenge Program. Terms of reference

Background

The Water and Food Challenge Program started with a one-year inception phase in 2003 and the implementation phase began in January 2004. The Challenge Program External Review (CPER) evaluates the progress of the CPWF as it is coming towards the end of its first phase. The CPER will be conducted following the **CPER Guidelines**, a companion document to this TOR that is available at www.sciencecouncil.cgiar.org.

For **logistics** please see the "Implementation" section of the CPER Guidelines. It is expected that this review will take up to a total of 30 working days. The schedule for the review as well as contract details will be specified in the appointment note to panel members.

Topics to be covered

The main topics to be covered by the CPER are:

1. The seven (7) programmatic issues as described in pg. 2 of the CPER Guidelines.
2. The four (4) management, governance and partnerships issues as described in pg. 3 of the CPER Guidelines.

In addition, while addressing these issues, the Panel is asked to comment on the following specific items:

3. Assess priority setting at the various stages of the CPWF to determine whether an appropriate and consistent set of criteria have been used throughout the initial establishment and inception phase, the first call for projects and the second and most recent call. A specific issue to assess is whether the analyses and results of the Comprehensive Assessment of Agricultural Water Management (SWIM 2) have been used effectively in CPWF priority setting.
4. CPWF has responded to SC comments about an initial lack of cohesion by attempting to focus on fewer objectives, however, the program still consists of a large number of projects spread over nine expansive Benchmark Basins that cover a broad agenda. Assess the relevance of the research strategy and whether efforts to focus the program so far are sufficient considering the expected outputs and resources available.
5. An important issue for the CPWF is the need to identify the constraints to uptake based on a thorough analysis of the policy and institutional context in each of the Benchmark Basins. Has this analysis been carried out and translated into addressing a comprehensive set of researchable issues?
6. Assess whether the appropriate ex ante impact pathway analysis has been undertaken and partnerships established to ensure uptake of research outputs

through effective delivery channels.

7. Has the CPWF adequately defined its comparative advantage vis-à-vis the roles of alternative suppliers of research who are not part of the CP? A specific issue for this review is whether there is a transparent delineation between CPWF and IWMI that maximises their complementarities and minimises potential overlaps.

Annex 3. People interviewed by the CPWF External Review

Initial planning, CIMMYT, Texcoco, Mexico (1-3 April 2007)

Dr. Jonathan Woolley, CPWF Program Coordinator

CPWF Secretariat and IWMI Headquarters, Colombo, Sri Lanka (19-24 April 2007)

Dr. Peter McCornick , Director for Asia, IWMI
Dr. David Molden , Deputy Director General, IWMI
Dr. Mobin ud-Din Ahmad, Leader Karkheh BFP (IWMI staff)
Dr. Sophie Nguyen Khoa-Man, CPWF Theme 3 Leader (World Fish staff)
Dr. Francis Gichuki, CPWF Theme 4 Leader (IWMI staff)
Dr. Debbie Bossio, Director Research Programs, Theme Leader & Principal Soil Scientist, IWMI
Dr. Jonathan Woolley, CPWF Program Coordinator
Ms. Pamela George, CPWF Program Manager
Ms. Amena Mohammed, CPWF Communications Coordinator
Dr. Alain Vidal, CPWF Management Team Member (CEMAGREF staff)
Dr. Simon Cook, CPWF Coordinator Basin Focal Projects (CIAT staff)
Dr. Kim Geheb, CPWF Mekong Basin Coordinator and Management Team Member (MRC staff)
Mr. Amol Khisti, Head of Finance and Administration, IWMI

Review meeting in New Delhi (26 April 2007)

Dr. J. S. Samra, DDG, NRM, ICAR and member, CPWF Consortium Steering Committee (CSC)
Dr. A. K. Sikka, CPWF Benchmark Basin Coordinator, IGB and ICAR Research Coordinator, Eastern Region
Dr. Upali Amarasinghe, Sr. Researcher, IWMI, New Delhi and Project Leader-PN 48
Dr. Madar Samad, P. Researcher, IWMI, Hyderabad and PI, PN 48
Dr. Anik Bahaduri, Research Associate, PN 48, IWMI, New Delhi
Dr. Bharat Sharma, Sr. Researcher, IWMI and Project Leader-PN 42
Mr. Bob Yoder, IDE, USA and PI, PN 28 and SG 507
Er. Deepak Adhikari, Dept. of Irrigation, Nepal and Researcher, PN 28 and SG 507
Shri Sudarshan Suryavanshi, IDE, India and Researcher, PN 28
Dr. Dhruba Pant, Head IWMI, Nepal and PL, PN 23
Dr. Ravi Chopra, Director, People's Science Institute, Dehradun and Researcher, PN 23
Dr. A. K. Singh, Director, Water Technology Centre, New Delhi and PI, PN 16

Field visit, Lucknow (Uttar Pradesh) 27 April 2007

At Shivri Farm
Dr. D. K. Sharma, Head, CSSRI, RS Karnal and PI, PN 7
Dr. Naik, Sr. Scientist, CSSRI, RS Karnal and Researcher, PN 7
Dr. Ranbir Singh, Sr. Scientist, CSSRI, RS Karnal and Researcher, PN 7

Dr. Y. P. Singh, Sr. Scientist, CSSRI, RS Karnal and Researcher, PN 7
Dr. Abdul Haris, Sr. Scientist and member CPWF IGB Coordinating Unit

At Dhaura KVK
Dr. A. K. Singh, Training Organizer and Facilitator, Farmers' Outreach Program
Dr. S. K. Singh, Subject Specialist
Mr. D. K. Srivastava, Subject Specialist
Shri Shiv Dulara, Farmer
Shri Shamsher Singh, Farmer
Shri Daya Ram, Farmer
Shri Naresh Kumar Singh, Seed Trader
Shri Vaidya Nath Pradhan, Farmer
Shri Shiv Kumar Singh, Farmer

Field visit, Bhopal (Madhya Pradesh) 28 April 2007

Dr. K.Vass, Director, CIFRI Barrackpore and Project Leader, PN-34
Dr. P. K. Katiha, Sr. Scientist, CIFRI, Barrackpore and PI, PN 34
Dr. N. P. Srivastav, P. Scientist, CIFRI, Barrackpore and Researcher, PN 34
Dr. A . K. Das, Sr. Scientist, CIFRI, Barrackpore and Researcher, PN 34
Shri Satish Kumar Bara, SRF, PN 34 (Bhopal Site)
Shri Nirmal Kumar Biswas, SRF, PN 34 (Bhopal Site)
Shri Tilak Singh Khushwaha, SRF, PN 34(Bhopal Site)
Ms Anurbha Saxena, SRF, PN 34 (Jhansi site)
Shri Ramratan, Reservoir fisherman
Shri Munna Lal, Reservoir fisherman
Dr. U. K. Purohit, Joint Director, Fishery Dept. Madhya Pradesh
Shri U. S. Tomar, Deputy Director, Fishery Dept. Madhya Pradesh
Shri. D. S. Khare, Asst. Director, Fishery Dept. Madhya Pradesh
Dr. T. A. Qureshi, Former Head, Barkhatulla University Bhopal
Mr. Ghasi Ram, President Co-operative Society
Dr. Kulkarni, Officiating Director, Central Institute of Agricultural Engineering, Bhopal
Dr. Bhandakar, P. Scientist, CIAE, Bhopal
Dr. Subba Rao, Director, Indian Institute of Soil Science, Bhopal

