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**Rice-Wheat Consortium
for the Indo-Gangetic Plains**

**REPORT
of the
Regional Steering Committee Meeting**

**held at IIMI, Colombo, Sri Lanka
23-24 January 1995**

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Rice Wheat Consortium for the Indo-Gangetic Plains

Regional Steering Committee Meeting

IIMI, Colombo, Sri Lanka 23-24 January 1995

Executive Summary

The Regional Steering Committee (RSC) met for two days at IIMI with Dr Paroda in the Chair. The meeting was rescheduled to Sri Lanka because of unsettled conditions in Bangladesh. Present were the Committee Members from Bangladesh, India, and Nepal, the IARC and Donor Representatives and the Interim Facilitator. Also participating were resource people from three countries, plus CIMMYT, IRRI, ICRISAT, and IIMI. The participants from Pakistan were unable to attend at the last minute. The RSC considered the Facilitator's Report, examined the recommendations from the Regional Technical Coordination Committee (RTCC), with Dr Petit as Chair interviewed five candidates from the 35 applicants for the Facilitator position, reviewed the funding proposal being prepared by ICRISAT for presentation to TAC, and learned about a number of other activities associated with the Initiative.

The participants estimated their expected commitments to the activities of the Consortium as follows:

Bangladesh: Can provide facilities and 50 staff associated with the R-W research. There is need for operational funding but this may be partially covered by the World Bank's new Bangladesh Program presently being developed.

India: The needs of the National R-W Program are met but there is need to clarify and strengthen collaborative links within the Region. India has appointed a full time R-W Facilitator at ICAR and is looking for ways to more effectively use its NARP and NATP support. It is proposing to allocate 50 staff and over \$2 million to R-W research.

Nepal: NARC can contribute 36 scientists and 55 staff plus facilities at a cost of \$178,000 but all other support needs to be from donors. There is presently a 20 year proposal being prepared that is expected to lead to self sufficiency. The proposal includes R-W systems.

Pakistan: From the Interim Facilitator's Pakistan trip report - 20 million rupee supplementary budget was sanctioned to support the R-W research plan developed by NARC and the provinces. This money has yet to be released. NARC is including the R-W research needs in its next year's budget. It may also get funding via an expected restructuring of the World Bank's ARP II. For Consortium activities it has identified 4 scientists and 35 staff at a cost of \$78,000.

IRRI: is committing to the RWCIGP 1.6+PDF staff members and \$200,000 annually. Areas of involvement include constraint analysis, biological weed control, integrated plant nutrient management, integrated pest management, resistance breeding, and breeding rice genotypes with reduced duration.

CIMMYT: is providing 1.65+PDF staff positions and \$344,000 to the RWCIGP activities and has many long term activities in place in NARS programs in the region.

IIMI: has suggested 0.2 staff and \$15,000 commitment. Will integrate its work with CIMMYT's and IRRI's existing on-farm research. IIMI has some sites in Pakistan and Nepal.

ICRISAT: \$200,000 in core identified for R-W-legume based cropping systems research in South Asia. Has MoUs with all countries and is involved through CLAN. ICRISAT is the Convener of CG eco-regional activities in the Indo-Gangetic Plains and of the RWCIGP Facilitation Unit.

IFPRI: has yet to finalize its commitments but it does have ongoing activities in Asia relevant to the Rice-Wheat Consortium.

The following actions were taken.

- * Gave the shortened working name "Rice-Wheat Consortium for the Indo-Gangetic Plains" (RWCIGP) for the Initiative.
- * Chose Dr I P Abrol, ICAR, DDG(Soils), ICAR New Delhi as the new Facilitator. Clearance was obtained by phone from Pakistan for this choice and for Dr Hobbs to travel to Pakistan for the Facilitator when necessary.
- * Recommended that the term of the Facilitator overlap 4-6 weeks that of the Interim Facilitator.
- * Suggested these follow-up actions for the RTCC recommendations:
 - Soil Fertility: IRRI to take lead in developing a unified proposal with help from Bangladesh to bring the group together. IRRI will provide 1 staff member and one PDF, ICRISAT 25% of one staff member for soil fertility research. Sub-issues should be assigned to different lead centers. IRRI staff will visit all NARS then put together a draft proposal for consideration by the planning group.
 - Water Management: IIMI will work together with NARS with FU support to develop a proposal. IIMI may involve existing IRRI and CIMMYT sites in Pakistan and Nepal.
 - Integrated Pest Management: The FU, Dr Nagarajan and other NARS partners, and ICRISAT will put together a proposal. A 5-days planning meeting is suggested to prepare a technical proposal crafted for presenting to donors with leadership from Ms Marian Fuchs-Carsch from IIMI. This document can form the template for the other two proposals.
 - General: In preparing these documents NARS scientists will take the planning lead with IARC scientists acting as consultants and writing up the proposals for group acceptance. The Facilitator should be involved throughout. These proposals should be in place before June, the beginning of the cropping season.
- * Studied the budget sources. The figures shown are tentative and have yet to be confirmed:
 - Based on the original \$2 million indicative budget, 1% or \$200,000 was identified for transactional activities (FU). TAC sanctioned \$100,000 in 1994 to reimburse expenses incurred by ICRISAT for the FU activities. The remainder of this \$100,000 has been carried forward into 1995.
 - IFAD also promised \$4,000 through the FU to NARS to help them hold national R-W meetings to develop plans for the RTCC Meeting.
 - IRRI has received \$380,000 from IFAD to support the FU that was expected to be at IRRI. Of this amount 60% is being moved to ICRISAT after 20% deductions for administrative costs. This leaves about \$200,000 over 3 years for the FU.
 - Support for CG activities (IRRI-CIMMYT-FU) was expected to be \$400,000. It was learned that the donors are now requiring IARCs to support their R-W Consortium activities from their core budget. The RSC recommended that for IIMI and IFPRI be given \$30,000 each per year as this is an unexpected new activity for them.
 - The original \$2 million budget over 4 years that includes funding for collaborative activities will be put forward by ICRISAT with an indication of NARS and IARC contributions to RWCIGP activities.
 - It was realized that even if TAC sanctions this budget, it is not clear whether the necessary funds can be raised. However, the Consortium plans to develop proposals for consideration by donors.
- * Endorsed the convening center's proposal that is to be submitted to TAC to sanction funding for the RWCIGP's collaborative activities.

- * Invited China to be an Associate Member of the RWCIGP paying their expenses to participate in the RTCC and at a later date considering the possibility of their membership on the RSC.
- * Considered upgrading the RWIS in the future with an editorial board when research results become available and more contributions are made to the newsletter.
- * Noted the following activities of interest to the Consortium:
 - Sustainability defined: Good documents defining sustainability exist but their definitions should be reexamined when planning and reviewing projects.
 - GIS Workshop in Thailand: At AIT-Bangkok, 20 Feb-7 Mar 1995. Will include GIS analysis of the R-W system as related to edaphic conditions using participants' own data bases.
 - Integration of legumes in the R-W cropping system: Proposal from John Duxbury of Cornell University for interested participants to include food and fodder legumes in R-W cropping systems.
 - Regional R-W-legumes project: ICRISAT has shaped this Project to fit R-W systems. ICRISAT was encouraged to go beyond its mandated legumes.
 - SAARC and APAARI : May have a place in the future.
 - Regional R-W activities: CIMMYT is arranging with the NARS exchange of R-W scientists between Eastern India and Nepal and Nepal and Bangladesh.
- * Scheduled the next RSC meeting for 8-9 Jan 1996 in Bangladesh.
- * Chose Dr MSU Chowdhury as Chair. Dr Paroda handed over Chair to Dr Chowdhury.

The Consortium is now ready to move forward into its next phase of activities carrying forward existing research activities and developing proposals to fill priority research gaps.

Special thanks:

The RSC members expressed their thanks many times for the superb arrangements made for their stay and for the meeting made by Dr Barker, Mr Mohan Abayasekera, and Dr Kijne and their staff at IIMI. Also to Mr Grenville Michael of ICRISAT for his constant attention to details and all others involved in making the necessary arrangements to bring everyone together.

Report

Opening Session (Agenda, Appendix 1).

Words of welcome: were given to the participants by Dr Randy Barker, the Interim Director General of IIMI.

Introduction of participants: The participants introduced themselves (Appendix 2).

Chair' remarks: Dr Paroda welcomed the participants and regretted the absence of the representatives from Pakistan. He thanked the World Bank and Dr Petit for their support.

