

EU-FP5 PROJECT:
Systems research for Integrated Resource Management and Land use Analysis
in East and Southeast asia (irmla)

IRMLA PROJECT

First Progress report

December 2001 to May 2002

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July 2002

PREFACE

This first progress report of IRMLA project for the period December 2001 to May 2002 comprises two major parts : (I) a summary of overall project progress and (II) brief descriptions of individual partner contributions. In conclusion, all planned activities were realized satisfactorily.

A detailed project plan and documentation as elaborated jointly by all project partners during the kick-off workshop at Hanoi, 23-27 February, 2002 is attached as a separate project report.

July 21, 2002

Reimund P Roetter
IRMLA Project Coordinator,
ALTERRA

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DISTRIBUTION LIST:

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I. SUMMARY OF OVERALL PROJECT PROGRESS

1. Project description

<p>ICA4-CT-2001-10055</p> <p>SYSTEMS RESEARCH FOR INTEGRATED RESOURCE MANAGEMENT AND LAND USE ANALYSIS IN EAST AND SOUTHEAST ASIA (IRMLA)</p>
<p>OBJECTIVES</p> <ol style="list-style-type: none"> 1. TO DEVELOP SCIENTIFIC-TECHNICAL APPROACHES THAT SUPPORT DEVELOPMENT OF SUSTAINABLE LAND USE SYSTEMS THROUGH INFORMED DECISION-MAKING ON RESOURCE USE AT VARIOUS HIERARCHICAL LEVELS, AND POLICY DESIGN 2. TO DEVELOP OPERATIONAL TOOLS INTEGRATED IN A DECISION SUPPORT SYSTEM FOR MULTI-SCALE ANALYSIS OF LAND USE SYSTEMS AND APPROPRIATE POLICY INTERVENTIONS, AND 3. TO DESIGN INNOVATIVE PRODUCTION SYSTEMS THAT PRODUCE SUFFICIENT FOOD AND THAT ARE RESOURCE-USE EFFICIENT AND TAILORED TO SUSTAINABLE LAND USE.
<p>APPROACH</p> <p>THE PROPOSED WORK CONCENTRATES ON EFFECTIVE FARM LEVEL INTEGRATION OF RECENT RESULTS FROM FIELD LEVEL RESEARCH ON NATURAL RESOURCE MANAGEMENT (NRM) AND REGIONAL POLICY EVALUATION</p>
<p>RESEARCH ACTIVITIES AND WOKPACKAGES (WP1-5)</p> <ul style="list-style-type: none"> • EXAMINE THE BROAD SCOPE FOR TECHNOLOGY AND POLICY CHANGES AND IDENTIFY TECHNICALLY FEASIBLE, SHORT (2001-2005) AND LONG TERM (2010-15) DEVELOPMENT SCENARIOS FOR (FOUR) SELECTED REGIONS IN E AND SE ASIA (WP1&2) • ASSESS PRODUCTIVITY AND MAJOR ENVIRONMENTAL RISKS AND IMPACTS OF PREVAILING RICE-BASED SYSTEMS UNDER CURRENT FARMERS' MANAGEMENT PRACTICES AND RESOURCE CONSTRAINTS (WP2&3) • IDENTIFY IMPROVED PRODUCTION TECHNOLOGIES AND RESOURCE MANAGEMENT STRATEGIES, ASSESS THEIR POTENTIAL FOR ADOPTION BY FARMERS, AND QUANTIFY EFFECTS OF ANTICIPATED CHANGES IN MANAGEMENT PRACTICES ON PRODUCTIVITY, RESOURCE USE AND QUALITY AT FARM LEVEL (WP2 TO 4) • INTEGRATE FARM HOUSEHOLD MODELLING WITH REGIONAL POLICY ANALYSIS FRAMEWORK, AND ANALYZE EFFECTS OF POLICY INTERVENTIONS ON THE ADOPTION OF IMPROVED (KNOWLEDGE-INTENSIVE) MANAGEMENT PRACTICES AND THEIR CONTRIBUTION TO REGIONAL DEVELOPMENT GOALS (WP4&5)
<p>EXPECTED OUTPUT</p> <ul style="list-style-type: none"> • MAIN RESOURCE AND LAND USE USE CONFLICTS IDENTIFIED IN THE FOUR CASE STUDY REGIONS • INPUT-OUTPUT DATABASES FOR THE VARIOUS PRODUCTION ACTIVITIES ESTABLISHED; EXPERT SYSTEMS (TECHNICAL COEFFICIENT GENERATORS) FOR QUANTIFICATION OF INPUT-OUTPUT RELATIONSHIPS DEVELOPED • FARM HOUSEHOLD MODELS DEVELOPED AND RESULTS GENERATED FOR CURRENT/CHANGED POLICY • SUSTAINABLE FARMING SYSTEMS IDENTIFIED AND CONTRIBUTION TO REGIONAL DEVELOPMENT GOALS QUANTIFIED • PLANNING WORKSHOP, EXPERT MEETINGS, STAKEHOLDER AND TRAINING WORKSHOPS HELD; PROCEEDINGS, SCIENTIFIC PAPERS AND TECHNICAL REPORTS PUBLISHED • RESEARCH AND INSTITUTIONAL CAPABILITY OF DC PARTNERS STRENGTHENED
<p>STARTING DATE: DECEMBER 1, 2001</p>
<p>COMPLETION DATE: NOVEMBER 30, 2005</p>