Other contacts in New Delhi

Prof. Saifuddin Soz, Minister of Water Resources of India
Mr. M. Gopalakrishnan, Secretary General, International Commission on Irrigation and Drainage, Delhi

Vietnam field visit and project presentations (19-22 May, 2007)

Dr. Elizabeth Humphries, Leader CPWF Theme 1 (IRRI staff)
Ms. Ruvicyn Bayot , Asst. Leader CPWF Theme 1 (IRRI staff)
Dr. Sophie Nguyen Khoa, Leader CPWF Theme 3 (World Fish staff)
Dr. Annette Huber-Lee, Leader CPWF Theme 5 and Management Team (IFPRI staff)
Dr. Claudia Ringler, Co-Leader CPWF Theme 5 (IFPRI staff)

Dr. Kim Geheb, CPWF Mekong Basin Coordinator and Management Team (MRC staff)
Dr. Simon Cook, Coordinator BFPs (CIAT staff)
Dr. Mac Kirby, Leader Mekong BFP (CSIRO staff)
Dr. Lang Nguyen Thi, Cuu Long Delta Rice Research Institute, Researcher PN 7
Dr. Tuong To Phuc, IRRI, Project Leader PN 10 and CSC member
Dr. Hari Garung, IRRI, Researcher PN 11
Dr. Bas Bouman, IRRI, Project Leader PN 16
Dr. Boonrat Jongdee, Ubon Rice Research Institute, Researcher PN 16
Dr. Guy Trebuil, CIRAD, Researcher PN25
Dr. Le Canh Dung, Can Tho University, Researcher PN 25
Dr. John Dore, World Conservation Union, Researcher PN 50
Dr. Nathalie Baxter, International Development Enterprises Cambodia, Researcher SG502
Dr. Sieng Kan, International Development Enterprises Cambodia, Researcher SG502
Dr. Prabat Kumar, Asian Institute of Technology, Researcher SG504
Dr. Tri Khiem Nguyen, An Giang University, Researcher PN 35
Dr. Duong Van Ni, Can Tho University, Researcher PN 35
Dr. Will Allen, LandCare Research New Zealand, Member CPWF Gender, Institutions & Participation Panel (GIP)
Dr. Kittasudthacheew Chayanis, Stockholm Environment Institute, Thailand, Researcher PN 50

Review meeting in Rome (11-13 June 2007)

Dr. Jonathan Woolley, CPWF Program Coordinator
Ms. Pamela George, CPWF Program Manager
Dr. Bernadette Resurreccion, CPWF Management Team Member (AIT staff)
Dr. Annette Huber-Lee, Leader CPWF Theme 5 and Management Team Member (IFPRI staff)
Dr. Kim Geheb, Benchmark Basin Coordinator, Mekong Basin Coordinator and Management Team Member (MRC staff)
Dr. Elizabeth Humphreys, Leader CPWF Theme 1 (IRRI staff)
Dr. Nancy Johnson, Leader CPWF Theme 2 (CIAT staff)
Dr. Sophie Nguyen Khoa Manh, Leader CPWF Theme 3 (World Fish staff)
Dr. Francis Gichuki, Leader CPWF Theme 4 (IWMI staff)
Dr. Boru Douthwaite, Project Leader CPWF Impact Assessment (CIAT staff)
Dr. Simon Cook, Coordinator, CPWF Basin Focal Projects (CIAT staff)
Ms. Marcia Macomber, CPWF Capacity Building Coordinator
Dr. Larry Harrington, CPWF Consultant, Synthesis, Basin Focal Projects and Phase 2
Dr. Timothy Kelley, FAO/Science Council Secretariat (observer)

Governance follow-up interviews (June and July 2007, mostly by telephone)

Dr. Ania Grobicki, Head of the Bamako 2008 Secretariat, former CPWF Program Coordinator
Dr. Chris Smith, Research Director CSIRO, member, CPWF Consortium Steering Committee (CSC)
David Molden, Deputy Director General (Research) IWMI, Chair, CPWF Consortium Steering Committee (CSC)

Mr. Do Manh Hung, Mekong River Commission, member, CPWF Consortium Steering Committee (CSC)
Prof. Frank Rijsberman, Google.org, former Chair, CPWF Consortium Steering Committee (CSC)
Dr. Jean-Yves Maillat, Consultant, IWMI External Review Panel Member
Prof. Joachim von Braun, Director General IFPRI, member, CPWF Consortium Steering Committee (CSC)
Dr. Joachim Voss, Director General CIAT
Ms. Liu Xiaoyan, YRCC, member, CPWF Consortium Steering Committee (CSC)
Dr. Osamu Ito, Director JIRCAS, CPWF Consortium Steering Committee (CSC)
Dr. Patrick Dugan, WorldFish, member, CPWF Consortium Steering Committee (CSC)
Dr. Peter Lochery, CARE, member, CPWF Consortium Steering Committee (CSC)
Yves Savidan, AGROPOLIS, Board Chair CIAT, member of steering committees of Challenge Programs HarvestPlus and Generation

Other contacts (finance and evaluation)

Mr. John Fitzsimon, Head, CGIAR Internal Audit Unit
Dr. John Howell, M&E specialist
Mr. Suresh Sitaraman, Consultant, IWMI External Review Panel Member

Lausanne, Switzerland (3 July 2007)

Dr. Willi Graf, Senior Adviser, Natural Resources & Environment, Swiss Agency for Development and Cooperation (SDC)

Annex 4. Documents made available to CPWF via dedicated web-page

First-tier documents
Last updated 19 March 2007
1. CPER specific Terms of Reference 2007
1.2 CGIAR guidelines for CP external review
2. CPWF full proposal 2002
2.1 Annexes to CPWF full proposal
3. iSC commentary of CPWF full project proposal 2002
6. CPWF Medium Term Plan 2007 - 2009
6.1 SC commentary on CPWF Medium Term Plan 2007 - 2009
6.2 CPWF response to SC commentary on CPWF Medium Term Plan 2007 - 2009
8. CPWF Annual Budgets
16. Budget by partner, summary spreadsheet
17.1 Lessons learnt during the establishment of the CPWF 2004
17.2 CGIAR Synthesis of lessons learned from initial implementation of pilot Challenge Programmes 2004
18. List of peer-reviewed publications by themes

Additional first-tier documents
A. Executive summaries of project proposals and participation
B. List of projects, present status
C. CPWF Research Strategy 2005 - 2008
D. CPWF Baseline 2004
E. CPWF Synthesis 2005
F. Programme Summary Brochures
General
Theme
Basin
G. Key contacts for CPWF external review

Second-tier documents
Last updated 25 May 2007
5. CPWF Annual Reports
5.1 Annual Report 2004 [PDF 1.2 Mb]
5.2 Annual Report 2005 [PDF 726 Kb]
5.2.1 CGIAR Commentary on the Governance, Management and Finance Aspects of the Annual Reports (2005) of Challenge Programmes [PDF 17.1 kb]
5.3 Annual Report 2006 - DRAFT [Word 176Kb]
5.3.1 Annual Report 2006 - Financial Tables - DRAFT [Xls 51 kb]
9. Description of competitive grants process
9.1 General:
9.1.1 The evolution of procedures for competitive selection in the CPWF [PDF 142 Kb]
9.1.2 Theme and basin coverage in the 50 CPWF projects [PDF 78 Kb]
9.2 First call:
9.2.1 Concept note assessment format with guidelines [PDF 159 Kb]
9.2.2 Full proposal submission guidelines [PDF 236 Kb]