He noted the success of the Green Revolution in providing food security in South Asia. No longer it is a begging bowl, rather there is now 13 MT of cereals in storage in India and Bangladesh and Pakistan are self sufficient and even exporting grain. However, it is important not to be complacent as by 2005 A.D. there is expected to be a production shortfall in the region. What is needed is a second Green Revolution which will require even greater efforts than the first one.

Indications are that there is a plateauing of yield potential along with factor level decline. Production sustainability of the system has been maintained mainly by increasing inputs. This has led to the concern about the sustainability of Rice-Wheat (R-W) System, the most productive widespread cropping pattern in Asia on which 20% of the world's population depends.

Productivity, conservation, and dynamism are needed for assuring the sustainability of the R-W system. There remains considerable scope to increase productivity, but we must be concerned about the conservation of natural resource. We need to ensure our research is dynamic being targeted at the priority areas to explore potential areas to meet the changing needs of the system. Two such areas involve integrated plant nutrient management and integrated pest management.

China's high productivity (13 t/ha) depends on effective organic matter recycling (2.5-4%), including the incorporation of legumes, and on innovative tillage methods. China has much to offer us and we will need to consider carefully its request to join the Initiative.

There is ample scope for research on the R-W system. We need to incorporate human resource development, identify centers of excellence, recognize the role of CG Centers, and maintain information exchange among levels of participants in the Consortium. We need to consider carefully the RTCC recommendations which identify priority programs for support. Our priorities must be set at this meeting and taken into consideration as we move forward.

Facilitator's Report: The Executive Summary of the Facilitator's report was presented by Don Faris, the Interim Facilitator (Appendix 3).

Dr. Petit's response: Dr. Petit thanked the Interim Facilitator for the job he has done. Funding of the Consortium is an important issue. He indicated that RSC must focus the research needs of RWCIGP in our submissions to the donors, and have a clear understanding of our priorities and plans.

When the World Bank became active in the Consortium, it followed the ADB lead. The concept for attracting funding was that the significant resources already existing in the NARS and IARCs could be put to better use. This means that in the Consortium, the bulk of the resources to support the R-W research must come from the NARS themselves supported by supplementary funding and technical input from the IARCs. The first step is for the NARS to identify the resources they have and the extra funds required to facilitate the use of these resources to make sure that the whole is greater than the parts.

He suggested that NARS activities defined for funding be aimed at specific donors rather than as a single request for support of all Consortium activities by the World Bank.

Funds were identified by the CGIAR and sanctioned by TAC to back IARC support of NARS activities in the Consortium. The Donors are not willing to provide extra funding to IARCs to support their input into Consortium activities. Rather IARCs are expected to use their existing staff and core funds for this purpose. At present, the Facilitation Unit (FU) activities as sanctioned by TAC are funded for 1995 but beyond this year the funding situation is not clear.

We need to set up a partnership mode where the input from NARS and IARCs is spelled out with the ultimate aim that the Consortium will be self sustaining rather than donor dependant. Each NARS needs to work with the World Bank and other donor representatives in their country, with backing from the Consortium, to identify adequate bilateral funding to support R-W research in their country. For across-border activities, we need to identify for funding centers with the comparative advantage to lead specific regional research.

Participant's Response

National Programs

Nepal: The NARS should take over regional activities if there is no support from the World Bank. However, the source of support needs to be clear (bilateral). In this case centers of excellence should be established with funding from the CGIAR. There needs to be a clear methodology associated with establishing the centers of excellence. It is possible that we could use SAARC as a focal point.

Half of NARC's funding is public, half is donor. NARC can contribute staff and facilities to the R-W research but all other support needs to be from donors. Presently, there is a 20 year proposal being developed by Dr. Mellor which includes Rice-Wheat as part of the total farming system. The proposal is expected to lead to self sufficiency in R-W.

There is a continuing need to work with farmers to help them accept and commercialize the available new technology and reduce the yield gap between research plots and farmers' fields.

Bangladesh: R-W research is being emphasized. There is a long standing collaboration with IRRI and CIMMYT(AIDAB). ICRISAT and IIMI also have programs in the country. The program emphasizes the Bangladesh national priorities and aims to integrate the whole system. However, it is important to keep the research focussed on specific areas. Bangladesh has long experience in farming systems research. For this it is working on developing new concepts such as total factor productivity that is being developed into a model that can be replicated within the region.

For regional collaboration, 4-6 common issues exist and need to be identified. These common issues must fall within each participating country's national priorities. IARCs are an important element in the process of identifying common issues. There needs to be a mechanism for sharing the large amount of knowledge that already exists within the region. In addition, it is expected that the World Bank's new Bangladesh Program being developed will have the R-W based cropping system as a priority item.

India: The importance of the R-W Cropping System was recognized in India 7 years ago. Further catalyzed by inputs from CIMMYT and IRRI it started the ADB supported R-W initiatives that conducted constraint analysis in India's north, northeast, and eastern regions. This is a group that uses a Systems Approach to R-W research. There is a new push to classify their research more clearly so they can effectively utilize their NARP support. NARP will evolve into NATP within one year. A major change is the appointment of a full time national R-W Facilitator located in ICAR. Thus the Indian national program needs are met but there still remains a need to clarify and strengthen

collaborative links with other countries and with the IARCs. This includes a need for a conference to bring together all information in the region on R-W activities.

Pakistan: The Interim Facilitator visited Pakistan 18-19 December, 1994. He was told the following:

Two R-W planning meetings were held in October involving Central and Provincial Centers. They developed a detailed research plan complete with funding requirements. A Twenty million rupee supplementary funding was sanctioned for this program but had yet to be released. It is still possible that the supplementary funding will be released. In any case they are including support for R-W research in their next budget which starts in July, 1995. In addition, they are expecting funds from the anticipated restructuring of the World Bank's ARP II Project. They feel strongly that the amount of support for and by NARS should appear in the proposal to TAC.

CG Centers

IRRI: IRRI is committing to the activities of the Consortium 3 staff members located at IRRI and travelling to the region and \$270,000 annually. IRRI is concentrating on long term strategic research but responds in other areas when called upon. Some areas of involvement include constraint analysis, biological weed control, integrated plant nutrient management, integrated pest management, and breeding for resistance and reduced duration rice genotypes. It was emphasized that work in the Consortium has not stopped. There is some confusion, however, as there have been several meetings on how to use resources to support R-W research in the region but the anticipated flow of funds has not materialized.

CIMMYT: CIMMYT is providing 2.5 staff positions from core funds to the Consortium activities. This staff is located in the region (Nepal, Bangladesh, and Thailand) working with the NARS. There are many long term activities already in place. A major concern is how to overcome commodity isolation and emphasize an *in-situ* systems approach. This involves working to bring groups and disciplines together into the R-W based cropping systems at sites within the country and within the region. Efforts must be made to assign responsibilities and coordinate activities among Centers.

In the end to get quick adoption of technology it is important to ensure better farmer participatory involvement in this research process. As sites form the basis for the work plans, more sites should be identified and seed money provide to get them established.

IIMI: Areas in which IIMI can contribute include:

- (a) performance indicator analysis of sustainability
- (b) policy analysis as it is linked to such areas as sustainability, farmer and economic profitability, and farmer decisions
- (c) consumptive use of water at the system rather than farmer level

Work is to be integrated with CIMMYT's and IRRI's existing on-farm work. The level of support from IIMI's core budget and personnel depends on what research need is identified.

ICRISAT: A minor partner compared to other centers and NARS. It has 23 Projects across Asia and Africa related to the production system. It has \$200,000 in core identified for its R-W-legume based cropping systems research in South Asia. It has MoUs with all four Consortium countries and will strengthen its work plans with them. It will also involve input through the Cereals and Legumes Asia Network (CLAN). ICRISAT also has a role as convener of CG activities in the Indo-Gangetic Plains and of the R-W Consortium Facilitation Unit.

Chair: There needs to be

- * A listing of the strengths and weaknesses of the NARS and CG Centers.
- * A clear message to the NARS from the IARCs and the Facilitation Unit on how to bring in a coordinated approach. The Facilitator has the responsibility for scientific input, not to just act as a postmaster.
- * Identification of activities of specific interest to provide understanding to donors for bilateral funding.

The RSC must:

- * approve the themes put forward by the RTCC
- * identify thematic area lead centers
- * set-up initiatives to put plans together

Donor representative: The discussion has been useful and encouraging and indicates that the process is on the right track. Frustration that the process is too slow has been detected caused partly by a delay in receiving notes from the RTCC. There is need to quickly come to closure on a program and identify specific funding gaps. We must be careful that the proposals are not too much finance driven. It is desirable to use the present ongoing work plan to identify how themes can be pursued.