2. Planned activities for the reporting period

According to the workplan, activities related workpackages 1, 2 and 6 had to be carried out:

- WP1. Regional Resource Use Analysis
Data collection to assess supply and demand of the various biophysical and socio-economic resources and to delineate homogeneous land units (using GIS techniques) in the various study regions – as required for LUPAS
- WP2. Yield gap analysis and climatic risk
Data collection (weather, soil, crop) for simulation of potential crop yields and assessment of climatic risks; design of farm surveys for collecting yield data and input-output relations for current production activities
- WP6 Project management and dissemination
Elaboration of detailed workplans and project strategy (planning meeting); establishment of research teams and setting up project information system (project website www.alterra.nl/websites/irmla)

3. Realized activities

Achievements to date:

- Joint project planning meeting (kick-off workshop) held on February 23-27 at Hanoi, Vietnam (all partners represented; 31 participants)
- Elaboration of workplans and production of documentation (IRMLA project report no.1)
- Agreement on general methodology and specific research challenges
- Outlining of training component of the project
- Recruitment of additional staff for tackling specific elements of the pursued methodology (multiple goal linear programming; farm household modelling) and to ensure proper regional coordination and technical back-stopping
- Agreement on format for pilot farm surveys for each study region
- Various consultative stakeholder meetings held in case study regions Batac, Philippines, Pujiang, China and contact to stakeholders established for Tam Dao and Omon case studies, Vietnam
- Initiation of data collection for bio-economic classification of the study regions – i.e.delineation of homogeneous land units
- Preliminary analysis on climatic risks
- Organization and partial execution of training activities for 2002 (see, individual progress reports)
- Realization of project website (launched on 3 July 2002).
- Compilation of first project progress reports

4. Comments on project progress

Almost all activities planned for the reporting period were realized. The IRMLA Project organized its first joint planning meeting, which next to excellent presentations about methodological aspects and case studies also allowed exchange of ideas on the research strategy with interested research groups not involved in IRMLA. This kick-off workshop resulted in consensus on the objectives and research approach, elaborated workplans and in agreement on a strong training component. It also became apparent that specifically skilled staff needed to be recruited to ensure close coordination of training activities and exchange of information among Asian

partners and tackle the required scientific innovations. In a joint effort, suitable candidates were identified and recruited by both the Asian and the European project partners. For the future it will be crucial to implement the training component successfully, maintain intense communication among partners and facilitate frequent visits of the teams and study sites. The next project meeting will take place this September in China. To mobilize extra funds for examining aspects of interactions between stakeholders and modelling systems in the design of innovative farming systems, an additional research proposal was developed and submitted to IC-DLO programme, The Netherlands.

5. Planning of activities for coming reporting period (Jun. to Nov. 2002)

For this, see IRMLA project report no. 1 for detailed workplans 2002 and 2003.

6. Organizational changes and institutional development

Formation of research teams went smoothly; Partner 7 (PPS-DPW-WAU) was able to recruit two experts in the fields of land use and farm household modelling, and to support the teams in the Philippines and N Vietnam by students working on specific aspects of the case studies.

7. Internal/external evaluations and communication

The IRMLA project strategy and case studies were thoroughly discussed among research partners and presented during the kick-off workshop (see, project report no. 1). The chosen approach was very well received by the Dutch Embassy at Hanoi as well as by the Vietnamese Vice-Minister for Agriculture and Rural Development and the Head of the Information Center for Agriculture, Vietnam, who all participated in the kick-off workshop. A poster presentation about IRMLA, as part of the EU delegation joint exhibit of projects at the China High Tech Fair at Shenzhen is scheduled for 12-17 October, 2002. A project website was launched early July and will be further elaborated as a means of internal and external communication during the next few months.

It was decided that all major communications related to project administration, training, reporting of results and on-going activities as well as required adjustments are directed to the general project coordinator with cc to the regional coordinator.

To set up and start work on the individual case studies smoothly, it was further decided that specific scientific-technical questions are directed to individual nodes/focal points, and – as necessary - from there directed to specific subject matter specialists (with cc to general and regional coordinators) :

Case study	Responsible Persons	Focal point/advisor
Pujiang	Wang and Huang (ZU)	Kees van Diepen
Tam Dao	TT Son and HQ Duc	Martin van Ittersum
Batac/Dingras	EO Agustin and CG Acosta	Herman Van Keulen
Omon	NX Lai and Cuong	Reiner Wassmann

During the next project meeting in September 2002, a first internal assessment of project progress will be made.