9.2.3 Full proposal assessment format with guidelines [PDF 141 Kb]
9.2.4 Proposal budget template [xls 171 Kb]
9.3 Second call:
9.3.1 Concept note guidelines [PDF 26 Kb]
9.3.2 Annex 1: Form for concept note submissions [PDF 82 Kb]
9.3.3 Concept note evaluation format [PDF 150 Kb]
9.3.4 Concept note weightings for evaluation criteria [PDF 80 Kb]
9.3.5 Full proposal guidelines - In Confidence, Yet to be Released [PDF 199 Kb]
9.3.6 Budget submission format, revised call
9.3.7 Optional worksheets, revised call
9.4 BFP:
9.4.1 Basin Focal Projects call for expressions of interest [PDF 223Kb]
9.4.2 Assessment form for BFP expressions of interest [PDF 92 Kb]
13. Monitoring and Evaluation Processes
13.1 Monitoring and Evaluation Process - draft working paper for discussion prepared for Consortium Steering Committee meeting (October, 2003) [PDF 126 Kb]
13.2 Monitoring and Evaluation Briefing Paper (April 2006) [PDF 158 Kb]
13.3 Use and Potential of Impact Pathways in CPWF Briefing Paper (April 2006) [PDF 502 Kb]
13.4 CPWF Website Strategy [PDF 119 Kb]
13.5 Impact Assessment of CPWF Research: Phase 1 - Volta, Mekong, Karkheh [PDF 333Kb]
13.6 Impact Assessment of CPWF Research: Phase 2 - Indo-Gangetic, Sao Francisco, Nile, Limpopo, Andean System of River Basins [PDF 261 Kb]
13.7 Cost Benefit Analysis - Assessing the Impact of the CPWF [PDF 115 Kb]
13.8 CPWF Six Monthly Progress Report - Proforma [PDF 97 Kb]
13.9 CPWF Annual Progress Report - Proforma [PDF 238 Kb]
13.10CPWF Completion Report - Proforma [PDF 222 Kb]
13.11CPWF Web Reporting Format (Draft) [PDF 181 Kb]
14. Capacity Building
14.1 Capacity building in first call projects 2004 - 2006
14.2 Capacity building strategy, revised 2005
14.3 Capacity building webpage
14.4 CPWF Capacity building brochure
14.5 Future of CPWF Capacity Building Activities" - donor brochure
14.6 M-Power Fellowships
14.7 "Focus on Capacity Building: Lessons from the African Transboundary Governance Project" in Africa Water Figures (2006, issue 1, page 6)
14.8 "International training and research course on groundwater governance in Asia: theory and practice" in Asia Water Figures (2007, issue 1: page 6)

Additional second tier documents
H. Synthesis 2006 (Draft)
I. Basin Profiles
J. CPWF and CA Research Priorities [PDF 231 Kb]
K. CA Summary Document
L. Research Highlights
- More animal per drop: searching for livestock-water productivity gains in the Nile basin [PDF 654 Kb]
- Integrated farming enhances rainwater and soil productivity [PDF 650Kb]

- Science navigates new routes to sustainable agroforestry [PDF 651 Kb]
- Participatory crop breeding reaps benefits for Eritrea [PDF 750 Kb]
- Payment for environmental services: offering smallholder farmers a choice for sustainable change [PDF 587 Kb]
- Guiding the sustainable management of rice landscapes in the uplands [PDF 566 Kb]
- Safeguarding public health from farms to markets to households [PDF 670 Kb]
- Multiple-use water services to address real-life water needs [PDF 688 Kb]
- Managing risk in delta ecosystems to sustain diverse livelihoods [PDF 576 Kb]
- Taking a second look at traditional institutional arrangements for transboundary water governance in Africa [PDF 577 Kb]

M. CPWF working document toward Phase 2 design [PDF Kb]
N. Outputs of the CPWF International Forum on Water and Food [PDF 585 Kb]
O. Suggested sources of information for external review TOR [PDF 91 Kb]
P. Most significant change stories [PDF 354 Kb]

Third-tier documents
Last updated 23 April 2007

Minutes for the virtual CSC meeting, 12 February 2007 [PDF 120Kb]
CSC proposal for new management structure, March 2005 [PDF 53Kb]
Draft Terms of Reference for CSC consideration, March 2005 [PDF 86Kb]

Additional Documents
Last updated 21 June 2007

Q. CPWF Management Team's responses to ER TOR's
R. Working Document Towards Phase 2 of the CPWF
S. Medium Term Plan CPWF 2008 - 2010
T. Participatory Impact Pathways Analysis and Priority Setting [pdf 193kb]
U. Impact Potential of the 'Temperate and Tropical Aerobic Rice (STAR) in Asia' project [pdf 3.15mb]

Annex 5. Review of selected CPWF Publications

Theme 2: Water and People in Catchments

The focus of Theme 2 research projects is on "the multiple ways that people manage water between the plot and the basin scale". It seeks to "identify institutional and technological innovations that improve people's capacity to manage water collectively". It is also directed at upper catchment issues.

Jorge Rubiano, Marcela Quintero, Ruben Dario Estrada, Alonso Moreno (2006). ***Multiscale Analysis for Promoting Integrated Watershed Management****, Water International, 31,3: forthcoming*

This is a useful paper that presents an innovative approach to landuse management. It integrates a biophysical response model with an economic optimizing routine and then investigates alternative adoption scenarios using game theory to account for social interactions. As such, it is a very comprehensive analysis of a complex situation.

A critical comment relates to the use of multi-criteria analysis to formulate the objective function in the economic optimization process used to establish the shadow prices for the non-market values associated with the land/water use management externalities. The subjectivity associated with the development of the weights integral to the use of MCA detracts from the analysis. This could be avoided by the direct use of non-market valuation techniques to estimate the values of the externalities and the integration of benefit cost analysis as the optimization framework.

A major concern is that the CPWR is not even acknowledged in this paper. That raises the issue of how much of this research can be attributed to the CP funding.

Brent Swallow, Nancy Johnson, Ruth Meinzen-Dick, Anna Knox (200). ***The challenges of inclusive cross-scale collective action in watersheds, W****ater International, 31,3: forthcoming*

This paper presents a variety of frameworks that can be used for the analysis of collective action in catchments. The array of frameworks is useful for researchers and policy makers in developing ideas for innovation in collective action that is based on existing or traditional mechanisms.

The relationships purported in the paper to exist between water and poverty is overly simplistic. The confounding effects of other resources are acknowledged indirectly in the paper but needs to be made explicit. This is a problem with many of the CP initiatives in that the focus on water productivity ignores that it is total factor productivity that matters. Increased water productivity may come for example with the application of other forms of inputs. If these other inputs are the pressing constraints, improving water productivity is not warranted.

Despite its value as a reference point, the paper does not involve any empirical (quantitative or qualitative) evidence of the prospects for the alternative collective

action recipes put forward. Hence the paper can only be seen as a foundation for potential future research.