Report on RTCC recommendations

Background: The RTCC recommended three main themes across the region accompanied by strategic research. The regional work may be done at one or two lead centers or other agencies. The output from these centers will be used for adaptive research at other centers in the region. A summary of the themes and next steps are given below:

Strategic Plan developed by RTCC

The outlines of a strategic plan were developed during the final part of the RTCC Meeting 22-24 Nov 1994 in Nepal by matching the "demand" side from the NARS with the "supply" side offered by the IARCs. The issues and activities fell into five major groups:

Soil Fertility

Nutrient dynamics and simulation modeling

- * Identify consultant(s) to take stock of existing long term R-W experiments (6 months). Organize a workshop of the scientists involved in these experiments to discuss ways to standardize data collection and analysis and produce publication(s). Identify necessary modifications to the existing set of experiments.
- * Develop, at one or two chosen sites, suitable models to explain production trends and key indicators of sustainability. Test the model at other sites.

Organic matter recycling and enrichment

- * Convene a workshop to develop innovative approaches to study soil organic matter in R-W based cropping systems including the dynamics of organic matter content, options for animal and crop residue use, and farmer management systems and recycling methods. Research on inclusion of legumes, green manures, and other break crops is also needed. Such research will be strengthened by farmer participation to identify reasons and solutions for enhanced adoption.

Micronutrients

- * Identify cultivars and, if necessary, breed plants that are more tolerant to micronutrient deficiencies, can scavenge more efficiently, and store greater amounts of micronutrients in their seeds. Use systems diversification. Apart from increasing yields, improved micronutrient efficiency can also enrich the nutrition of poor people.

Soil testing and analysis

- * Develop a methodology to calibrate fertilizer use to meet target yields and share the data at a workshop.
- * Monitor soil fertility trends on-station and in farmers' fields using benchmark sites and standardized methods. Organize an on-farm methods course for scientists.
- * Upgrade facilities and human resources in laboratories for soil/plant/water analysis.

General

- * Link the four soil fertility activities to overall productivity and sustainability across the eco-region using GIS. Farmer participatory techniques need to be improved to define problems more clearly and identify adoption rates of solutions.

Water Management

- * Identify and measure indicators of productivity and sustainability in relation to progress and impact of existing irrigation schemes, water tables, salinity and sodicity, waterlogging, and water distribution.
- * Improve water-use efficiency at crop, farm, and system level.
- * Determine the value of efficient drainage in relation to crop establishment after rice and on the system's productivity. Initiate trials on permanent ridge and furrow systems.
- * Study the effects of policy issues on water management efficiency at selected sites.

Integrated Pest Management (IPM)

The focus of IPM is on the interaction between pests (diseases, insects, rodents, weeds, and other biological organisms) and IPM interventions. The aim is to provide pest control in the cropping system with minimum chemical use and minimum impact on the environment. Activities include:

- * Spatial characterization of pest complexes.
- * Assessment of pest problems in long-term trials.
- * Diagnostic monitoring of farmers' fields to provide hypotheses for testing the effect of cropping patterns on pest levels.
- * On-farm experiments to identify pest carryover between crops.
- * Identify IPM components.
- * Propose rational pesticide policies to help prevent development of pesticide resistance or contamination of the environment.

Ongoing Activities

Ongoing activities associated with R-W research include the following:

- * Continue crop establishment trials designed to reduce the turnaround time between crops and provide timely seeding. This includes the introduction of appropriate tillage and seeding equipment and innovative seeding practices.
- * Breed and introduce genotypes that better fit existing cropping patterns and ones to enhance new patterns.
- * Follow productivity trends by monitoring farmers' fields, conducting long-term trials, and strengthening the use of GIS.
- * Identify innovative policy options by including on each research team scientists knowledgeable in policy matters. These options will be considered when putting forward any research recommendations.
- * Maintain intellectual exchange among the participants in the Initiative through workshops, roving seminars, country to country consultancies, and training.
- * Emphasize the importance of the systems approach where research is conducted by multi-disciplinary teams that include scientists from all disciplines.

Next steps for the strategic plan: It was agreed at the RTCC Meeting that the three groups of issues in the above strategic plan would need to be fleshed out as proposals for funding to be developed by groups meeting in designated countries. Suggestions of possible national and international actors and sites for all the three main groups of issues were made. There is need for immediate seed money to bring the groups together to prepare the proposals for research and for funding for each group of issues. It was suggested that work be done on one document first (perhaps micronutrient or IPM) as a model for the others. Suggestions were given as to which of the national and international groups might be involved in developing detailed work-plans and the locations for the trials. The strong point of these proposals will be that they will be an integral part of a region-wide agenda determined jointly by all research partners.

Actions suggested

The following actions were suggested by the RSC resource group and during general discussion by all participants:

Soil fertility

- * Produce a single funding proposal for all five themes.
- * IRRI to take lead as they are appointing one staff member and one PDF to conduct research on soil fertility in the R-W System.
- * ICRISAT will provide 25% of one staff member for this activity.
- * The IRRI researcher on arrival will visit all NARS to discuss their expectations and then would put together the first draft of the proposal. Would expect this to happen in 2-3 months.
- * Bangladesh has committed itself to help bring the group together.
- * Consideration should be given to breaking up the soil fertility issue into sub-issues such as organic matter recycling and legumes in the system and assign the lead role of these sub-issues to the appropriate centers.

Water Management

- * The RSC charged IIMI to prepare the Water Management proposal and IIMI has accepted.
- * It will be recommended that TAC be requested to sanction extra funding to IIMI for this purpose.

- * IIMI would work with NARS to put together a proposal. IIMI will not be able to put a full time staff member onto this activity. Thus IIMI will need support from the FU possibly including funding activity. This is especially true if job is to be done quickly. IIMI does have sites and staff in Pakistan and Nepal and it might be possible to get the resident scientists involved to start with.
- * In developing the plan prioritize issues. Some issues require immediate attention while others are long term.
- * Policy issues can have a long-term effect such as government policy not permitting conjunctive water use.

Integrated Pest Management

- * ICRISAT is willing to work with Dr Nagarajan and others in NARS to put together a proposal based on the RTCC recommendations.
- * Need to get an IPM person to visit all countries and then bring a planning group together.
- * Facilitator was suggested as a person to take responsibility for IPM along with NARS and Centers.
- * It was suggested that a five day planning meeting be organized with representatives from all groups. The first part of the meeting would be to prepare the technical plan and the last part would be spent on project proposal preparation lead by a person experienced in proposal preparation. The person suggested to lead this was Ms. Marian Fuchs-Carsch responsible for Donor Relations and Project Development at IIMI.

On-going activities

- * Long-term trials: will set up a workshop and working group to draw results together in a unified way so comparisons can be made across trials and sites and a report published.
- * Crop establishment needs a survey of trials to draw together what has been done and what is being done and draw up plans for further trials. Some aspects include wheat after rice, and permanent ridge and furrow.
- * See also "On-going activities" above.

Discussion

- * It was emphasized that in the process of developing project proposals NARS will take the lead in forming the plan with IARC scientists going to countries as consultants and taking responsibility to prepare the write-up for the proposal.
- * It would be ideal if the new Facilitator took up this activity with support from the IARCs. It was emphasized that the Facilitator should always remain in the picture.
- * Throughout the planning process and in the documents emphasis needs to be placed on using a systems approach.
- * The UNDP Science Division works with the World Bank to identify support for IARCs. They look for proposals with a strong science component related to development with solid links to NARS programs. An example was a proposal put forward on water/soil nutrient management with reference to R-W with IRRI input. This may lead to a full program.
- * These proposals should be in place by the end of May so the program will be moving by June which is the beginning of the new cropping season.

Consortium Activities

The following information was presented to the RSC for information, and where necessary, actions were suggested:

Budget: The RSC considered the budget included in the TAC proposal that was originally prepared by the NARS representatives at the April 1994 Islamabad meeting. In the meeting at Delhi in May 1994, following up on this proposal, the World Bank had identified about \$2 million within the Donor Group to support the R-W activities. Of the total, 1% or \$200,000 was identified for transactional activities (Facilitation Unit activities fits this definition). Subsequently, TAC sanctioned \$100,000 in 1994 to reimburse ICRISAT for expenses they incurred for the Facilitation Unit. This money has yet to be received by ICRISAT and but permission has been received to carry it forward to cover 1995 expenses. These funds are believed to be coming from \$120,000 provided by the Swiss.

