A. SUMMARY

1. Title: The Consortium for Sustainable Use of Inland Valley Agro-ecosystems in sub-Saharan Africa.


3. Objectives:
The Inland Valley Consortium (IVC) is an eco-regional research partnership under the aegis of the West Africa Rice Development Association. Its aim is to adapt and develop, in concerted action and using an agro-ecological approach, suitable technologies and a knowledge base for integrated agricultural land use management and operational support systems for intensified but sustainable use of inland valleys in West Africa. Inland valleys, the most-upstream parts of river systems are a valuable but under-utilised asset, covering in total between 20 and 50 million ha in West and Central Africa. Rice in inland valley bottoms will easily yield 30 to 50 per cent more than in equal areas on uplands. In addition, lowlands have the option for either double-cropping or crop and livestock-diversification, both of which increase overall farm productivity. There are constraints however: inland valleys are generally densely vegetated, flooding may cause damage to crops and livestock and the wet environment is a host to several water-borne diseases (malaria, bilharzia and others).

4. Activities:
Organisational activities:
Operational coordination units exist at both the regional level and at the national level. Activities at the regional level include: seeking (continued) donor support, decision making on research strategy and priority setting, regional scientific coordination, selection of research sites, allocation of financial support to research projects. The Regional Co-ordinating Unit (i.e. WARDA, as the host institution) co-ordinates these activities in close interaction with the IVC Steering Committee consisting of representatives of member institutes. At the national level organisational activities are national coordination including stakeholder interaction (NGO's, farmers organisations, extension services), scientific coordination, project formulation and implementation, technology evaluation and dissemination. National Co-ordinators, in close interaction with all stakeholders carry out these activities.

Scientific activities:
The agro-ecological approach underlying the research activities of IVC implies the interdisciplinary determination of the potentials of inland valley agro-ecosystems based on integrated characterisation and classification. This enables the definition of ways to achieve these potentials by targeting research and technology development and transfer at farm, valley and watershed-level. It comprises the following sequence of activities: (i) multi-scale agro-ecological characterisation of inland valley agro-ecosystems, (ii) identification and diagnosis of specific constraints to sustainable production in these agro-ecosystems, (iii) formulating, targeting (prioritising) and implementing research on suitable technologies, (iv) evaluation and adaptation of technology packages, and (v) extrapolation and transfer of these packages to other areas.

5. Area: Natural Resources Management

6. Region: Sub-Saharan Africa.

B. STAKEHOLDERS

1. Beneficiaries (in quantitative and qualitative terms):
So far (IVC Phase 1, 1994-1999) the main beneficiaries were participating scientists in IVC member countries, and the farmers in the key sites involved in constraint analysis and development and evaluation.
of improved technology packages. During Phase 2 of the project (1999-2003), farmers, NGO’s and extension services outside the key sites will profit from the tested and transferred technology packages. Decision-support tools will be developed for development organisations, extension services, planners and decision-makers to enhance agricultural development and land use planning.

2. Research partners:

Research partners in IVC are:
- NARS from ten West African member countries: Benin, Burkina Faso, Cameroon, Côte d’Ivoire, Ghana, Guinea, Mali, Nigeria, Sierra Leone and Togo.
- ARI's from 'northern' countries: Wageningen University and Research Centre (WUR) and the Centre de Cooperation Internationale en Recherche Agronomique pour le Développement (CIRAD).
- IARC's: the West Africa Rice Development Association (WARDA, the convening centre), the International Institute of Tropical Agriculture (IITA) and the International Livestock Research Institute (ILRI).
- CORAF and the Food and Agriculture Organisation of the United Nations (FAO).

IWMI and ICRISAT are associated consortium members, participating in IVC meetings and projects.

3. Donors and budget (including the “in-kind” contribution of the participating organisations):

Financial contributions:
The Netherlands Directorate General for International Cooperation (DGIS): US$ 375,000 per year (IVC core budget).
The Cooperation Française (CF): US$ 120,000 per year (IVC core budget).
The Common Fund for Commodities: US$ 250,000 per year (restricted project budget; 3-country project for 4 years)
DANIDA/EPHTA: US$ 150,000 single allocation

In-kind contributions*:
WARDA: Staff involved in inland valley agro-ecosystem research, administrative support, and office and laboratory facilities.
NARS: Staff involved in inland valley agro-ecosystem research, office and laboratory facilities.
WUR: Staff involved in inland valley agro-ecosystem research.
CIRAD: Staff involved in inland valley agro-ecosystem research.

* Listed are the direct, or 'visible', contributions by the most-directly involved Consortium partners. This excludes 'hidden' contributions such as existing experiences vested in the research organisations, staff reference-levels, libraries and databases.
C. PROJECT RESULTS AND IMPACT

1. Main results (in terms of technological packages, and/or socio-economic and/or environmental improvements):
In-depth knowledge has been obtained of the biophysical and socio-economic characteristics and constraints to improved agricultural production in most of the 15 key-sites that were selected for the implementation of IVC research projects in the region. This information is currently available in individual country reports. A regional synthesis is presently being compiled. A data base has been developed as well which, linked to a Geographic Information System provides spatial information on the occurrence, distribution and characteristics of inland valleys in West Africa, by agro-ecological zone.