Acknowledgement is given to CPWF funding but only for the material presented in Section 2. Attribution of the whole output to CPWF is therefore ill founded.

In addition, the paper (apparently) has not yet been accepted for journal publication. It is possible that a journal 'home' will be hard to find for the paper given its status more of a review than presenting much by way of innovation or contribution to knowledge expansion.

Theme 4: Integrated Basin Water Management Systems

This theme seeks "innovative institutional arrangements and decision support tools and information to help establish integrated water resource management strategies in basins". The similarities in stated objectives for this theme and Theme 2 are clear. The one apparent distinction is that Theme 2 stresses the development understanding of upper catchment issues while Theme 4 is more holistic. By ignoring lower catchment aspects, the Panel considers that Theme 2 is in danger of producing research recommendations that subsequent analysis under Theme 4 would be concluded to be erroneous. It therefore **recommends an integration of the two themes.**

It is also notable that particularly this Theme has strong similarities with IWMI's overall goals of addressing water and food issues from an integrated basin-wide perspective. In this sense, the CPWF is replicating the role of IWMI in international agricultural research.

Thomas Berger, Regina Birner, Jose Diaz, Nancy McCarthy, Heidi Wittmer (2006). ***Capturing the Complexity of Water Uses and Water Users within a Multi-Agent Framework,*** *Water Resource Management 21(1): 129-148.*

This paper aims to justify the use of Multi-Agent Modelling as a means of investigating complex policy issues in water management. The context presented is the tradeoff involved in water supply infrastructure investment. There is no actual analysis presented. Rather the modeling framework is described. Unfortunately, nor does the paper give an in-depth description of just what multi-agent modeling involves. What description is provided is left at a relatively cursory level and for the uninformed, it is difficult to see exactly what the method involves other than the integration of numerous other modelling systems.

The paper does give some insights into the case study of interest but again, it only involves the setting of the scene and raising the issues that are deemed to be complex and hence of interest to multi-agent modellers. Hence, overall, it is a rather 'unsatisfying' paper because it achieves so little and leaves so many issues unresolved.

Jinxia Wang, Jikun Huang, Scott Rozelle, Qiuqiong Huang and Amelia Blanke (2007). ***Agriculture and groundwater development in northern China: trends, institutional responses, and policy options,*** *Water Policy, 9:61-74.*

This paper presents a straight forward description of groundwater expansion in Northern China and includes a detailing of institutional structures that have precipitated the decline in GW table. A key feature of the paper is a sensible analysis of the policy implications that arise from the analysis. The importance of the collection of further data necessary to set the direction for actual policy recommendations is noted as is a call for that collection to be undertaken.

However, the acknowledgement for this paper refers to the Comprehensive Assessment rather than the CPWF. Hence, attribution is again an issue: Can this work be really classified as a product of the CPWF investment?

J. Liebe, N. van de Giesen, M. Andreini (2005). ***Estimation of small reservoir storage capacities in a semi-arid environment: A case study in the Upper East Region of Ghana****, Physics And Chemistry of the Earth, 30: 448-454.*

This is a technical paper that explores the characteristics of water reservoirs in the Upper Catchment of the Volta. It represents a useful exercise in the development of a technique that will aid the development of models of catchment flows. With further work on the integration of the technique into broader scale flow models, it will aid the management of water resources in the region. However, it would have been useful in the paper to have included a conceptual framework and potentially an example to demonstrate how the research is linked to policy management considerations. This would have enabled a better assessment of the contribution that is likely to arise from the research.

The major issue arising from this paper in terms of its role in the CPWF is that it does not even acknowledge any CPWF funding. This leaves questions unanswered as to its status as an output of the CP?

Theme 5: Global and National Water and Food Systems

Theme 5 concentrates on policy issues at the regional, national and international levels and deals with transboundary issues. Again, it is difficult to tease apart the goal of this theme from other themes given their objectives include institutional issues. Nor is it apparent how this theme can be treated separately from the research issues tackled in the other themes.

V. Smakhtin and M. Anputhas (2006). ***An Assessment of Environmental Flow Requirements of Indian River Basins.*** *IWMI Research Report 107.*

The motivation for the paper is in doubt because it does not make it at all clear why we should be at all interested in the specification of environmental flow levels at the National level. These are, importantly, specific to individual catchments and even sub-catchments. Hence, National level aggregators are meaningless.

Environmental flows are (correctly) stated on p8 to be a trade-off between water resource development and river health. The remainder of the paper however ignores the relevance of the resource development side of that trade-off and deals only with the river health/ecology story.

The ecological studies used as the basis for the river health determination are based on analyses of the condition of the rivers and their types. This approach does not consider how the river's health will respond to increases in flows. A river, for instance, may be so degraded that more water will not help or is its degradation issues are not flow responsive. Hence, the ecological advantage from increased environmental flows – the required benefit to be traded off against any foregone developmental benefits that may be foregone as a result of the change in flow management is not considered. Put simply, what is required is a tool that will predict the ecological improvements that will be generated by a change in environmental flow. This can then be traded off against the costs to development of that water.

Hence the paper needs to take a different perspective … one of trade-offs involving change.

Anton Earle, Jaqui Goldin, Rose Machiridza, Daniel Malzbender, Emmanuel Manzungu and Tiego Mpho (2006). ***Indigenous and Institutional Profile: Limpopo River Basin,*** *IWMI Working Paper 112.*

The ethnographic section of this paper is an interesting compilation but there is no attempt to develop the relevance of the material to current water management issues. The depth of information presented could be reduced to target the elements that are relevant and the relevance pointed out.

Similarly, the treatment of the pre-colonial period takes an historical perspective but does not attempt to interpret the relevance of the water management institutions that were in evidence. Contrary to what may be expected from such a piece, there is a heavy emphasis on the colonial period institutions. Expectations are that these institutions are largely irrelevant to the objective of the paper.

The work presented represents a relatively high risk research activity akin to "prospecting" for a water management institutional structure that if already established would have exerted evolutionary pressure to emerge as "successful" and then dominate other inferior options. A question that must be addressed in this type of work is what stops the comparative advantage of 'prospective' institutions from previous periods from being evident now and hence from being adopted?

A weakness of the paper is its failure to separate out the "chieftenship" (who is the leader) from what the leaders established by way of rules for water use. Customary organizational structures are important but it's the customary rules that are the most interesting in thinking about the establishment of new institutions that will be enforced by different, current, governance organizations. It is the "customary law" that deserves particular analysis.

So whilst this paper represents a useful, if somewhat superfluously detailed background, it does not leave the reader with any strong conclusions regarding the viability of customary law for water management.