IFAD also has provided to reimburse the \$4,000 ICRISAT paid through the FU directly to the NARS to help them hold national meetings to plan their R-W national and regional collaboration programs. These meetings provided the information use to develop the RTCC recommendations.

In the meantime, IRRI has received \$380,000 from IFAD to fund the proposal IRRI had submitted earlier to obtain support for the Facilitation Unit which was originally expected to be located at IRRI. Of this, 60% will be made available to ICRISAT for the Facilitation Unit after 20% has been taken for administrative costs. The amount coming to ICRISAT is close to \$200,000 over 3 years. (Subsequently it was learned that the Swedes have sent an extraordinary contribution of \$306,900 to ICRISAT for the Consortium).

ICRISAT has been asked to prepare a budget for the collaborative activities of the Consortium. Not include in the budget are funds to help support CG Centers' participation in the Consortium activities. The original amount set for this support was \$400,000 per year including \$200,000 for the Facilitation Unit but the Donors are now requiring the IARCs to fund their participation from their core budgets. With the inclusion of IIMI and IFPRI the RSC suggested that \$30,000 a year be sanctioned for each of the new Centers as this is a new and unexpected activity for them. Some savings on the original budget have been made by ICRISAT providing an office rent free but this is partly offset by the expense of including China as an Associate Member. ICRISAT has also provided a car free of charge.

The point was made that even if TAC sanctions the budget proposed by ICRISAT, it is not clear whether the necessary funds can be raised. It is expected, however, that funding for the Facilitation Unit in 1995 is secure.

TAC proposal: The proposal to TAC prepared by ICRISAT on behalf of the Rice-Wheat Consortium seeking the sanctioning of seed money to fund the collaborative regional activities of the Consortium was discussed. Comments and corrections were received from participants and have been incorporated. The ultimate goal of the proposal is to ensure that the research on R-W systems in the region is self sustaining and that improved technology moves into farmers' fields so as to ensure the sustainability of R-W based cropping systems. Changes have been made to meet TAC's recommendations that the involvement of IIMI and IFPRI be included, that the functions and responsibilities of all partners including the NARS are specified and related to expected program outputs and benefits, and that the document lays out a reporting process, including milestones for expected achievements.

The RSC agreed that the proposal should initially be for a full 4 year period. They further suggested that IIMI and IFPRI should be allocated \$30,000 each per year to support their involvement in the Consortium.

Sustainability defined: The suggestion that there be a Workshop to define sustainability for the Rice-Wheat Cropping Systems was discussed. It was pointed out that this topic was discussed earlier at the ADB supported meeting in the Philippines in Dec 1993 and that there is an FAO book by A J Smith and J Dumanski on a Framework for Evaluating Sustainable Land Management. These publications can provide a framework for testing indicators of sustainability.

There still remains the need to review the definition of sustainability when setting up new projects.

GIS Workshop in Thailand: Plans are well under way for this Workshop which is entitled "Role of GIS in developing and transferring sustainable agriculture technologies in the tropics". It is to be held at the Asian Institute

of Technology in Bangkok 20 Feb to 7 Mar 1995. About 40 participants are expected. An important purpose of this Workshop will be to identify the extent of the R-W system and the edaphic conditions associated with the system using data brought by the participants. The publication expected from this Workshop should be interesting.

Integration of legumes in the R-W Cropping System: This is a proposal put forward by John Duxbury of Cornell University for consideration by potential participants. (Appendix 4)

Regional R-W-Legumes Project: ICRISAT has shaped this eco-regional project to fit into R-W based cropping systems. ICRISAT is starting with a limited amount of germplasm of its mandate legumes. ICRISAT was encouraged by the Steering Committee to consider adding legumes beyond its mandate..

This brought up the topic of the inclusion of alternative cropping systems such as potatoes and sunflower as part of the research agenda of the Consortium. This will ensure that the most remunerative systems are available to farmers. It was noted that CIP has expressed interest to be involved in the Consortium to work on the potato component.

Replying to a query it was indicated that both IRRI and CIMMYT are ensuring that appropriate rice and wheat genotypes are being brought into the system. Making certain that proper germplasm is provided is a major effort of all three IARCs. The research programs also make certain that information is fed back to the centers to identify strategic research needed to support the needs of the Consortium researchers and farmers.

SAARC: It was suggested that SAARC might play a role as a participant in the Consortium although there were mixed feelings about the value of their involvement. The Facilitator will make contact with the Agricultural Section of SAARC to explore their interest in collaboration.

Regional R-W activities: It was reported that CIMMYT is arranging an exchange of R-W scientists between Eastern India and Nepal which will be coordinated through the DWR at Karnal, India. They are also planning roving seminars in Nepal and Bangladesh during the wheat season. It was accepted that these activities would be suitable items for the RWIS.

Next RTCC Meeting: The RSC was delighted with the invitation from China to host the next RTCC Meeting at Nanjing, China in Oct 1995 and agreed that the invitation should be accepted. Concern was expressed that this might be too late in the year and instructed the Facilitator to see if he could negotiate a date early in October or even into September. It was pointed out that the date proposed by China might have been chosen so they could demonstrate more aspects of the system than they could at earlier dates. The fall back date of Jul-Sep at the Directorate of Wheat Research, Karnal, India still remains. It was also suggested that there be a theme at each future RTCC meetings. The themes suggested for the one in China were "crop establishment" and "organic matter recycling".

Membership for China: The request from China to be included as a Member of the Consortium was considered. It is obvious that contact with China offers a great opportunity for intellectual exchange. China's very intensive and high production system is now facing the problems which may become increasingly apparent as the production levels are raised in South Asia. There is also room for exchange of equipment and material.

The Committee agreed that despite the earlier decision not to include China, China should now be offered Associate Membership. This would mean that they would participate fully in the RTCC and that the Consortium would cover the expenses of a Chinese representative to attend the meetings of the RTCC and other collaborative activities of the Consortium. It also means that at this time they would not participate as a member of the RSC but this decision could be reviewed from time to time.

R-W Information Sheet: The members have found this to be a good initiative. It was suggested that it continue in its present form but that consideration be given to sending it by e-mail to those who have the proper connections. This will be done. Special care should be taken that it is sent to interested donors. As more contributions to the

information sheet are received from outside and research results are generated it might be appropriate to expand the scope of the publication and appoint an editorial board.

Name for the initiative: It was agreed by the Committee that the name "Sustainability of R-W Based Cropping Systems for the Indo-Gangetic Plains" while being very descriptive is rather cumbersome. Therefore, it was agreed that the name should be changed to "Rice-Wheat Consortium for the Indo-Gangetic Plains (RWCIGP)".

Overlap of Interim and Permanent Facilitators: It was agreed that an overlap of the Interim and new Facilitator of 4-6 weeks after the new Facilitator is appointed would be highly desirable. This would permit travel to the various sites to get the new initiative underway.

Thanks was expressed for the job done by the Interim Facilitator in getting things underway.

Next RSC Meeting: It was agreed that the next RSC meeting be held in Bangladesh with the target dates of 8-9 Jan 1996. The lead time to finally decide on the meeting dates and informing all participants should be at least 3 months (1 Oct 1995).

Concluding Remarks

The Chair, Dr Paroda, indicated he was pleased to be associated with this fruitful meeting. His feeling was that the Consortium was not donor driven but rather the leadership is coming from the NARS with support from the Centers. He welcomed the new partners ICRISAT, IIMI, IFPRI, and China. He again expressed regret at the absence of Pakistan. He felt that it would be desirable if the Facilitator visited Pakistan soon to brief them on the RSC Meeting and encourage their continued participation. He felt satisfied with the indications of commitment from the NARS leaders, and by the CG Centers from their core funds. The involvement of the CG Centers can act as a catalyst to accelerate and focus the activities of the Consortium. He praised the World Bank for picking up this initiative. It should be more sustainable as revived because it was done with the partnership of all participants and commitments of staff, facilities, and funds from all. The donors can be expected to support specific projects. We expect other groups such as APAARI also to become involved. It is important that the Consortium promotes itself to attract support. Finally he appreciated the presence and participation of the resource people and experts who attended and the job done by the Interim Facilitator. The new Facilitator is an Indian who will be located in New Delhi. The Indian Government will give whatever support is needed for the effective performance of the Consortium.