Different technology options for the sustained use of inland valleys have been formulated and are actually tested by farmers in the key sites (20-50 farmers per site). Results of the first-year evaluations have been positive but longer-term evaluations are needed to draw conclusions and to compile dissemination packages of tested and adoptable technologies. The technology options tested included low-cost water management systems, new varieties and fertiliser packages.

Specific studies were implemented, such as the development and testing of a rapid diagnostic appraisal system for water management systems, the role of female farmers in inland valley cultivation, costs of water management systems, indigenous knowledge on soil conservation, functions of natural vegetation in inland valleys, etc.

All countries have completed national state-of-the-art studies on inland valley research and development. The main goal of these studies is the inventory of technologies available at national level.

2. Dissemination of the results (different modes and how the results have reached the different beneficiaries):
- Organisation of, and participation in, international, regional and national scientific workshops. IVC workshops included: general project progress workshops were held annually; subject matter workshops (common methodology, research priority setting, hydrology of inland valleys, remote sensing) were held on ad-hoc bases.
- Compilation, publication and dissemination of IVC workshop proceedings, technical reports, newsletters and annual reports. Publications are distributed free of charge to interested parties.
- Jointly with FAO's Regional Office for Africa, a workshop was organised involving research and development organisations from eastern and southern Africa active in inland valleys, with the aim of exploring possibilities to develop a similar consortium for that region.
- At a number of national research key sites, field visits were organised for interested parties, including researchers, NGO-staff, extensionists, representatives of farmer organisations and local authorities. Farmer’s days were held as well on a few sites.
- Publications in international scientific journals.

3. Impact of the project (both in quantitative and qualitative terms):
- A solid and operational regional research structure has been established, involving a total of some 100 scientists from 10 West African countries and 6 international organisations.
- Increased prominence of inland valley agro-ecosystems on the research agendas of the member countries and institutes.
- Strong multi-disciplinary and cross-institutional cooperation in agricultural research and development: some 100 research projects have been implemented with the financial and scientific support of IVC.
- Improved farmers' organisation in IVC key sites, involving some 400 to 500 farmers.
- Increased rice production due to introduction of improved water, soil and crop management packages; yield increments of 100 to 200 percent have been obtained at experimental sites.

D. PARTNERSHIP

1. Respective roles of the different stakeholders and coordination mechanisms for:
   Project design:
The Consortium was designed, on the initiative of WARDA, WUR and IITA, in full collaboration with (initially) 7 West African NARS and CIRAD. This was done in a series of workshops in which potentials and constraints of inland valleys were assessed, research issues were prioritised, a consortium structure developed, and a formal proposal compiled. This proposal was then submitted, by WARDA as the elected host institution, to DGIS and the Cooperation Française.

Project implementation and management:
Consortium:
WARDA is the CGIAR convening centre for the inland valley ecoregional program and implements the Consortium through the Regional Coordination Unit (1 Co-ordinator, 1 Scientist). The RCU is advised, through WARDA’s Program Committee, by the Consortium Management Committee consisting of elected representatives of the member countries and institutes. The (plenary) Annual Workshop is part of the annual review and planning process and serves as a mechanism for scientific exchange and evaluation of activities.

Research:
Research implementation rests with the researchers in the member countries. Research proposals are formulated by (groups of) researchers and submitted to the Regional Co-ordinating Unit through the National Co-ordinating Units. The National Co-ordinating Units are responsible for scientific coordination at national level, as well as for review and monitoring of quality and progress of the research projects.

Result dissemination:
Dissemination of results and other consortium information is done by the Regional Co-ordinating Unit (information at regional level) and by National Co-ordinating Units (information of national relevance). The latter is also active in organisation of field trips and farmers days.

E. CONCLUSIONS

Main conclusion:
A solid and operational regional research structure has been established, involving a total of some 100 scientists from 10 West African countries and 5 international organisations. This consortium has created increased prominence of inland valley agro-ecosystems on the research agendas of the member countries and institutes. This has resulted in strong multi-disciplinary and cross-institutional cooperation in agricultural research and development: some 100 research projects have been implemented with financial support of IVC. Joint planning and implementation of research allows better use of scarce financial and manpower resources while simultaneously avoiding duplication of efforts.

Lessons learned:
- True institutional partnership can only be achieved through shared responsibilities, implying that there is not a dominant institution. Partners have equal rights, but also duties.
- Effective partnership structures demand considerable and long-term financial support to
enhance interactions between partners. This is a crucial investment requiring trust and patience from donors.

- External monitoring of progress made and of quality achieved is essential to avoid internal, self-evaluation processes.

Project's future:
Building on its success, the Inland Valley Consortium has been able to obtain continued donor support (DGIS and the Cooperation Française) for a second project phase (1999-2003) in which further efforts will be put on strengthening international and local partnership. Training of national scientists will take a prominent place in the activities. Adequate implementation of this partnership requires considerable resources related to travel, meetings, communication, etc. Presently IVC finances these costs. Other sources need to be identified in case of termination of present donor support.

In the second phase of the Consortium, scientific focus will be on the evaluation of promising technology packages in the key sites; development of diversified production systems for inland valleys including pre and post-rice crops, aqua-culture, livestock, etc.; development of mechanism for the spatial extrapolation of results of research; development of tools for decision-making by planners, extension services and policy makers. As the systems introduced are low-input, and developed in close collaboration with the farmers, the technical outputs are expected to be sustainable.