Annex 6. Governance Survey Participants

"CSC Group"[26]
Dr. Hussein El-Atfy, NWRC, member, CPWF Consortium Steering Committee (CSC)
Dr. James E. Hill, UC Davis, member, CPWF Consortium Steering Committee (CSC)
Dr. Ruth Meinzen-Dick, IFPRI, representative, CPWF Consortium Steering Committee (CSC)
Dr. To Phuc Tuong, IRRI, member, CPWF Consortium Steering Committee (CSC)
Prof. Frank Rijsberman, Google.org, former Chair, CPWF Consortium Steering Committee (CSC)

"Management Group"[27]
Dr. Winston Andah, Basin Coordinator (CSIR staff)
Dr. Luis Bassoi, CPWF Basin Coordinator (EMBRAPA staff)
Dr. Simon Cook, CPWF Coordinator Basin Focal Projects (CIAT staff)
Dr. Kim Geheb, CPWF Mekong Basin Coordinator and Management Team Member (MRC staff)
Ms. Pamela George, CPWF Programme Manager
Dr. Francis Gichuki, CPWF Theme 4 Leader (IWMI staff)
Dr. Nader Heydari, Basin Coordinator (AERI staff)
Dr. Annette Huber-Lee, Leader CPWF Theme 5 and Management Team Member (IFPRI staff)
Dr. Elizabeth Humphries, Leader CPWF Theme 1 (IRRI staff)
Ms. Marcia Macomber, CPWF Capacity Building Coordinator
Ms. Maria Catalina Ramirez, Assistant Basin Coordinator (CONDESAN staff)
Dr. Claudia Ringler, Co-Leader CPWF Theme 5 (IFPRI staff)
Dr. Massoud Shaker, South Africa, former Basin Coordinator (ARC staff)
Dr. Alok Kumar Sikka, CPWF Basin Coordinator (ICAR staff)
Dr. Alain Vidal, CPWF Management Team Member (CEMAGREF staff)
Dr. Jonathan Woolley, CPWF Programme Coordinator

[26] An empty survey form has been received electronically from the current Chair of the CSC, Dr. David Molden, who indicated having had technical problems.
[27] One member of the Management Team had erroneously forwarded the survey to several project leaders, of whom two completed surveys were received. These answers have, however, not been included in the analysis.

Annex 7. Governance Survey – Analysis of Responses Received

Recipient and response info

Survey timing

- The online survey was started by means of an email by Jonathan Woolley on May 28, 2007, giving basic information and providing the link to the online survey website
- The survey was closed on June 11, 2007 after an extension of the deadline

Survey target group

- The survey has been sent to a total of 49 individuals that were grouped into a
  - "CSC" group of 25 individuals:
    - 17 current CSC members
    - 1 representative for a vacant CSC position
    - 5 former CSC members, including the former chair
    - 2 representatives to the CSC (representing members)
  - Management group of 24 individuals
    - 6 (all) members of the current management team
    - 4 theme leaders (one theme leader included in management team)
    - 1 theme co-leader
    - 8 basin coordinators (one basin coordinator included in management team)
    - 1 former basin coordinator
    - 4 other coordinators (basin focal projects, capacity building, communications, impact analysis)

Survey response

- A total of 21 completed[28] surveys were received from the original survey recipients[29]
- Only 5 individuals from the CSC group completed the survey, leading to a very low response rate of 20%. In addition to this, one of these respondents only answered questions 1 through 10, leaving questions 11 to 24 unanswered. **Therefore, the survey can not be considered statistically representative for the CSC group.**
- A total of 16 individuals from the management group answered the survey, leading to a response rate of 67%.
- Two additional survey responses were received from people not on the survey recipient list (due to forwarding of the invitation email by a theme leader) and were not included into the analysis.

[28] One CSC member stopped the survey after question 10 but was included nevertheless. All other incomplete surveys that were excluded from the analysis had total online times of 3 minutes or less and answered one or none of the survey questions. Another survey recipient indicated due to technical difficulties his completed survey was not saved.

[29] In one case, an assistant answered for his/her superior who received the survey.

Analysis	Number of respondents	Number of recipients	% of recipients responding
CSC	5	25	20%
Management	16	24	67%
All	21	49	43%

B. Questions and answer statistics[30]

1. How satisfied are you with the overall program performance?

	Highly satisfied	Satisfied	Slightly unsatisfied	Highly unsatisfied
CSC	0 0%	3 60%	1 20%	1 20%
Management	2 13%	9 56%	5 31%	0 0%
Total	2 10%	12 57%	6 29%	1 5%
	100% of survey participants answered this question			

2. Please comment on question number 1. (omitted because of confidentiality)

3. In your view, will the program be able to reach its stated objectives within the planned time frame?

	Yes, certainly	Probably yes	Probably not	No, impossible
CSC	0 0%	3 60%	1 20%	1 20%
Management	0 0%	12 75%	4 25%	0 0%
Total	0 0%	15 71%	5 24%	1 5%
	100% of survey participants answered this question			

[30] Percentages may not add up exactly to 100% due to rounding.

4. Please comment on question number 3. (omitted because of confidentiality)

5. How important is achieving development impact (food security, poverty alleviation, improved health, environmental security) in addition to research results for the Water and Food Challenge Program?

	Research results more important	Equally important	Development impact more important
CSC	0 0%	4 80%	1 20%
Management	3 19%	9 56%	4 25%
Total	3 14%	13 62%	5 24%

100% of survey participants answered this question

6. Please comment on question number 5. (omitted because of confidentiality)

7. How would you rate the partnerships of the program in terms of the dimensions below?
   a. Quality

	Quality			
	Highly satisfactory	Somewhat satisfactory	Somewhat unsatisfactory	Very unsatisfactory
CSC	0 0%	2 50%	2 50%	0 0%
Management	2 13%	13 81%	1 6%	0 0%
Total	2 10%	15 75%	3 15%	0 0%

95% of survey participants answered this question

   b. Quantity

	Quantity			
	Highly satisfactory	Somewhat satisfactory	Somewhat unsatisfactory	Very unsatisfactory
CSC	1 25%	2 50%	1 25%	0 0%
Management	7 44%	7 44%	2 13%	0 0%
Total	8 40%	9 45%	3 15%	0 0%

95% of survey participants answered this question

c. Appropriate type of institutions

	Appropriate type of institutions			
	Highly satisfactory	Somewhat satisfactory	Somewhat unsatisfactory	Very unsatisfactory
CSC	1 25%	3 75%	0 0%	0 0%
Management	3 19%	11 69%	2 13%	0 0%
Total	4 20%	14 70%	2 10%	0 0%
	95% of survey participants answered this question			

8. Please specify for question number 7 above (and for quantity, please indicate whether too few or too many partnerships). (omitted because of confidentiality)

9. Does the program have the right balance between directly commissioning program activities versus allocating funds through competitive mechanisms?

	Yes. The balance is right	No there is too much activity directly commissioned,	No there are too many funds allocated through competitive mechanisms
CSC	1 20%	1 20%	3 60%
Management	10 63%	1 6%	5 31%
Total	11 52%	2 10%	8 38%
	100% of survey participants answered this question		

10. Please specify for question number 9 above, what activities, if any at all, should be predominantly based on competitive bids. (omitted because of confidentiality)

11. Please indicate your satisfaction with the quality of Water and Food Challenge Program governance and management along the dimensions listed below
    a. Legitimacy. To what extend do the governance and management structures permit and facilitate the effective participation and voice of the different categories of stakeholders in the major governance and management decisions, taking into account their respective roles and relative importance?

	Highly satisfied	Slightly satisfied	Slightly dissatisfied	Highly dissatisfied
CSC	2 50%	1 25%	0 0%	1 25%
Management	5 31%	8 50%	3 19%	0 0%
Total	7 35%	9 45%	3 15%	1 5%
	95% of survey participants answered this question			

    b. Accountability. To what extent is accountability defined, accepted, and exercised along the chain of command and control, starting with the CSC and the participating centers' management and going down to the program coordinator, the program management team, theme leaders, basin coordinators and project leaders?