Dr Paroda handed over the Chair to Dr Chowdhury who will hold that position until the new Chair is appointed at the end of the next RSC Meeting in Bangladesh.

Dr Chowdhury expressed his feeling of honor to be elected as Chair for the next year and pledged his commitment to the Consortium. He said that Dr Paroda had done an excellent job at moving the wheel forward. Bangladesh too will give its full support to the Consortium even if its resources are minimal. He is looking forward to the financial and moral support of the Facilitation Unit and the International Centers. All four countries have a wealth of human resources who only require operational funding to make them fully productive. He looked forward in the new year to more work, and more interactions and exchange of knowledge which will benefit everyone. Thanks to the Interim Facilitator for carrying out this meeting at a difficult time. Dr Chowdhury looks forward to meeting everyone in Dhaka next year.

Interview of Facilitator candidates-Report

The Regional Steering Committee Members met with Dr M Petit as Chair to interview the 5 candidates short-listed from the 35 applications received for the Facilitator position. They eventually chose Dr I P Abrol, DDG (Soils) at ICAR in New Delhi as the Facilitator. This choice was confirmed by a phone call by Dr Petit to Dr Anwar Khan and Dr Akbar in Pakistan. The Pakistan member indicated that Dr Abrol was an excellent choice even though there might be some constraints on his travel in Pakistan. To help this situation, it was agreed that Dr Hobbs would act as the contact person should travel to Pakistan if difficulties arise for Dr Abrol to go and that a special effort would be made to ensure that Pakistan had a strong program. The report of the interviewing committee was delayed until after adjournment so that the Pakistan RSC member could be contacted.

The Committee agreed that the contract of 2 years renewable for a second 2 years was appropriate but agreed the situation should be reviewed each year. The IRRI representative requested that the Facilitator spend 2 weeks at IRRI before he starts. It would also be appropriate for him to spend a week at ICRISAT for administrative briefing.

Regional Steering Committee Meeting
IIMI, Colombo, Sri Lanka
23-24 January, 1995

AGENDA

Monday 23 Jan

0830 Registration

0900 Opening

Words of welcome - Dr Randy Barker, Interim DG, IIMI
Introduction of participants
Chair's remarks - Dr R.S. Paroda
Clearance of the agenda

0930 Progress Report - Dr Don Faris

Discussion of Facilitator's and RTCC Reports

1040 Refreshments and group photograph

1055 Response of participants

1230 Lunch

1330 **RSC Members** - Interview of candidates and Recruitment of Facilitator
Resource participants - Concurrent Session to discuss resources to carry forward RTCC recommendations and modify TAC proposal

1530 Refreshments

1545 Sessions (continued)

1800 Adjournment and return to hotel

1900 Reception and dinner hosted by Chair RSC - Dr R.S. Paroda

Tuesday 24 Jan

0830 Resource participants report - Dr P Hobbs

1000 Refreshments

1015 Consortium Activities

Budget

Transfer of funds

TAC Proposal revisions to be made

Sustainability Workshop

GIS Workshop in Bangkok (ICRISAT-IRRI)

Integration of legumes in R-W (Cornell)

Regional R-W-L Project (ICRISAT)

Thesis research on sustainability indicators (CIMMYT)

Regional Activities (CIMMYT)

Invitation to hold RTCC Meeting in China

China's request to join the Initiative

Rice Wheat Information Sheet

Name for the Initiative

Overlap of Interim and permanent Facilitators

Other Business

Next RSC Meeting

1300 Concluding Remarks - Chair, Dr R S Paroda

Handing over to new Chair, Dr M S U Chowdhury

1320 Adjournment

1400 Report of the interview of Facilitator Candidates - Dr M Petit

**Participants
in the Regional Steering Committee Meeting
of the Rice-Wheat Consortium for the Indo-Gangetic Plains
IIMI
Colombo, Sri Lanka 23-24 Jan 1995**

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**Sustainability of Rice-Wheat Based Cropping Systems
for the Indo-Gangetic Plains**

**PROGRESS REPORT
to the Regional Steering Committee Meeting
IIMI, Colombo, Sri Lanka, 23-24 Jan 1995**

Don Faris, Interim Facilitator

Executive Summary

Progress since the First Meeting of the Regional Steering Committee (RSC) in New Delhi in May, 1994 has been excellent. Despite several unavoidable problems virtually all the Terms of Reference laid out at that Meeting will have been met with the completion of the present Meeting. Activities to meet these terms include:

- The National Conveners have been appointed and have held National R-W Meetings to review the R-W research in their countries and determine the need for further research.
- The National conveners have met together in Kathmandu, Nepal 22-24 Nov 1995 for the Regional Technical Coordinating Committee (RTCC) Meeting and have identified priority research themes for the preparation of proposals for donor support.

The outline of the themes taken from the RTCC Meeting follow:

Soil fertility issues

- Nutrient dynamics and simulation modeling
 - Review, rationalize, and apply existing long term trials
 - Develop and apply models to explain key indicators of sustainability
- Organic matter recycling and enrichment
 - Develop innovative approaches for looking at organic matter in the R-W based system (workshop research)
- Micronutrients
 - Efficient cultivars, improved human nutrition
- Soil testing and analysis
 - Develop and apply uniform methodology
 - Monitor trends
 - Strengthen labs
- General
 - Link all four aspects to overall productivity and sustainability

Water management issues

- Identify and measure indicators of productivity
- Improve water use efficiency
- Value of efficient drainage (permanent ridge and furrow)
- Study effect of policy issues

Integrated pest management issues

Focus to increase the knowledge of IPM on a cropping system level to provide pest control with minimum chemical use and impact on the environment

The next step is to bring small groups together to prepare proposals for submission to donors. This could be joined with a workshop on proposal preparation and project management.

Productivity and sustainability in the context of the R-W systems needs better definition. A small group in-depth discussion could be organized or this could be part of a larger project to test hypothesis developed during the discussion. Any meeting on sustainability will take into consideration earlier reports.

The Chinese observer at the RTCC Meeting invited the group to hold its next meeting in China. The Chinese have also issued an informal request to join the Initiative.

- The Regional Steering Committee (RSC) was scheduled to be held in Jan 1995. The RTCC felt the meeting should be delayed until the funding situation was clearer. The donors and international centers thought this delay inadvisable for the rapid forward movement in the Initiative. Positive decisions at the present RSC Meeting are imperative to keep the Initiative moving.
- The funding situation is less clear. There continues to be some uncertainty concerning what funds are available for use by the R-W Initiative. TAC has sanctioned an initial \$100,000 to ICRISAT to reimburse the funds ICRISAT has made available from its own budget for the activities of the Facilitation Unit and to support further activities until TAC can consider again the resubmitted proposal being coordinated by ICRISAT. This revised proposal will be submitted to the March TAC meeting at CIP in Lima Peru. The Interim Facilitator has revised the original proposal to take into consideration most of the concerns expressed by TAC with the original proposal. This will require further input from the RSC members and will include a clear statement of the recommendations of this meeting and of the RTCC meeting. Another suggestion is to include the problem solving outline prepared by Dr L Harrington.
- ICRISAT, which was appointed the Convening Center for the Initiative, recruited me as the Interim Facilitator, made the arrangements to establish a Facilitation Unit, has set up a mechanism for handling the FU funds, and has made arrangements which will allow the RSC to interview and choose a permanent Facilitator at its present Meeting.
- The Interim Facilitator has been able to visit the R-W workers in all four countries, attend the national R-W workshops in three of the countries (the plague in India disrupted travel to Pakistan) and see in some detail the R-W site research activities in two of the countries (India and Nepal). The facilitator has received logistical support from ICRISAT but has been without a secretary. An Assistant Administrative Officer has been appointed to start 1 Feb. There has been considerable difficulty with the email link. This is expected to be cleared up soon. A new computer system will arrive as soon as it can be cleared through the customs in Bombay. The FU also helped prepare two posters on the Initiative for a conference in The Hague. The FU has been publishing the Rice-Wheat Information Sheet (RWIS) to share information about the activities of the Initiative. The agenda and guide notes provides a list of suggested items we will need to consider at this meeting.

I have enjoyed helping to put in place the new phase of this Initiative. I feel that the decisions made today and tomorrow could have a huge impact on the future course of the Initiative and ultimately on R-W based cropping systems and indeed on all cropping systems in Asia. Thanks for having me as Interim Facilitator.