8. PROJECT PARTNERS

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II. INDIVIDUAL PARTNER CONTRIBUTIONS

Partner 1: Alterra, The Netherlands (coordinator)

Summary of activities

Major efforts of the Alterra group were related to WP 6, Project management, and comprised:

- a) Planning of project set-up through various meetings in Wageningen, Garmisch-Partenkirchen and Hanoi
- b) Preparation, coordination and documentation of project planning meeting at Hanoi
- c) Assistance in recruiting suitable experts for MGLP, FHM and regional training and coordination
- d) Familiarization of Asian teams and new staff with the methodological aspects and case study conditions
- e) Providing guidance to the Asian partners in planning and carrying out data collection
- f) Compilation of information about project objectives, approach and outputs and case studies; design and (partial) realization of project website
- g) Establishment of project database
- h) Compilation of training materials and facilitation of technical back-stopping of Asian teams as required
- i) Project Administration

Apart from WP 6, some activities were also directed at expected outputs from WP1 and WP2, namely:

- j) Providing formats and checking data for climatic risk assessment and land unit delineation (WP2)
- k) Inventory of documentations on biophysical and socio-economic conditions in the case study regions (WP1)
- l) Technical description of the system LUPAS for regional resource use analysis (WP1) – to be elaborated as journal paper (Environmental Modelling & Software)

Team composition, IRMLA, Alterra (Soil and Land Use Division, team LBP)

Name	Disciplinary backgrounds	Function in IRMLA	Email address
Dr. Reimund Rötter	Agro-ecology, Land use systems analysis	General project coordinator	r.p.roetter@alterra.wag-ur.nl
Ir. Kees Van Diepen	Land evaluation, crop modelling	Land evaluation, Yield estimation	c.a.vanDiepen@Alterra.wag-ur.nl
Ir. Joost Wolf	Soil fertility, environ. modelling	Yield estimation, input-output rel.	J.Wolf@alterra.wag-ur.nl
Ir. Hendrik Boogaard	Hydrology, Land evaluation /GIS	Resource use analysis	H.L.Boogaard@alterra.wag-ur.nl

Partner 2-NRS-ZU, China

Summary of activities

In the first half-year of the IRMLA project, we focused our activities on data collection, and on the selection of the case study region and organization of the research team.

1) Primary survey in Wucheng district of Jinhua City, December 2001 to January 2002:

General information collection including climatic condition, population, labor, cultivated land area and main farming systems, main crops and production, etc.

Identification of main conflicts in (agricultural) resource management.

2) Kick-off workshop, 23-27 Feb. 2002, Hanoi, Vietnam:

Prof. Wang Guanghuo participated in the planning and training workshop, familiarized with the concepts and selected tools for the project. Developed the overall project plan and detailed work plan for year 1 and 2 during the workshop.

3) First consultation meeting held at Jinhua City, 28-29 March 2002:

Participants:

All team members, and Mr. Li Yunchang, Director of Department of Agricultural divisions of Jinhua City (He was in charge of land use survey of Jinhua)

Professor Hu Xijun, associate professor and Head of City Planning Department, Zhejiang Normal University, Jinhua. (He is a main member who participated in land use survey of Jinhua)

Objectives:

To review current agricultural planning and land use situation;

To develop a detailed work plan for year 1.

Results:

Found the current land use survey just completed.

Found the authorities of Jinhua government are in bad need for advice from scientific analysis of agricultural resource management.

Found that the Wucheng district had been divided to Wucheng and East City districts, and the new Wucheng district was not suitable as a case study region for IRMLA project.

Decided to select Pujiang county as the new study region.

4) Second consultation meeting held at Pujiang county, 10-11 April 2002:

Participants:

Team members: Prof. Wang Guanghuo, Mr. Ding Xianghai, Mr. Fang Bin.

Mr. Wu Wenyi, Deputy Director of Agricultural Bureau of Pujiang county.

and Mr. Wu's colleagues.

Objectives:

To obtain general information and impression about Pujiang county.

To identify Pujiang as our case study region.

To develop cooperatively a detailed work plan for data collection.

Results:

All the objectives were achieved. Mr. Wu is very helpful to us and very much interested in participating in IRMLA project. After reporting briefly the project to the county magistrate he obtained whole support from the authority of the county.

5. Team formation led to the following results :

Team members for IRMLA, ZU as of June 2002

Name	Disciplinary background	Phone no.	Email address
Prof. Wang Guanghuo	Soil science and fertility	86-571-86971957	ghwang@mail.hz.zj.cn

Prof. Huang Changyong	Soil and environmental chemistry	86-571-86971953	chyhuang@zju.edu.cn
Dr. Wang Yuangao	Land use planning and information techniques	86-571-86971954	ygwang@zju.edu.cn
Dr. Zhou Bin	GIS and remote sensing	86-571-86971992	zhoubin@zju.edu.cn
Prof. Hu Xijun	Land use planning	86-579-2282530	
Mr. Ding Xianghai	Agronomy and extension	86-579-2050179	
MS Huang Xueping	Agricultural economics	86-579-2114852	
Mr. Fu Rongxing	Agronomy and extension	86-579-2110075	
Mr. Wu Wenyi	Soil science and agronomy	86-579-	
Mr. Fang Bin	Ph.D student for IRMLA	86-571-86971957	wanggh@zju.edu.cn

6. Data collection:

We have collected the following data and maps of Pujiang, in April and May 2002:

Maps:

Current land use map

Soil map

Topography map

Landscape map

Administrative map

Forest map

Data:

General information from published Statistical Year Book of Zhejiang

Weather data from Pujiang meteorological station

Population, labor, cultivated and non-cultivated land area, main crop growth area and production, etc., in township level. Main farming systems.

7. Activities for the coming six months (1 June to 30 Nov. 2002)

A. Data to be collected:

Irrigation system map.

More climatic data from Pujiang meteoric station or nearby stations.

Bio-physical data for main crops in the main farming systems for yield-gap analysis.

Identify new crop techniques

Economic data to establish input-output relations of the actual production systems (crops and livestock).