	Highly satisfied	Slightly satisfied	Slightly dissatisfied	Highly dissatisfied
CSC	0 0%	3 75%	1 25%	0 0%
Management	1 6%	11 69%	3 19%	1 6%
Total	1 5%	14 70%	4 20%	1 5%
	95% of survey participants answered this question			

    c. Responsibility to others. To what extent does the program accept and exercise responsibility to stakeholders who are not directly involved in the governance of the program and who are not part of the direct chain of accountability in the implementation of the program?

	Highly satisfied	Slightly satisfied	Slightly dissatisfied	Highly dissatisfied
CSC	2 50%	1 25%	1 25%	0 0%
Management	5 33%	4 27%	6 40%	0 0%
Total	7 37%	5 26%	7 37%	0 0%
	90% of survey participants answered this question			

d. Fairness. To what extent do partners and participants, similarly situated, have equal opportunity to influence the program and to receive benefits from the program (e.g. absence of barriers in terms of structure, process, language, technical or legal information)?

	Highly satisfied	Slightly satisfied	Slightly dissatisfied	Highly dissatisfied
CSC	0	3	0	1
	0%	75%	0%	25%
Management	7	5	4	0
	44%	31%	25%	0%
Total	7	8	4	1
	35%	40%	20%	5%

95% of survey participants answered this question

e. Transparency. To what extent are the program's decision-making, reporting, and evaluation processes open and freely available to the general public?

	Highly satisfied	Slightly satisfied	Slightly dissatisfied	Highly dissatisfied
CSC	1	1	1	1
	25%	25%	25%	25%
Management	5	8	2	0
	33%	53%	13%	0%
Total	6	9	3	1
	32%	47%	16%	5%

90% of survey participants answered this question

f. Efficiency. To what extent do the governance and management structures enhance efficiency or cost-effectiveness in the allocation and use of the program's resources?

	Highly satisfied	Slightly satisfied	Slightly dissatisfied	Highly dissatisfied
CSC	1	0	2	1
	25%	0%	50%	25%
Management	4	5	5	1
	27%	33%	33%	7%
Total	5	5	7	2
	26%	26%	37%	11%

90% of survey participants answered this question

g. Probity. To what extent do all persons in leadership positions adhere to high standards of ethics and professional conduct over and above compliance with the rules and regulations governing the operation of the program?

	Highly satisfied	Slightly satisfied	Slightly dissatisfied	Highly dissatisfied
CSC	2	0	2	0
	50%	0%	50%	0%
Management	10	6	0	0
	63%	38%	0%	0%
Total	12	6	2	0
	60%	30%	10%	0%
	95% of survey participants answered this question			

12. Follow-up to question 11: Please provide comments/suggestions and/or specific examples illustrating your choices in question 11 above. (omitted because of confidentiality)

13. Please indicate your satisfaction with the performance of the Consortium Steering Committee (CSC) in terms of the following functions:
    a. Giving strategic direction (e.g., exercising effective leadership that optimizes the use of the financial, human, social, and technological resources of the program. Establishing a vision or a mission for the program, reviewing and approving strategic documents, and establishing operational policies and guidelines. Continually monitoring the effectiveness of the program's governance arrangements and making changes as needed.

	Highly satisfied	Slightly satisfied	Slightly dissatisfied	Highly dissatisfied
CSC	1	2	0	1
	25%	50%	0%	25%
Management	2	9	3	0
	14%	64%	21%	0%
Total	3	11	3	1
	17%	61%	17%	6%
	86% of survey participants answered this question			

b. Exercising management oversight (e.g., monitoring managerial performance and program implementation, appointing key personnel, approving annual budgets and business plans, and overseeing major capital expenditures. Promoting high performance and efficient processes by establishing an appropriate balance between control by the CSC and entrepreneurship by the management team. Monitoring compliance with all applicable laws and regulations, and with the regulations and procedures of the host organization, as the case may be.)

	Highly satisfied	Slightly satisfied	Slightly dissatisfied	Highly dissatisfied
CSC	1	2	1	0
	25%	50%	25%	0%
Management	4	6	4	0
	29%	43%	29%	0%
Total	5	8	5	0
	28%	44%	28%	0%
	86% of survey participants answered this question			

c. Fostering stakeholder participation (e.g., establishing policies for inclusion of stakeholders in programmatic activities. Ensuring adequate consultation, communication, transparency, and disclosure in relation to program stakeholders that are not represented on the governing bodies of the program.)

	Highly satisfied	Slightly satisfied	Slightly dissatisfied	Highly dissatisfied
CSC	1	2	0	1
	25%	50%	0%	25%
Management	2	5	5	0
	17%	42%	42%	0%
Total	3	7	5	1
	19%	44%	31%	6%
	76% of survey participants answered this question			

d. Risk management (e.g., establishing a policy for managing risks and monitoring the implementation of the policy. Ensuring that the volume of financial resources is commensurate with the program's needs and that the sources of finance are adequately diversified to mitigate financial shocks.)

	Highly satisfied	Slightly satisfied	Slightly dissatisfied	Highly dissatisfied
CSC	0	2	1	0
	0%	67%	33%	0%
Management	1	7	5	0
	8%	54%	38%	0%
Total	1	9	6	0
	6%	56%	38%	0%
	76%	of survey participants answered this question		

e. Conflict management (e.g., monitoring and managing the potential conflicts of interest of members of the governing body and staff of the management unit. Monitoring and managing conflicting interests among program partners and participants, especially those that arise during the process of program implementation.)

	Highly satisfied	Slightly satisfied	Slightly dissatisfied	Highly dissatisfied
CSC	1	2	0	0
	33%	67%	0%	0%
Management	3	5	5	0
	23%	38%	38%	0%
Total	4	7	5	0
	25%	44%	31%	0%
	76%	of survey participants answered this question		

f. Audit and evaluation (e.g., ensuring the integrity of the program's accounting and financial reporting systems, including independent audits. Setting evaluation policy, commissioning evaluations in a timely way, and overseeing management uptake and implementation of accepted recommendations. Ensuring that evaluations lead to learning and programmatic enhancement.)