Report

Progress since the First Meeting of the Regional Steering Committee (RSC) in New Delhi in May, 1994 has been excellent. Despite several unavoidable problems virtually all the Terms of Reference laid out at that Meeting will have been met with the completion of the present Meeting. Activities to meet these terms include:

- The National Conveners have been appointed and met together in Kathmandu, Nepal 22-24 Nov 1995 for the Regional Technical Coordinating Committee (RTCC) Meeting,
- ICRISAT, appointed the Convening Center for the Initiative, recruited the Interim Facilitators, made the arrangements with the Interim Facilitator to establish a Facilitation Unit and has made the arrangements for the RSC to interview and choose a permanent Facilitator, and
- The Donor Support Group (DSG) met and received a report on the Initiatives activities.

Background

First it should be stressed that this Initiative is a new phase of a project on Rice-Wheat Cropping Systems Research set up by Bangladesh, India, Nepal, Pakistan, IRRI, and CIMMYT with financial support from the Asian Development Bank (ADB). This earlier phase developed a very good collaborative research structure. Unfortunately the momentum of the earlier phase has slowed since the funding from ADB finished. It is essential that our present Meeting provides the guidance to quickly put to full use the existing structure.

Soon after his arrival in Delhi on 23 Sep 1994 the Interim Facilitator started putting out the Rice-Wheat Information Sheet (RWIS). This newsletter gives a good summary of the progress of the Initiative.

We will now look at the various aspects of the Initiative.

Structure

The following structure for the initiative organization and the proposed activities as outlined by the first RSC meeting has been put in place:

Regional Steering Committee (RSC) Members

M.S.U. Chowdhury, Executive VC, BARC, Dhaka, Bangladesh
R.S. Paroda, Director General, ICAR, New Delhi, India
S.B. Nepali, Executive Director, NARC, Kathmandu, Nepal
C.M. Anwar Khan, Chairman, PARC, Islamabad, Pakistan
K. Fischer, DDG Research, IRRI (IARCs' Representative)
M. Petit, Director, Agric. Research, The World Bank (DSG's Representative)
D. Faris, Interim Facilitator (Ex-officio Member)

Regional Technical Coordinating Committee (RTCC) Members

M.A. Razzaque, Bangladesh
S. Nagarajan, India (Interim Convener)
S.L. Shrestha, Nepal
M. Akbar, Pakistan
P. Hobbs, CIMMYT
P. Pingali, IRRI
C. Johansen, ICRISAT
D. Faris Interim Facilitator (Member/Secretary)

Meetings have been held:

National Rice-Wheat Meetings

In preparation for the RTCC Meeting The National Programs held meetings to review their past research results, develop a strategy for future research in R-W, identify what collaborative research is needed to meet that strategy, and determine what resources are required. IFAD provided \$1000 to each National program through the FU to help support these meetings. The following meetings were held:

Bangladesh: National Workshop : Sustainability of the Rice-Wheat Systems in Bangladesh, 15-16 Nov 1994, BARC, Dhaka, Bangladesh

This meeting was held to review the research work on R-W systems in Bangladesh and develop a proposal to submit to the RTCC.

The Executive VC of BARC, Dr M.S.U. Chowdhury chaired the opening session. Also participating in that session were the Chief Guest, Dr D. M. Badruddoza, the DGs of BARI, BRRI, and Extension, the Chairman of BADC, and the Director of Wheat Research. This level of participants indicated the great importance given to the R-W Initiative in Bangladesh.

There were 15 papers presented at three technical sessions. These dealt with the importance of the R-W system, productivity trends, variety development, grower defined research issues, soil fertility issues, research achievements in the ADB funded R-W Initiative, water management issues, resource management, and policy issues. The final session considered the 5-year plan/proposal for submission to the RTCC Meeting in Kathmandu.

India: The Indian National Rice-Wheat Workshop was held at the Directorate of Wheat Research in Karnal on the 18-19 Oct 1994. There were about thirty Rice-Wheat scientists from most of the R-W Sites in north India. Dr D.R. Bhumbla, retired VC of HAU with his wide knowledge of Indian agriculture, Dr Virmani from ICRISAT who came to discuss a GIS workshop, and the Interim Facilitator also participated. The Workshop was chaired by Dr I.P. Abrol, DDG (Soils) with support from Dr S. Nagarajan, Wheat Project Director and Interim R-W Convener, who organized the Workshop. The Workshop developed a document outlining the major sustainability research thrusts in rice-wheat based cropping systems perceived for the next 5-10 years. It is intended that this document should be used to help identify subjects for funding future research proposals. Also identified were issues where there could be collaboration with IARCs and other NARS.

The Workshop broke into groups to consider the following five general areas for research: Cropping systems; Water management and tillage; Nutrient management; Pesticide/herbicide use and the environment; and Policies. For each topic short statements were prepared describing the Sustainability Issue Involved, the Present State of Knowledge, and What Research Needs to be Done. The report from this Workshop will be available as a printed document hopefully in time for the RTCC Meeting in Kathmandu. A list of possible collaborative activities in India under the

Regional R-W Meetings

Based on the outputs of these meetings regional meetings were held:

Regional Technical Coordinating Committee Meeting: The first plans to hold this meeting 31 Oct-2Nov 1995 so as to meet the recommendations of the Steering Committee had to be rescheduled because of the health problem in India at that time. At the rescheduled meeting twenty participants met at de l'Annapurna Hotel in Kathmandu, Nepal 22-24 Nov 1994. The Committee Members from Bangladesh, India, Nepal, CIMMYT, IRRI, ICRISAT and the Interim Facilitator were present. Unfortunately the R-W Convener from Pakistan was unable to get government clearance at the last minute. Also participating were resource people and observers from Bangladesh (1), India (1), Nepal (3), China (1), CIMMYT (2), ICRISAT (2), IIMI (1), IBSRAM (1), and Cornell University (1). The Chairman S.L. Shrestha, R-W Convener of Nepal welcomed the participants to Nepal the host country.

The Interim Facilitator emphasized that this Initiative is a new phase of the R-W Consortium that has been working on the sustainability of the R-W Based Cropping Systems for the past four years with ADB support. Thus there is already a good research structure in place in the region. The new phase will build on the existing program with emphasis given to increased planning input by the National Programs.

The national R-W Conveners from Bangladesh (one for wheat and one for rice), India, and Nepal each presented an in-depth country report based on the output from their National R-W Workshops (see this and earlier RWIS for reports on the National Workshops). Prof. Guo from China gave a very useful report on R-W activities in China although his invitation had not been sent in time for him to prepare a formal paper. There was discussion of each presentation. A representative from each of the international organizations supplied a short statement about what their institution might contribute to the Initiative. They met later as a group and refined their possible contributions on the basis of the discussions during the meeting. In addition to the groups at the Meeting consideration was given to the possible roles IFPRI, CIP, and the local Missions of The World Bank, and USAID might play.

The detailed consideration by the Meeting of the problems and research requirements of R-W systems in Asia was prefaced by a series of discussions on:

- The meaning of sustainability (the working definition we use that R-W systems are sustainable if the rate of production increase is greater than the rate of population increase may be too simple and leaves many aspects not considered and will need further consideration by a special group);
- The objectives and expected outputs from the meeting (identify unifying issues and links across the region, standardize data collection to allow meaningful comparisons, indicate financial requirements, develop a system to monitor progress and impact); and a problem solving process (to provide a framework to define problems, identify prototype solutions, adapt and accelerate adoption of solutions, and measure impact).

The participants broke into four groups to apply this problem solving process to four of the issues in R-W systems: crop establishment, soil fertility, water management, and ecological consequences. The issues of productivity and alternate policy options were considered to be embedded in the other four issues.

With this background the National Scientists met as a group to identify and prioritize the issues to be considered under the Initiative. The R-W issues with top priority were divided into three major areas:

- Soil fertility (nutrient dynamics and simulation modeling, organic matter maintenance, upgrading soil testing, and micronutrients).
- Water management (efficient drainage, water use efficiency, and indicators of productivity).
- Integrated pest management (increase knowledge at the systems level of interactions between pests and IPM interventions so as to provide pest control with minimum pesticide use).

It was felt that the output of this Meeting would form three or four well designed interlinked projects. Writing these projects should be done by separate groups meeting within the region. In these projects the links among research groups including those in China should be clearly laid out. It was felt that a detailed background statement should be developed to be used as a preface for each project submission. This preface might be written when the first project is written perhaps starting with the IPM or micronutrient projects. All projects should be completed in 3 months. Funds for these projects should compliment existing bilateral funding. These write-ups will be done as a matter of urgency once the ideas are cleared by the RSC in January.