Farm household information for farm household modeling.

Other data needed.

B. Data processing (keying in, digitizing).

C. Dr. Zhou Bin and Mr. Fang Bin will participate in the LUPAS training in Beijing, 17 – 21 Sept. 2002.

D. A stakeholder consultation meeting will be held in Pujiang, early July 2002:

Participants:

All team members;
The county magistrate;
Directors of Bureaus of Agriculture, Land Planning, Water Resources, Environmental Protection,
and the Meteorological station.

Objectives:

To establish good relationship between our team members and the authorities of Pujiang government.

To identify the developing goals and current resource management problems in Pujiang.

To explain IRMLA objectives and work plan to the authorities of Pujiang.

To have good collaboration and obtain support to the project from Pujiang government.

E. Other activities: as documented in workplan for 2002/2003

8. Encountered problems

Not familiar with techniques of developing new LUPAS: Hopefully it will be solved during the training in Beijing, 17 to 21 Sept. 2002. We hope to have some standardized formats in handling household and social-economic survey data.

Partner 3: NISF

Summary of activities

1. 1/January - 20/February 2002:

- Preparing for Kick- off Workshop of IRMLA training and Planning
- First discussion with stake-holders of 2 Districts about IRMLA Project.
- Asking permission of MARD for organizing the Kick off Workshop of IRMLA training and training.
- Asking permission for participants of IRMLA to visit Tam Duong and Binh Xuyen Districts
- Collecting Soil Map, Land Suitability Map, Present Status Map and Land Unit Map (all in 1/25000)
- Collecting Weather data of 10 years at Hoai Duc Weather Station and 3 years of Tam Dao Weather Station (all whether data and data of MEGA project were sent as requested)

2. 23- 27/ February:

- Taking part in the Kick- off Workshop of IRMLA training and Planning and presenting paper on
 - A. Characterization of (bio)physical environment
 - B. Characterization of socio-economics and policy issues related to agriculture and environment of Tam Dao Site (Tam Duong and Binh Xuyen Districts)

3. March:

First Meeting with Stakeholders (Vice Chairman for Agriculture, and Heads of Departments of Agriculture, Science, Technology and Environment, Land Use Administration, Extension Center, Soil and Fertilizer Center) of Vinh Phuc Province to discuss about the purpose, activities and result and significance of IRMLA project and asking for permission to work with some organizations of the Province and The Districts of Binh Xuyen and Tam Duong.

4. 16 April

First meeting with stakeholders of Tam Duong and Binh Xuyen Districts. Discussing with Vice Chairman, Head of Agriculture Department and Head of Extension Station of 2 Districts about:

- Purpose, activities and result and significance of IRMLA project
- Planning activities in 2 districts in period 2002- 2003, specialized on LUPAS

5. May

- Getting permission of the Vinh Phuc People Comity (No 855/HC- UB) for NISF collaborating with the following organizations of the Province :
 - + Extension Center
 - + Weather and Hydrology Center
 - + Departments of Agriculture, Science, Technology and Environment, Land Use Administration, Extension Center, Soil and Fertilizer Center
 - + People Comity of 2 Districts
- Collecting Topography map
- Establishing of NISF Leader group of IRMLA (Document No 37/ TH- KH, 9 May 02)

6. June

- Digitizing Soil Map

Partner 4: MMSU

Contractor:

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Summary of activities

1. Participation in the IRMLA Kick-off Workshop held at Army Hotel, Hanoi, Vietnam on 23-27 February 2002.

Participants : Epifania O Agustin
Charito G. Acosta
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Activities during the workshop:

The five-day workshop involved various activities such as: a) discussion of concepts of land use systems analysis and demonstration of tools, b) field trip, c) case studies and methodology, d) observation of work plans, and e) training.

Day 1 - This involved a discussion on the concepts underlying land use optimization from farm to regional level with emphasis on interactive Multiple Goal Linear Programming, concepts underlying farm household modeling, and principles and applications of quantitative input-output models. The discussion was strengthened by a demonstration of features and capabilities of selected systems analysis tools such as MGLP and FH models

Day 2 - The group had a field trip to Tam Dao District for a discussion with stakeholders and visit to various sites with different cropping systems.

Day 3 - The first session in day 3 involved an overview of resource management problems in East and Southeast Asia. Topic that were discussed were: a) Overview of the current resource management problems and future trends in rice-based production systems in East and Southeast Asia and b) Policy views on socio-economic and land use trends in Vietnam. The discussants were Drs. R Wassman and DK Son, respectively. The second session was a presentation of the four case study areas:

Wucheng District, China (G Wang)
Tam Dao District, Vietnam (TT Son)
Omon District (NX Lai)
Batac and Dingras municipalities, Philippines (EO Agustin)

The third session was a presentation of: a) land use scenarios from a development economics perspectives, b) analysis of policy options for water use at catchment level, and c) steps in land use scenarios analysis.