	Audit and evaluation (e.g., ensuring the integrity of the program's accounting and financial reporting systems, including independent audits. Setting evaluation policy, commissioning evaluations in a timely way, and overseeing management uptake and implementation of accepted recommendations. Ensuring that evaluations lead to learning and programmatic enhancement.)			
	Highly satisfied	Slightly satisfied	Slightly dissatisfied	Highly dissatisfied
CSC	1 25%	2 50%	0 0%	1 25%
Management	4 36%	7 64%	0 0%	0 0%
Total	5 33%	9 60%	0 0%	1 7%
	71% of survey participants answered this question			

14. Follow-up to question 13 Please provide comments/suggestions and/or specific examples illustrating your choices in question 13 above. (omitted because of confidentiality)

15. How much do you agree / disagree with the following statements:
    a. “The CSC is representing the program's interests in a balanced way"

	Strongly disagree	Slightly disagree	Slightly agree	Strongly agree
CSC	0 0%	1 25%	1 25%	2 50%
Management	0 0%	4 29%	8 57%	2 14%
Total	0 0%	5 28%	9 50%	4 22%
	86% of survey participants answered this question			

b. “The presence of IWMI and other CGIAR center representatives on the CSC introduces some institutional interests into CSC recommendations/decisions”

	Strongly disagree	Slightly disagree	Slightly agree	Strongly agree
CSC	0 0%	0 0%	4 100%	0 0%
Management	0 0%	3 19%	11 69%	2 13%
Total	0 0%	3 15%	15 75%	2 10%
	95% of survey participants answered this question			

c. “The CSC is an advisory body without decision-making power”

	Strongly disagree	Slightly disagree	Slightly agree	Strongly agree
CSC	2 50%	1 25%	1 25%	0 0%
Management	6 40%	4 27%	4 27%	1 7%
Total	8 42%	5 26%	5 26%	1 5%
	90% of survey participants answered this question			

d. “De facto the CSC is a program steering committee with decision-making power”

	Strongly disagree	Slightly disagree	Slightly agree	Strongly agree
CSC	1 25%	1 25%	1 25%	1 25%
Management	2 14%	5 36%	3 21%	4 29%
Total	3 17%	6 33%	4 22%	5 28%
	86% of survey participants answered this question			

e. “De facto the CSC is an independent governance body”

	Strongly disagree	Slightly disagree	Slightly agree	Strongly agree
CSC	0	1	3	0
	0%	25%	75%	0%
Management	4	5	2	2
	31%	38%	15%	15%
Total	4	6	5	2
	24%	35%	29%	12%
	81%	of survey participants answered this question		

f. “Individual CSC membership should be limited to a couple of years”

	Strongly disagree	Slightly disagree	Slightly agree	Strongly agree
CSC	1	2	1	0
	25%	50%	25%	0%
Management	3	5	2	2
	25%	42%	17%	17%
Total	4	7	3	2
	25%	44%	19%	13%
	76%	of survey participants answered this question		

g. “The CSC should be smaller”

	Strongly disagree	Slightly disagree	Slightly agree	Strongly agree
CSC	1	1	2	0
	25%	25%	50%	0%
Management	4	3	5	3
	27%	20%	33%	20%
Total	5	4	7	3
	26%	21%	37%	16%
	90%	of survey participants answered this question		

h. “The CSC should meet more often”

	Strongly disagree	Slightly disagree	Slightly agree	Strongly agree
CSC	0	1	1	2
	0%	25%	25%	50%
Management	3	4	5	3
	20%	27%	33%	20%
Total	3	5	6	5
	16%	26%	32%	26%
	90%	of survey participants answered this question		

i. “The current CSC composition should be changed”

	Strongly disagree	Slightly disagree	Slightly agree	Strongly agree
CSC	1	1	2	0
	25%	25%	50%	0%
Management	3	5	4	1
	23%	38%	31%	8%
Total	4	6	6	1
	24%	35%	35%	6%
	81%	of survey participants answered this question		

j. “Development NGOs should be (more) present on the CSC”

	Strongly disagree	Slightly disagree	Slightly agree	Strongly agree
CSC	1	0	3	0
	25%	0%	75%	0%
Management	1	1	5	7
	7%	7%	36%	50%
Total	2	1	8	7
	11%	6%	44%	39%
	86%	of survey participants answered this question		

k. “Donors should be present on the CSC”

	Strongly disagree	Slightly disagree	Slightly agree	Strongly agree
CSC	1	1	0	2
	25%	25%	0%	50%
Management	1	6	6	2
	7%	40%	40%	13%
Total	2	7	6	4
	11%	37%	32%	21%
	90%	of survey participants answered this question		

l. “The CSC should be chaired by a senior professional without institutional affiliation to the Water and Food Challenge program”

	Strongly disagree	Slightly disagree	Slightly agree	Strongly agree
CSC	0	0	2	2
	0%	0%	50%	50%
Management	1	2	5	8
	6%	13%	31%	50%
Total	1	2	7	10
	5%	10%	35%	50%
	95%	of survey participants answered this question		

m. “The main governance body should include mainly senior professionals without institutional affiliation to the Water and Food Challenge program”

	Strongly disagree	Slightly disagree	Slightly agree	Strongly agree
CSC	1 25%	2 50%	1 25%	0 0%
Management	1 7%	5 36%	6 43%	2 14%
Total	2 11%	7 39%	7 39%	2 11%
	86% of survey participants answered this question			

n. “The CSC should set up an independent audit subcommittee”

	Strongly disagree	Slightly disagree	Slightly agree	Strongly agree
CSC	0 0%	0 0%	2 50%	2 50%
Management	0 0%	3 21%	5 36%	6 43%
Total	0 0%	3 17%	7 39%	8 44%
	86% of survey participants answered this question			

o. “The overall governance setup should be changed”

	Strongly disagree	Slightly disagree	Slightly agree	Strongly agree
CSC	2 50%	1 25%	1 25%	0 0%
Management	2 14%	4 29%	5 36%	3 21%
Total	4 22%	5 28%	6 33%	3 17%
	86% of survey participants answered this question			

16. Follow-up to question 15: Please provide comments/suggestions and/or specific examples illustrating your choices in question 15 above. (omitted because of confidentiality)

17. Please indicate your satisfaction with the performance of the Program Management in terms of the following functions:
    a. Program implementation (e.g., managing financial and human resources. Reviewing proposals for inclusion in the portfolio of activities and allocating financial resources among activities. Supervising the implementation of activities. Contracting with implementing or executing agencies to implement individual activities. Ensuring that these agencies are self-monitoring and reporting their progress in a timely way.)

	Highly satisfied	Satisfied	Slightly unsatisfied	Highly unsatisfied
CSC	0	1	2	1
	0%	25%	50%	25%
Management	3	7	5	0
	20%	47%	33%	0%
Total	3	8	7	1
	16%	42%	37%	5%
	90%	of survey participants answered this question		

    b. Regulatory compliance (e.g., ensuring compliance with all applicable laws and regulations at the international, national, and institutional levels, including the regulations and procedures of the host organization, as the case may be. Being aware of and adhering to these requirements and standards on a day to-day basis.)

	Highly satisfied	Satisfied	Slightly unsatisfied	Highly unsatisfied
CSC	1	2	1	0
	25%	50%	25%	0%
Management	8	7	0	0
	53%	47%	0%	0%
Total	9	9	1	0
	47%	47%	5%	0%
	90%	of survey participants answered this question		

c. Reviewing and reporting (e.g., taking stock of the overall performance of the portfolio in relation to the program's objectives and strategies. Reporting progress to the CSC including any adverse effects of the program's activities. Serving the needs of the CSC by preparing strategies, policy statements, etc.)

	Highly satisfied	Satisfied	Slightly unsatisfied	Highly unsatisfied
CSC	0	1	2	1
	0%	25%	50%	25%
Management	5	6	3	0
	36%	43%	21%	0%
Total	5	7	5	1
	28%	39%	28%	6%

86% of survey participants answered this question

d. Administrative efficiency (e.g., maintaining a lean administrative cost structure (while recognizing that administrative costs tend to be higher during the launch period of a global partnership program). Proposing ways to maintain high performance while reducing costs to increase operational effectiveness.)

