Interim Progress meeting, 23rd November 2011, JRC (Ispra, Italy)

1 Participants

1.1 Partners and their representatives:

- European Commission (DG-INFSO, EU): Ardiel Cabrera
- SDLO (Alterra, NL): Allard de Wit
- University of Milan (UMI, IT): Roberto Confalonieri
- European Commission (JRC, EU): Mohamed El Aydam
- INRA (Morocco, MO): Riad Balaghi
- Chinese Academy of Agricultural Sciences (CAAS, CN): Zhongxin Chen
- Anhui Institute for Economical Research (AIFER, CN): **not present (excused)**
- Jiangsu Academy of Agricultural Sciences (JAAS, CN): **not present (excused)**
- Ministry of Environment and Mineral resources (DRSRS, KE): **not present (excused)**
- VITO (BE) & coordination: Qinghan Dong

1.2 Other participants

François Kayitakire, René Gommes, Javier Gallego, Amit Srivastatva and Stefan Niemeyer (from JRC), Simone Bregaglio (UNIMI), Sliman El Hani (INRA, MO).

2 Agenda (see annex)

3 Welcome addresses

- Welcome and information by **Stefan Niemeyer**
  - M. El Aydam will leave the action and the management of E-AGRI project from JRC side will be taken by Manola Bettio (this has to be confirmed)
  - S. Niemeyer mentioned that, while CGMS and BioMA are the property of the European Commission, JRC appreciates that the technology transfer of these tools is supported and executed in E-AGRI by the project partners Alterra, Vito, or Univ. Milano that are knowledgeable of the systems due to their long-standing scientific relationship with the MARS unit.
    As for the technology transfer, the property rights of the European Commission must always be respected. No software, data, or related tools must be distributed by the project partners or third party without prior informing the Commission and having received its approval.
- **Q. Dong** introduced the new project officer from DG INFSO. Mr Cabrera informed the the consortium partners about his work at DG INFSO since July 2011 and the coming FP7 call (probably in January) which is in direct link with the current project, focusing on low cost technology transfer and use of ICT, Africa being particularly targeted.
  Mr Cabrera was already informed and briefed by Q. Dong about the E-AGRI project in Brussels before the meeting in Ispra.
- **Q. Dong** as coordinator of the projected gave a presentation to highlight the objectives of the project (focusing on the following dimensions: demonstration, dissemination, added-value

for EU (increase of know-how) and collaborations), the three study areas (China, Morocco, Kenya) and the research angles of the project (yield and crop estimation). Mr. Dong presented also all work packages highlighting the partners involved, the related methodologies and the main deliverables.

- WPs are :
    - WP1 - management (VITO).
    - WP2 – CGMS,
    - WP3 – BioMA,
    - WP4 – yield using Remote sensing,
    - WP5 – crop area estimation.
    - WP6 – capacity building in Kenya and it will particularly be built up at the later stage of the project. Il will be carried out in close collaboration with AGRICAP, another FP7 project led by VITO.

4 Workgroup presentations and discussion:

4.1 WP1 – Management

Q. Dong presented the status of the deliverables. Most of the deliverables due for the month 6 were available prior to this progress meeting except two deliverables (WP2). The status was notified to / agreed by the project official. Alterra will do the necessary to send them soon. The rule of deadlines for the interim reports were reminded: the consortium has each time 60 days after the year 1 and 2 of implementation to submit the report.
For the first implementation year ended on the 1st February 2012the report has to be delivered before 31st March 2012.
About the past E-AGRI events, all actions were conducted successfully:

- KO meeting in Mol
- workshop in Rabat on crop yield forecasting using remote sensing (WP4)
- workshop in Hefei (China, WP2).

About the Consortium Agreement (CA), a new version is now reviewed by the Legal Service of VITO after amendment requested by JRC.

M. El Aydam insisted also on the notion of the 'background' knowledge in viewpoint of JRC. Before receiving the final version of the CA to be signed, all partners should pay attention to the data use policy stated by JRC. Only interpolated meteorological data are made available from MARS database to be used within this project (that means the availability will be re-considered after the end of the project). The condition on the use of CGMS and BioMA tools are also revised by JRC.

4.2 WP2 – CGMS

De Wit presented the status of advancement. The missing deliverables mentioned above will be sent as quickly as possible.

As the complete set-up for the Moroccan version of CGMS, named "CGMS_MA" is due for the end of the project: an alternative was proposed by De Wit to allow INRA to forecast crop yields in Morocco from 2012 growth season by using all existing infrastructure in CGMS (Europe), especially the CGMS statistical tool box. The forecasting will be, after the end of the project,

taken over by the CGMS_MA using Moroccan meteorological data, locally calibrated WOFOST model and the statistics from DSS.