Next RTCC Meeting: Prof. Guo issued a generous invitation to hold the next RTCC meeting in Nanjing, China at the end of Oct 1995. Dr Nagarajan volunteered to provide a fallback location at the DWR, Karnal, India in the period Jul-Sep 1995.

Name for the Initiative: Possible shortened names which would form an easy to remember acronym were considered. One suggestion was South Asian Rice-Wheat Research Consortium (SARWRC) which comes close in sound to STAR WARS. It was felt that the name should contain at least the words "Asian," "Rice-Wheat," and "Consortium" with possibly "Sustainable". The Facilitator would be glad to receive suggestions from readers of the RWIS. Please send your suggestions in now.

Facilitator: Thirty-five applications have been received for the Facilitator's position. The list contains many persons highly qualified for the position. The RSC will interview candidates from a short list of these names at the RSC Meeting in Jan 1995.

Funding: Interim funding has been provided to ICRISAT by the Technical Advisory Committee (TAC) of the CGIAR for the support of the activities of the Facilitation Unit (FU). An application to TAC is being prepared seeking a continuation of the funding to support the activities of the FU. Funds have already been promised by members of the Donor Support Group for support of the activities of the Initiative. It is imperative that the project documents be prepared quickly so that these funds will be made available as soon as possible.

Communication: Easy rapid communication among Initiative members continues to be a problem. The FU at ICRISAT New Delhi can continue to be the node for communication among the countries using email, fax and telex. The FU is being greatly assisted by the CIMMYT offices in Nepal and Bangladesh. A major problem continues to be the lack of rapid communication within most countries of the Initiative. Ways to overcome these problems of communication among Initiative members will be a continuing concern of the FU.

CIMMYT regional activities: CIMMYT is arranging an exchange of R-W scientists between East India and Nepal which will be coordinated through the DWR at Karnal. They are also planning roving seminars in Nepal and Bangladesh during the wheat season.

At this Meeting there was enthusiastic high caliber participation by those attending. It was a disappointment not to have Pakistan's input. The Chinese participation added an important dimension. The Nepalese were excellent hosts.

Regional Steering Committee Meeting: The original dates of the RSC Meeting were 9-10 Jan 1995 in Bangladesh. Because of the political situation there it was deemed wise by the senior administration in Dhaka to hold the meeting later in a third country to facilitate government clearance for participants to attend. The administrators in Bangladesh were very disappointed as they were thrilled at the prospect of having the meeting in their Country. The Chair of the RSC in consultation with the other members of the RSC determined that Sri Lanka would be the ideal place especially when IIMI kindly offered to host the meeting and provide logistical support. It should be noted that IIMI is very keen to collaborate in the Initiative as suggested by TAC. Likewise IFPRI is interested in participating.

The RTCC had suggested that the RSC Meeting be delayed until they could complete their task of developing detailed proposals for submission to donors for funding and funds were available for the RSC to work with. The DSG and the DG of ICRISAT were concerned that this might cause a delay in the forward movement of the Initiative and suggested that it was important to hold the meeting as soon as possible. Therefore after some uncertainty the dates of 23-24 Jan 1995 were decided upon.

Donor Support Group (DSG)

There continues to be some uncertainty concerning what funds are available for use by the R-W Initiative. TAC has sanctioned an initial \$100,000 to ICRISAT reimburse the funds ICRISAT has made available for the activities of the Facilitation Unit and to support further activities until TAC can consider again the resubmitted proposal being coordinated by ICRISAT. This revised proposal will be submitted to the March TAC meeting at CIP in Lima Peru. The Interim Facilitator has revised the original proposal to take into consideration most of the concerns expressed by TAC with the original proposal. This will require further input from the RSC members and will include a clear statement of the recommendations of this meeting and of the RTCC meeting.

The DG presented a progress report to the DSG in Oct 1994 at the Centers Week in Washington based on a report prepared by the Interim Facilitator.

The Facilitator has kept in touch with the Chair of the DSG, Michel Petit, but an unfortunate series of events has made it impossible for the two of them to meet. J.P. Srivastava of the Washington office has met twice with the Interim Facilitator to provide excellent support and advice. In addition the Interim Facilitator has met with the World Bank staff members in India (T.C. Jain and Handy Eisa) and Nepal (J. Manisavasigum and R.C. Mishra) but has been less fortunate in making direct contact with the World Bank Staff Members in Bangladesh (M. Abdul Ghani) and Pakistan (Rashdul Qayyum). In all four countries the WB is interested in supporting Rice-Wheat Systems research. In India there is a very large program that is supporting 10 sites including the three sites associated with the R-W Initiative. In Nepal the Agricultural Representative took part in the RTCC meeting. In Bangladesh they are apparently planning to include R-W Systems in one of their projects although apparently outside the Initiative. In Pakistan they are expecting to include R-W Systems if they reconstitute their present ARP II project.

IDRC has put forward an indicative amount of \$200,000 to support the Initiative but require proposals from the participants for specific projects. One example might be support of a workshop on sustainability that put forward a hypothesis that could be tested in the field perhaps by a diagnostic surveys of some type. This could test how changes in the system relate to sustainability. When signs of stress appear then some type of intervention might be tested. This could be a good project for Nepal where they are already doing extensive farmer monitoring.

The Crop Diversification Programme in Bangladesh indicated they might be interested in looking at the R-W based system as it relates to their particular crops when their next phase starts.

Convening Center

The Initiative's Convener, ICRISAT, recruited the Interim Facilitator and has completed the search for qualified candidates for the Facilitator. ICRISAT will recruit the candidate chosen by the RSC at this meeting.

ICRISAT has also provided a Facilitation Unit office at the ICRISAT Delhi office and has recruited an Assistant Administrative Officer and a Driver for the FU. They will report for duty on 1 Feb 1995. In the meantime the Interim Facilitator has been doing all the secretarial duties with logistical support from ICRISAT staff members. Phone, fax, email, word processor, copier etc. in the office have been made available. A new computer/printer and email connection are under process.

ICRISAT has kept a separate account within its financial system for the support of the FU. Expenditure is on a cost recovery basis from TAC. The FU account under ICRISAT's fiscal system will be audited by ICRISAT's auditing system which includes an independent auditor. This arrangement has been cleared with the Chair of the DSG. Funds provided by IFAD have been released from this account to Bangladesh, India, and Nepal. A means of release to Pakistan is also available.

Facilitation Unit

The FU has made the arrangements for the RTCC and RSC Meetings and is prepared to make arrangements for any training, workshop and external specialist sanctioned by the RSC.

The FU has used the Rice-Wheat Information Sheet to keep the participants in the Initiative aware of events associated with the Initiative. The mailing list is continually being updated. The FU has also acted as a center for the flow of information. Fax has proven to be the most reliable but more emphasis is expected to be placed on email once a reliable system is installed in the FU. Also email connections are becoming much more widespread in Asia making this the communication method of choice. Valuable assistance has been provided by the CIMMYT offices in Bangladesh and Nepal by helping to speed information transfer within those two countries. Their help is gratefully acknowledged.

The FU's responsibility to review the collaborative research activities and report to the RTCC and RSC on the appropriateness of these activities will come after funding is provided to start these activities.

Interim Facilitator activities

In the meantime the Interim Facilitator has visited all four countries to discuss their R-W research programs and has participated in several meetings dealing with the sustainability of the R-W Cropping System. Peter Hobbs has been a great help in orientating the Interim Facilitator. His help and patience is greatly appreciated. A brief account of these visits follows:

All India Wheat Improvement Workshop, Ludhiana 30 Aug-2 Sep 1994: The Facilitator participated in this workshop along with Dr. Peter Hobbs and Dr. R.P. Singh. This was the first A.I. Wheat Workshop to be held in Ludhiana in 20 years. Rice-wheat systems were given a high profile at the Workshop. The slowing down of production increases in India and in some cases reduction in yield at constant input levels was cause for concern. Reports were presented by the Project Directors of the Directorates of Wheat and of Rice Research on their rice-wheat research results. Results included the effect of tillage, seeding method and genotype on crop establishment, crop residue management, and nutrient management including the effects of green manuring. Problems such as the shifts in weed populations which are associated with the system were also reported. The Facilitator was also shown the wide range of rice-wheat trials being conducted in the Agronomy Department of PAU as part of the Cropping Systems Project under Dr. R.P. Singh. This included a visit to some of their on-farm trials. During conversations with Dr. A.S. Khehra, V.C. of PAU, Dr. P. Dixit, Secretary of Agriculture and Cooperatives of the GOI, and Dr. E.A. Siddiq, DDG (Crops), strong support was given by them for rice-wheat systems research.