Day 4- This involved a discussion in the formats for case studies and identification of working groups. The formats for case studies include: a) deliverables, activities and responsibilities. These are summarized below:

WP1. Regional Resource Use Analysis

Outputs

Regional resource use

Land use options at regional level and trade offs

Inputs

Resource characterization and possible technological options

Expertise requirement

Land evaluation

Socio-economic

Agronomy

Land-use modeling

WP2. Assessment of yield gaps and climate-induced risks

Outputs

Potential yield with water-limited/actual yield

Yield under different climate conditions

Inputs – data on the following:

Climate

Hydrology

Crop yields

Soil property

Fertilizer use

Crop management

Expertise requirement

Climatology

Socio-economics

Crop modeling

Statistical analysis

WP3. Generation of input/output coefficients for production activities

Outputs

Input/output coefficients for current/future production technologies

Inputs

Climate data

Land unit (from WP1)

Target yields (WP2)

Information on current/future technologies

Expertise requirement

Agronomy

Crop modeling

Forest product

Island fisheries

WP4. Farm household modeling

Outputs

Farm household typology

Farm household model

Inputs

Detailed farm household database

Input/output coefficient

Policy measures

Market information

Expertise requirement

Agroeconomy/modeling

Farming systems

Agronomy

WP5. Development of integrated approach for multi-scale land use optimization

Outputs

Procedures to integrate outputs from (WP1 (regional) and WP4 (farm household))

Boundary conditions to WP1 (regional) and WP4 (farm household)

Integrated land use options from farm household and regional levels

Risk analysis at farm household level aggregated to higher level

Conflict analysis at higher level

Inputs

Outputs from WP1 + WP4

Farm household dynamics

Expertise requirement

Land use analysis

Bio-economics

Modeling

Agronomy

GIS

Day 5

The following items/topics were discussed

- Definitions of training requirements and organizations
- Communication lines.
- Project publication and mode of collaboration

The collaborators agreed to have training on LUPAS and Farm household modeling

2. Organization of IRMLA project team at MMSU

The participation of technical staff from four colleges of the university; College of Agriculture and Forestry (CAF), College of Business, Economics and Accountancy (CBEA), College of Arts and sciences (CAS), and College of Fisheries (CF) were requested through their respective college Deans. The other team members are under the Research Development (R&D) Directorate. The team members were selected based on the expertise requirements of the various work packages (WP1-WP5) as agreed upon during the kick-off workshop. Hereunder is the composition of the MMSU IRMLA team.

- | | |
|----------------------------|--|
| 1. Dr. Epifania O. Agustin | - Soil Water Management (Collaborator) |
| 2. Ms. Charito G. Acosta | - Agrometeorology |
| 3. Dr. Artemio B. Alcoy | - Agronomy/Farming Systems |

- | | |
|------------------------------|--|
| 4. Ms. Margarita P. Caluya | - Agricultural Economics and Environmental Science |
| 5. Mr. Isidro Galdores | - Economics |
| 6. Ms. Criselda M. Balisacan | - Soil Physics and Agricultural Engineering |
| 7. Mr. Dionisio S. Bucao | - Agronomy/Agricultural Engineering/GIS |
| 8. Mr. Reynold Villacillo | - Computer Science/Programming |
| 9. Mr. Joselito I. Rosario | - Forestry/Agroforestry and Statistics |
| 10. Ms. Susan Aquino | - Rural Development/Agricultural Engineering |
| 11. Mr. Facundo Asia | - Fisheries/Environmental Science |

The distribution of the team members by work package is as follows:

- | | | |
|-----|---|--|
| WP1 | : | E Agustin, D Bucao, I Galdores, S Aquino, A Alcoy |
| WP2 | : | A Acosta, C Balisaca, M Caluya, D Bucao, E Agustin |
| WP3 | : | M Caluya, R Villacillo, I Galdores, I Rosario, F Asia, D Bucao |
| WP4 | : | M Caluya, I Galdores, R Villacillo, A Alcoy, C Acosta |
| WP5 | : | M Caluya, E Agustin, I Galdores, R Villacillo, A Alcoy |

3. Stakeholder Consultation

Consultation with stakeholders was done in three phases:

Briefing of the Municipal Agriculture Officer (MAO) of Batac and Dingras regarding the project, its objectives, utility and data input requirements. The MAOs are:

Batac – Ms. Merylinne Gappi
Dingras – Engr. Cesar Derrada

Written communication to the municipal mayors of Batac, Atty. Jesus A. Nalupta Sr. and Dingras, Dr. Robert Castro; officially inform them of the project and; request for a stakeholders consultation, and get their support and clearance for the implementation of the project in their municipality

Presentation of the project and consultation workshop

Consultation workshops between the MMSU-IRMLA Team and the MAOs, farmer leaders and agricultural officers of Batac and Dingras were conducted last June 27 and June 28, 2002, respectively. Participants in both sites are broken down as follows:

	<u>Batac</u>	<u>Dingras</u>
Agricultural Technicians	7	11
Municipal Agr'l. Officer	1	1
Farmer Leaders	21	12
MMSU IRMLA Team	6	7
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Total	35	31

Highlights of the consultation workshop were the presentation of the IRMLA Project to the stakeholders by Dr. Epifania Agustin. In turn, the MAOs presented their respective Five Year Development Plan On Agriculture (Mr. Cesar Derrada, MAO of Dingras and Ms. Merryline Gappi, MAO of Batac). This was reacted/commented upon by the stakeholders. Several issues were brought out, the farmers were given the opportunity to give their views and comments (Table 1). Dr. Agustin informed the group of the forthcoming survey activity of IRMLA-MMSU Team where vital information will be gathered from selected respondents of each town that will serve as input data in the development of a decision support model.