	Highly satisfied	Satisfied	Slightly unsatisfied	Highly unsatisfied
CSC	0	3	0	1
	0%	75%	0%	25%
Management	3	7	5	0
	20%	47%	33%	0%
Total	3	10	5	1
	16%	53%	26%	5%

90% of survey participants answered this question

e. Stakeholder communication (e.g., implementing CSC-approved policies for stakeholder inclusion in programmatic activities. Finding ways to increase the effectiveness of stakeholder participation in all aspects of the program.)

	Highly satisfied	Satisfied	Slightly unsatisfied	Highly unsatisfied
CSC	1	2	0	1
	25%	50%	0%	25%
Management	3	4	7	0
	21%	29%	50%	0%
Total	4	6	7	1
	22%	33%	39%	6%

86% of survey participants answered this question

f. Fostering learning (e.g., distilling and discerning lessons from the implementation of activities across the portfolio. Transmitting these lessons to both Consortium partners, CPWF participants and beneficiaries in general, in order to inform policy making and to enhance implementation of activities.)

	Highly satisfied	Satisfied	Slightly unsatisfied	Highly unsatisfied
CSC	0	2	1	1
	0%	50%	25%	25%
Management	4	4	5	2
	27%	27%	33%	13%
Total	4	6	6	3
	21%	32%	32%	16%
	90% of survey participants answered this question			

g. Performance assessment (e.g., reviewing the performance of program participants on a regular basis, as well as the performance of consultants at the end of their assignments.)

	Highly satisfied	Satisfied	Slightly unsatisfied	Highly unsatisfied
CSC	0	2	1	1
	0%	50%	25%	25%
Management	2	9	4	0
	13%	60%	27%	0%
Total	2	11	5	1
	11%	58%	26%	5%
	90% of survey participants answered this question			

18. Follow-up to question 17: Please provide comments/suggestions and/or specific examples illustrating your choices in question 17 above: (omitted because of confidentiality)

19. The Challenge Program Secretariat is hosted by the International Water Management Institute (IWMI); the program coordinator and the secretariat staff are employed by IWMI on behalf of the CPWF. To what extent does this situation lead to a two masters problem, i.e. to a situation of unclear or overlapping responsibilities of program management towards the CSC on the one hand and towards IWMI management on the other hand?

a. The Program Coordinator?

	100% responsible towards IWMI	Mainly responsible towards IWMI	Responsibility evenly distributed towards IWMI and CSC	Mainly responsible towards CSC	100% responsible towards CSC
CSC	0	1	0	2	1
	0%	25%	0%	50%	25%
Management	0	0	5	4	6
	0%	0%	33%	27%	40%
Total	0	1	5	6	7
	0%	5%	26%	32%	37%
	90%	of survey participants answered this question			

b. The Program Management Team?

	100% responsible towards IWMI	Mainly responsible towards IWMI	Responsibility evenly distributed towards IWMI and CSC	Mainly responsible towards CSC	100% responsible towards CSC
CSC	0	0	2	2	0
	0%	0%	50%	50%	0%
Management	0	0	3	5	6
	0%	0%	21%	36%	43%
Total	0	0	5	7	6
	0%	0%	28%	39%	33%
	86%	of survey participants answered this question			

c. The Program Secretariat?

	100% responsible towards IWMI	Mainly responsible towards IWMI	Responsibility evenly distributed towards IWMI and CSC	Mainly responsible towards CSC	100% responsible towards CSC
CSC	1	1	0	2	0
	25%	25%	0%	50%	0%
Management	0	1	5	3	6
	0%	7%	33%	20%	40%
Total	1	2	5	5	6
	5%	11%	26%	26%	32%
	90%	of survey participants answered this question			

20. The Water and Food Challenge Program itself is based on a Joint Venture Agreement, originally between 18 national and international organizations, including 5 CGIAR research centers, 6 National Agricultural Research and Extension Systems (NARES) institutions, 4 Advanced Research Institutes (ARIs) and 2 international NGOs and 1 River Basin Organization. The composition of the Consortium Steering Committee reflects this setup. IWMI chairs the CSC and also hosts the secretariat. To what extent does this setup lead to potential conflict of interest in the sense that CSC decisions may be driven by institutional interests of CSC members rather than programmatic interests?

a. CGIAR centers in the CSC?

	CSC decisions tend to be mainly driven by institutional interests of this CSC subgroup	Some institutional interests of this subgroup tend to be reflected in CSC decisions	CSC decisions are taken independent of institutional interests of this subgroup
CSC	1	3	0
	25%	75%	0%
Management	7	5	1
	54%	38%	8%
Total	8	8	1
	47%	47%	6%
	81%	of survey participants answered this question	

b. IWMI?

	CSC decisions tend to be mainly driven by institutional interests of this CSC subgroup	Some institutional interests of this subgroup tend to be reflected in CSC decisions	CSC decisions are taken independent of institutional interests of this subgroup
CSC	1	3	0
	25%	75%	0%
Management	1	11	1
	8%	85%	8%
Total	2	14	1
	12%	82%	6%
	81%	of survey participants answered this question	

c. NARES in the CSC?

	CSC decisions tend to be mainly driven by institutional interests of this CSC subgroup	Some institutional interests of this subgroup tend to be reflected in CSC decisions	CSC decisions are taken independent of institutional interests of this subgroup
CSC	0	3	1
	0%	75%	25%
Management	0	6	6
	0%	50%	50%
Total	0	9	7
	0%	56%	44%
	76%	of survey participants answered this question	

d. ARIs in the CSC?

	CSC decisions tend to be mainly driven by institutional interests of this CSC subgroup	Some institutional interests of this subgroup tend to be reflected in CSC decisions	CSC decisions are taken independent of institutional interests of this subgroup
CSC	0	1	3
	0%	25%	75%
Management	1	9	3
	8%	69%	23%
Total	1	10	6
	6%	59%	35%
	81%	of survey participants answered this question	

e. NGOs in the CSC?

	CSC decisions tend to be mainly driven by institutional interests of this CSC subgroup	Some institutional interests of this subgroup tend to be reflected in CSC decisions	CSC decisions are taken independent of institutional interests of this subgroup
CSC	1	1	2
	25%	25%	50%
Management	0	5	8
	0%	38%	62%
Total	1	6	10
	6%	35%	59%
	81%	of survey participants answered this question	

f. RBOs in the CSC?

	RBOs in the CSC?		
	CSC decisions tend to be mainly driven by institutional interests of this CSC subgroup	Some institutional interests of this subgroup tend to be reflected in CSC decisions	CSC decisions are taken independent of institutional interests of this subgroup
CSC	0	1	3
	0%	25%	75%
Management	0	4	9
	0%	31%	69%
Total	0	5	12
	0%	29%	71%
	81%	of survey participants answered this question	

21. Do you think the current situation as described in the above questions 19 and 20 needs to be improved in any way?

	Yes	No
CSC	3	1
	75%	25%
Management	13	1
	93%	7%
Total	16	2
	89%	11%
	86%	of survey participants answered this question

22. If you answered yes to question number 21 above, what could be realistic options? (omitted because of confidentiality)

23. Please comment on the advantages and disadvantages of the current hosting and joint venture arrangements. (omitted because of confidentiality)

24. Please add any additional suggestions, comments or feedback you might have. (omitted because of confidentiality)