National Conference on "Sustaining Rice-Wheat Cropping System in Indo-Gangetic Plains", Lucknow, 8-9 September 1994: This was a meeting called by the Secretary of Agriculture and Cooperatives, GOI, Sri J.C. Pant and organized by Dr. P.K. Dixit, Agriculture Commissioner, GOI. It brought together senior administrators and research and extension staff from GOI, state, and universities mainly from Uttar Pradesh, Punjab, Haryana, and Bihar. Participants included Directors of Agriculture, Vice Chancellors, DDGs, Commissioners of Agriculture, Additional Secretaries and Program Directors. International Institutes had representatives from IRRI, CIMMYT, and the Rice-Wheat Systems Consortium. Topics covered included diagnostic surveys, field problems of rice-wheat rotations, production technology, nutrient, water, and weed management, varietal compatibility, IPM technology, post harvest problems, energy use, and the system's stability. The format provided for questions and discussions of these presentations. A recommendations committee listed the following topics:

Early sown paddy - need to ensure power sources at the critical sowing period and suitable varieties of rice and wheat.

Gap between crops - need to develop and introduce better methods to minimize the problems associated with this period.

Imbalanced and inefficient use of fertilizer - need to deal with stress being put on P and K by heavy use of nitrogen and develop more effective ways to use organic fertilizers such as green manure.

Varieties for problem areas - particularly for certain rainfed areas and provision of adequate certified and breeders' seed.

Diagnostic surveys - to be encouraged to develop appropriate varieties and practices for each ecoregion. Important to involve farmers in the process. Technology for each ecosystem - suitable to the resource level of the farmers. Credit levels available to farmers from commercial banks need to be improved.

Recycling and biofertilizers - encourage use of organic fertilizers and check out the value of commercial bio-fertilizers.

Crop protection - new problems with weeds, insects, and nematodes which come with this system need to be dealt with.

Rice-wheat is one of the most important systems for ensuring food security. It must be maintained and improved. There needs to be a review of the system at least once a year.

The organizers are to be commended for providing the opportunity for interaction and sensitization of this level of management to the value and problems of R-W based systems.

IARI: On 13 Sep the Interim Facilitator accompanied Dr C. Johansen and Dr N.P. Saxena of ICRISAT to discuss with various administrators and scientists ways of collaboration within ICRISAT's new Rice-Wheat-Legumes Ecoregional Project and its relationship with the Sustainable Rice-Wheat Based Cropping Systems Initiative. This included a visit to Dr V. Pal Singh, IARI Agronomist who already has input into the Indian Rice-Wheat Project supported by the World Bank (WB). It has ten sites in India. Also visited were Dr S.K. Sinha, Director of IARI and the Water Technology Center (WTC) and Dr Renu Khanna-Chopra, Physiologist, WTC, Dr Y.P. Abrol, Director, Dr B. Baldev, Emeritus Professor, and Dr K.C. Bansal, Biotechnologist of the Physiology Division of IARI, and Dr C.S. Saraf and Dr I.P.S. Ahlawat of the Agronomy Division, IARI. Scientists at IARI are involved in the WB supported India Rice-Wheat Project. It was not clear as to how closely their research is coordinated with other groups working in this Project. This might be a point to discuss at the RTCC meeting.

Nepal: From 19 to 22 Sep The Interim Facilitator was in Nepal. With Dr Peter Hobbs he met the Executive Director of the Nepal Agriculture Research Council, Shiva B. Nepali, D.N. Manandhal, Director of Crops who has been the R-W Convener in Nepal, the Chiefs of Agronomy, Agricultural Botany, Agricultural Engineering, Pathology, and Soil Science at the Research Center who are all active in R-W research in Nepal, B.K. Gyawali, the Site Coordinator at Naldung the mid-hill R-W site, G.S. Giri the Site Coordinator, R.N. Devkota the Wheat Coordinator and Farm Manager and the two Breeders, the Soil Scientist, Agronomist, Engineer, and Outreach staff associated with R-W research at Bhairahawa which is the Terai site. Good discussions were held with all these groups. They were just starting their periodic monitoring activity at both of these sites. Arrangements had been made to analyze the survey results and prepare a finished report immediately by hiring a local consultant to work with the survey teams. We had a chance to visit trials on farmers' fields. These trials were of high quality and well supervised. At each site there were trials on three major conditions set off mainly by elevation differences. This appears to be a very strong and well conceived program.

India: During this period the Interim Facilitator was able to visit, accompanied by Dr Peter Hobbs and Dr R.P. Singh, all of the three R-W Sites in India originally associated with the Initiative. These are at Pantnagar, Faizabad/Kumarganj, and Karnal/Kaul. The level of research plot management at all three locations is very high. There must be a wealth of information in the many long-term Rice-Wheat trials at these stations. Each one seems to have its own unique information to contribute to the question of how sustainable the R-W Cropping System is. The Initiative would do well to support an activity to bring the information from all these trials together and try to interpret what is happening. A first step is to get the agreement of all those involved to share their information and work with the Initiative. Then all trials would need to be examined critically by an independent consultant who might be involved to ensure proper

analysis of the data before all the results are drawn together. This drawing together might best be done through one or more workshops. This would be a good topic for the RTCC Meeting to consider. Likewise there is a lot of information about the use of green manure, minimum tillage, rapid seeding practices, equipment development, use of fertilizers and various pesticides, and water management. Any one of these topics could form the basis for a workshop or travelling seminar. There is also a wealth of information from the farmer monitoring that has been going on at these sites for a number of years; again ready material for a collaborative activity. The close association that existed between these three Site Coordinators and the National Convener in India needs to be renewed. The job is not made easier with the establishment of seven more R-W Sites in India.

Pakistan: The Interim Facilitator was not able to travel to attend the Wheat Research Meeting in Pakistan 10-11 Oct as all flights from India to Pakistan were canceled at that time. Dr Peter Hobbs from Nepal was able to participate.

Nepal: The facilitator travelled to Nepal on the 28 Oct to make preparations for the RTCC Meeting and to participate in the National R-W Workshop. He was also able to have a visit with The World Bank Representative in Nepal. He expressed considerable interest in the Initiative. The WB Agricultural Rep in Nepal participated in the Workshop. The Facilitator also travelled to Karnal to attend the laying of the cornerstone by the Union Minister of Agriculture for the new Directorate of Wheat Research building.

Pakistan: The Interim Facilitator was able to make a short visit to Pakistan 17-20 Dec 1994. The R-W program in Pakistan held two meetings to develop very detailed research plans for presentation at the RTCC Meeting so were very disappointed that they were unable to come at the last moment. They have encountered a problem in implementing their in-country research plan as the funds promised by the government for this work has yet to be released. Fortunately they were able to find enough money from other sources to plant their long-term trials. They are optimistic that funds will be available soon.

I saw some interesting things while I was there. These included their new Plant Genetics Resources building provided by the Japanese Government, the new equipment and staff for their GIS Unit, their new email connections, and a big program to encourage R-W farmers to accept *Sesbania aculeata* which as a green manure can provide in 60 days about 200 kg N/ha to the next crop. They are looking forward to being intimately involved in the Consortium activities.

Other Activities

R-W Sustainability Posters: Two posters were prepared by CIMMYT, ICRISAT, and the Facilitator on behalf of the members and supporters of the Initiative based on agreements at the RTCC Meeting and presented by Peter Hobbs and C. Johansen at the Symposium on 'Eco-regional approaches to develop sustainable land use and food production' 12-16 Dec 1995 at The Hague, Netherlands.

GIS Workshop: Plans are well under way for this Workshop which is entitled "Role of GIS in developing and transferring sustainable agriculture technologies in the tropics". It is to be held at the Asian Institute of Technology in Bangkok 20 Feb to 7 Mar 1995. About 40 participants are expected. A major component of this workshop will be to identify the extent of the R-W system and the edaphic conditions associated with the system using data brought by the participants. It is partially supported by the Consortium. The publication expected from this workshop should be interesting.

Conclusion: I have enjoyed helping to put in place the new phase of this Initiative. Working again with scientists in Asia has been very rewarding. I have every confidence that the Consortium by adopting a systems approach to their research will have a vital impact on sustaining R-W based cropping systems in Asia. Thank you for having me as your Interim Facilitator.