Table. Issues brought out by stakeholders and their respective remarks during the consultation workshops in the 2 municipalities.

Venue	Issues	Remarks
Municipal Agricultural Office – Dingras, Ilocos Norte	<p>Insufficient water supply from the irrigation system which, delays rice planting activities</p> <p>High input costs i.e. Fertilizer, labor, gasoline</p> <p>Lack of trading center where farmers could sell their products at a reasonable price</p> <p>Entry of imported rice and garlic</p> <p>Golden Apple Snail (<i>Pomecea caniculata</i>) Infestation</p> <p>Assistance to farmers i.e. Loans, seed/livestock dispersal</p> <p>Use of organic fertilizer or green manure to supplement inorganic fertilizer</p>	<p>Farmers should think of crops which can be planted in the areas aside from rice</p> <p>Encourage the use of organic fertilizer or green manure</p> <p>Plan to put up one in San Nicolas to cater to the eastern towns</p> <p>Cannot restrict the entry of these products especially when free trade will start in 2004; should think of how to improve product quality and decrease production cost</p> <p>Use of tobacco scrap was found effective; Provincial Government is trying to look for effective means to eradicate this pest</p> <p>Farmers should pay promptly to have roll-over of money</p> <p>Farmer prefer to use inorganic than organic fertilizers because of immediate plant response</p>
Municipal Agricultural Office – Batac, Ilocos Norte	<p>Insufficient source of irrigation</p> <p>High fertilizer cost</p> <p>Fertilizer distributed by DA are more expensive than in the market</p> <p>Assistance to farmers i.e. Loans, seed/livestock dispersal</p> <p>Use of organic fertilizer or green manure to supplement inorganic fertilizer</p> <p>Issues about the bio-</p>	<p>Construction of SWIP, reservoir near springs and creeks</p> <p>Encourage the use of organic fertilizer or green manure; farmers are warned of the side effect of applying excessive fertilizer i.e. Contamination of groundwater ex: Magnuang Batac, I.N.</p> <p>DA has no hands in pricing; might be because this is in the form of loan where interest is an added cost</p> <p>Difficulty in collecting payments from farmer-borrowers</p> <p>Weeds grow when using organic fertilizer Yield is increased when green manure is used; soil quality is improved</p>

	<p>technology or the genetically modified organisms (GMO)</p> <p>Ways of preserving mango fruits when there is oversupply</p>	<p>GMOs are not to be feared; many products which are genetically modified are being sold now in the market</p> <p>Farm household production of mango jam, puree, etc.</p>
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D. Minutes of the consultation workshops in Dingras and Batac were properly recorded.

4. Briefing of selected team members on LUPAS by Ms Alice Laborte

Ms. Alice Laborte of the International Rice Research Institute provided the MMSU team a briefing on LUPAS on 07 June 2002 at the R&D Directorate's Office, CRL, MMSU, Batac, Ilocos Norte. The members present were:

I Galdores
D Bucao
M Caluya
C Acosta
R Villano
S Aquino
C Balisacan
E Agustin

Ms. Laborte briefed us about the scope of the LUPAS. She explained to the group the step by step methodology of the model. Terminologies were defined and the procedures involved in coming up with the model were shown. Several outcome of the model were also presented for the group's appreciation. The technogin software program was discussed; the input/output data requirements were defined. Ms. Laborte also lectured on some aspects of linear programming in relation to the topics discussed.

5. Inventory/Collection of Available Data

Socio-economic

Total population/population by barangay (Urban/Rural) – Dingras and Batac
Number of household by barangay, municipality (Urban/Rural) – Dingras and Batac
Land area by barangay – Dingras and Batac
Agricultural land area classified into rainfed/irrigated: upland/lowland
Labor force
Geographic location, climate, topography

Other Data

Maps taken from BSWM
Erosion
Soil
Slope
Land use
Map taken from NAMRIA
Topographic
Map taken from NSO
Barangay maps of Dingras

Available digitized maps
Barangay maps of Batac and Dingras

Administrative map of Ilocos Norte

Preparation of the questionnaire for defining technologies (input-output data) and relevant information

The questionnaire prepared by Ms. Alice Laborte was evaluated/appraised by the group considering the standard questionnaire used by the World Bank. Based on the group's evaluation the items in the World Bank questionnaire are integrated in the form of the former questionnaire (attached). Ms. Alice Laborte's instrument will therefore be adopted (with some minor revisions) for use by the IRMLA team and the enumerators will be briefed following the instruction in the World Bank questionnaire.

Partner 5: CLRRI

Summary of activities

1. Participation in the kick-off workshop
2. Preliminary documentation of the case study
3. Formation of IRMLA team at CLRRI

CLRRI team members:

1. Nguyen Xuan Lai, Farming System Specialist
2. Nguyen The Cuong, Computer Application
3. Nguyen Tri Nhan, Programmer
4. Le Huy Khien, Economist
5. Doan Manh Tuong, Economist
6. Le Quang Long, Economist
7. Nguyen Hong Thao, GIS Specialist

Partner 6: IMK-FZK

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Summary of activities

The activities were related to (1) compilation of a climate data base and (2) contributions to the kick-off workshop.

1. Compiling climate data base

a) empirical weather records for all 4 sites and

The current status of the weather data base is given in Table 1. The weather data from two stations are already in the required format for modeling while the data sets from the two other stations still have to be converted. This data base should be sufficient for an initial phase in the modeling tasks to explore basic trends in climate-driven yield fluctuations. For the in-depth analysis on yield gaps, the data base will be supplemented by updating and by climate data from other sources.

b) regional climate records from global re-analysis

The IRMLA group has received a data sets on historical climate data (1960 onwards) distributed by the US National Centers for Environmental Prediction. These data sets allow a re-analysis of the meteorological situation , e.g. comparison of El Nino and La Nina years, at any region of the world. Meteorological data can be presented in daily or monthly time steps; the latter is illustrated by Fig. 1a,b showing monthly precipitation and temperature averages in Eastern Asia. Though limited in geographic resolution (see Fig. 1a,b), these data could be used to generate time series on decadal variations in climate.

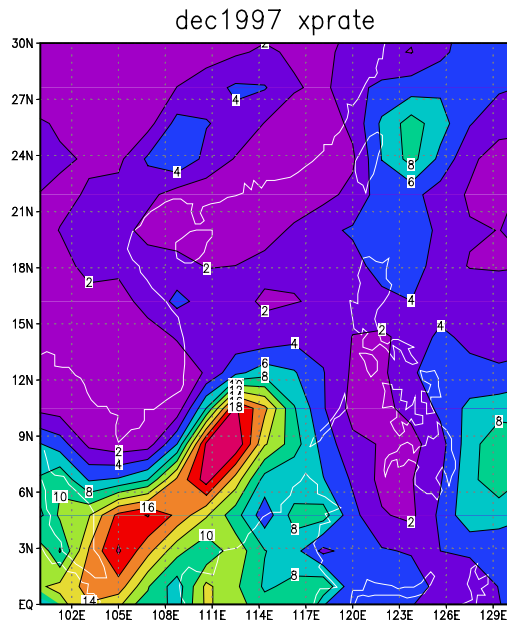
2. Contributions to the kick-off workshop

R. Wassmann gave a presentation at the workshop titled "Current resource management problems and future trends in rice-based production systems in E and SE Asia: an overview" and worked out a documentation of the field trip.

Table 1: Current status of the weather data base (as of May 2002)

Station	Data sets	Format	Parameters recorded								
			irra- diation	min. temper.	max. temp.	mean temp.	vapour pressure	mean wind sp.	precipi- tation	sunshine hours	evapo- ration
Batac (Philipp.)	1976-1996	Wofost- compat.	X	X	X	-	X	-	X	-	-
Cantho (Vietnam)	1982-1995	Wofost- compat.	X	X	X	-	X	X	X	-	-
Tam Dao (Vietnam)	1992-2000	XLS	-	X	X	-	-	-	-	X	X
Jinhua (China)	1990-1993; 1999-2000	XLS	X	X	X	X	-	-	-	-	-

(a)



(b)

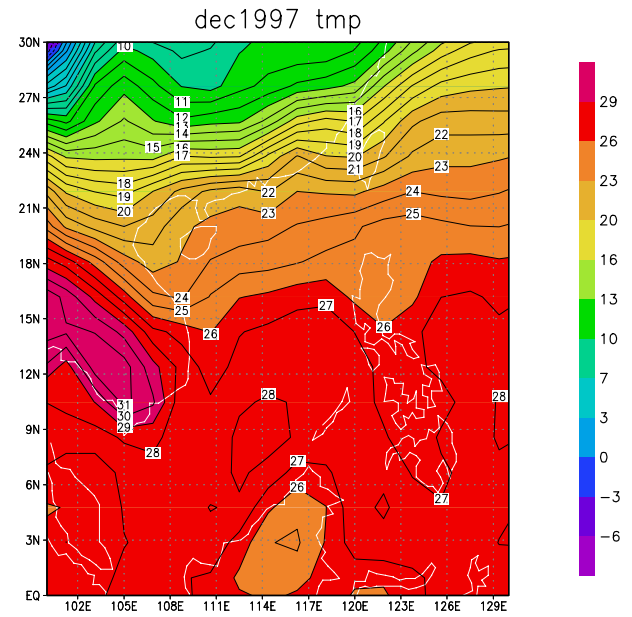


Fig. 1a,b: Mean precipitation (mm) and temperature (°C) in East Asia in Dec. 1997

3. Activities

Jan.: Compiling climate data records (for East Asia) from global climate re-analysis
Febr.-March: Preparation/ participation/ evaluation of the kick-off workshop
April-May: Compiling climate data for all 4 stations

4. Project team

Reiner Wassmann:

PhD (Biology) in 1987 at Univ. of Goettingen; specialized in research on tropical agriculture and global climate change

5. Project meetings, field visits, missions /discussions related to the project

21 Jan Meeting at IMK/IFU with R. Roetter, H. van Keulen, Martin van Ittersum

23-27 Febr.: Kick-off workshop in Hanoi (incl. field trip to Tam Dao on Febr. 24)

6. Encountered problems

The work has progressed steadily in line with the time table anticipated in the proposal.

7. Planning of activities for the coming six months (1 jun - 30 nov, 2002)

June-Aug.: Initial model runs with climate data

Sept.: Participation in IRMLA training workshop in Beijing (pending on available funds allotted from the IMK-IFU core budget)

Oct. - Nov.: Continuation of model runs

Partner 7: PPS-DPW-WAU

Summary of activities

Major activities of the Plant Production Systems group comprised:

1. Active contribution to the planning of the entire project through informal meetings in Wageningen (with partners 1 and 8) and formal meetings in Garmisch Partenkirchen (partner 6) and in Hanoi (all partners);
2. Active contribution to the science of the methodological approach to be adopted within IRMLA (condensed in two presentations during the IRMLA workshops by dr.ir. M.K. van Ittersum;
3. Recruitment of a post-doc (3 years, 0.5 fte – dr.ir. M.M. van den Berg), and a Regional Coordinating and Training Officer in Asia (1 year, 0.42 fte – dr. Lu Changhe).

4. Activities

The Plant Production Systems group's major tasks will be the development of a scientific and operational approach for farm household analysis and its integration with regional land use analysis (the LUPAS approach). The aim of the entire methodology will be the exploration of regional land use options and a contribution to the design of farming systems and policy instruments that stimulate a sustainable development towards identified land use options, both at farm and regional scale. To this end, four papers were presented during the workshop in Hanoi, and a post-doc was recruited, that will start per September 2002.

5. Appointment of regional officer

To facilitate the training in Asia of the local partners, collaboration between the Asian and European partners, and implementation of new scientific approaches, Dr. Lu Changhe (Beijing, China) will be appointed as regional officer for IRMLA (per 1 July 2002). He stayed in Wageningen (April-June 2002), and his role and contract were discussed. He already actively contributes to the planning of the first training workshop, to be held in Beijing (September 2002).

6. Formation of project team

Table with names and backgrounds of involved researchers

Name	Backgrounds
Dr.ir. M.K. van Ittersum	Land use analysis, agro-ecology
Prof. Dr.ir. H. van Keulen	Plant and animal production systems, land use analysis
Dr.ir. N. Heerink	Development Economics
Dr. Lu Changhe	Land evaluation, GIS, land use analysis (as per 1 July 2002, regional coordinator)
Dr.ir. M.M. van den Berg	Development Economics, farm household modelling (post-doc, as per 1 September 2002)

7. Project meetings, fields visits, missions/discussions related to the project

Dates	Place	Scientist(s)	Aim	Collaboration
21-22 January 2002	Garmisch Partenkirchen	Dr. Martin van Ittersum, Prof. Dr. Herman van Keulen	Preparation of kick-off meeting Hanoi	Drs. Reiner Wassman (6), Reimund Roetter (1), Herman van Keulen (8)
23-27 February	Hanoi (Vietnam)	Dr. Martin van Ittersum, Nico Heerink, Prof. Dr. Herman van Keulen	Kick-off and planning workshop	All partners

8. Research by MSc and PhD students on issues that directly will contribute to IRMLA project outputs:

MSC thesis Agricultural Economics :

1) Mr. Willy Pradel (Peru)

Title: Bio-economic farm household modelling for sustainable land use in Ilocos Norte Province, The Philippines

2) Ms Xiang Bi (China)

Title: Farm household response to agricultural intensification in Ilocos Norte, The Philippines

Formulation of PhD study

3) Mai Van Trinh (Vietnam) to start in september 2002

Topic: Quantitative assessment of soil erosion in N Vietnam.

In addition to these activities and official meetings/workshops, there were ca. 4 meetings in Wageningen to discuss progress and planning of the project with the participating Wageningen groups. Another 3 meetings were held for the recruitment of a post-doc and the appointment of Dr. Lu Changhe as Regional Officer.

9. Encountered problems

It took a while (ca 5 months) before a suitable candidate for the post-doc position was found. The first two selection rounds did not result in a suitable candidate. We are extremely pleased that dr.ir. M.M. van den Berg, with two MScs (Tropical Land Use, Rural Development Studies) and a PhD in Development Economics will join the Plant Production Systems group for 3 years (0.5 fte) as a post-doc to elaborate the farm household modelling approach and to integrate this with the regional land use analysis.

10. Planning of activities for the coming six months (1 Jun – 30 Nov)

Dr. Lu Changhe will start as per 1 July 2002, as a regional coordinator of IRMLA; he will, a.o. organize and contribute to the training workshop (17-21 September) in Beijing.

dr.ir. M.M. van den Berg will join the team as per 1 September 2002, and she will contribute to the training workshop in Beijing (17-21 September 2002).

The entire Plant Production Systems team will start the development of the farm household modelling approach to be implemented in IRMLA by two teams, and to be dovetailed to the regional land use analysis following LUPAS. This will be done in close collaboration with the Ilocos Norte and Vietnamese teams.

A training workshop on LUPAS approach is scheduled for September 2002. A specific training workshop on farm household modelling approaches will be prepared; the workshop is scheduled for the first half of 2003.

Partner 8: PRI

Summary of activities

Plant Research International will in first instance contribute to WP3, Generation of input/output coefficients from production activities. The core of this work will be carried out between October 2002 and June 2004.

Major activities of the Plant Research International (PRI) group during the reporting period comprised:

1. Active contribution to the planning of the entire project through informal meetings in Wageningen (with partners 1 and 7) and formal meetings in Garmisch Partenkirchen (partner 6) and in Hanoi (all partners);
2. Active contribution to the science of the methodological approach to be adopted within IRMLA (presentation during the IRMLA workshops) by prof. dr.ir. H. Van Keulen.