4.3 WP3 – BioMA

As the leader for this WP, R. Confalonieri (UMI) presented the status of advancement for wheat (Morocco) and rice (China) growth monitoring using BioMA approach. All deliverables scheduled in first 9 months were available (confirmed by Q. Dong) for this WP.

Mr Confalonieri explained also in detail his sensitive analysis. His study aimed to identify the most relevant parameters of WOFOST and CropSyst as first steps of calibration. The methodology is well-established: the sensitivity analysis is first performed under the potential conditions with no water limitation. The conditions of water limitation were added in a second stage as in all environmental modelling processes. The modelling approach was acknowledged by Alterra and JRC. INRA stressed the impact of rainfall , thus water-limitation conditions on crop yields (the rainfall could explain till 80% of the variability on yield). It is also important to calibrate the WOFOST model using the local weather stations data to integrate as much as possible the climatic specificities of the region. Allard (Alterra) confirmed that the inter-annual variability on yield can be “explained” by the calibrated parameters. Kayitakire also emphasized on the importance of including water limitation conditions in the modelling processes.

Concerning the ground data collection (experimental field observations) in the studied areas of China and Morocco, JAAS has done an excellent job in delivering detailed observation data beyond the initial planning. Four groups of varieties for rice have been identified in Jianghuai Plain and the management practices such as direct sowing or transplanting have been recorded.

Four wheat varieties have been identified for the study region of Morocco. Other wheat related data are from JRC agro-pheno structure database. Balaghi (INRA) commented on the importance of agro-ecological zoning in Morocco on crop varieties and yields.

Confalonieri (UMI)commented on the possibility to use the available data at INRA related to the impact of diseases on wheat. These data could be used to calibrate parameters of models.

A visit of UNIMI to INRA could be relevant for field data collection.

4.4 WP4 – Yield estimation with remote sensing

R. Balaghi (INAR) presented the results obtained for Morocco (soft and durum wheat, barley) and China. Balaghi explained that for this type of research, Huaibei Plain with its 6 districts are rather too small. He suggested for this WP to extend the region of the interest to the neighbouring regions or even neighbouring provinces. Furthermore the statistical data at county level will be useful as well (to be added to the action list).

Balaghi also suggested to use in this WP the facility of the CGMS Statistical Toolbox which should allow the inclusion of remote sensing indicators as predictors (to be added to the action list).

Allard (Alterra) commented on the possibility of correlation between the predictors issued of remote sensing.

Balaghi suggested also for statistical analysis to re-group the historical years into: good/average/ bad production years. The year 2010 is a good production year due to the abundance of rainfall. The remote sensing indicators showed saturation and the forecasting had to rely on the agro-meteorological modelling such as CGMS.

Question on the acceptable accuracy on yield forecasting (Dong): the answer by Balaghi is that the accuracy should stay above 90% to be credible. For Huaibei Plain, an accuracy of 90% can be achieved if the specific crop mask is available. Chen (CAAS) commented that the trials of CGMS application in China carried out within other projects show a forecasting accuracy around 90%.

Another specificity for forecasting using remote sensing on Huaibei Plain (remark from Balaghi), is the dekads selected for the regression analysis thus forecasting, varied from one district to another. It should further investigate this issue and to better fix the dekads used for prediction (*question: what are the data needed to fix the dekads? To be added to the action list*).

4.5 WP5 – Area estimation with remote sensing

Z. Chen (CAAS) presented the results achieved in the study region in China. Most related to the WP5. The field data collected in the study region in Morocco were sent after the meeting. No presentation on this part of work was available.

Many data on this study area have been collected. This includes the official statistical data on yield and acreage: at district level within Anhui province and at county level within Bozhou districts Il would be interesting for the execution of WP4 to collect the statistics on the neighbouring districts, even within the neighbouring province such as Henan and Shandong (Balaghi's suggestion to the action list).

The phonological data have been assembled as well for the use of WP2. However Alterra would expect to collect the historical phonological data (last 5-10 years) from some experimental sites in the neighbourhood. CAAS promised to look for it (action list).

Concerning the WP5, the presentation was focused on the sampling method and sampling design. Five sampling schemes have been tested in the county of Mengcheng (which has 6000 km^2). For the winter wheat season, 12 frames have been surveyed. For the maize season 31 frames have been visited some of them twice.

The stratified systematic sampling delivered most efficient sampling results. An increasing number of strata led to a decrease of variance within each stratum

Comments were added by J. Gallego about the variance computing in case of systematic sampling. Furthermore when the same ground data are used for stratification and sampling, the efficiency of the systematic sampling (against random sampling) is often overstretched.

J. Gallego is now involved with DSS (Morocco) for area estimation. A first visit to DSS (Min. of Agriculture of Morocco) is planned mid-January 2012.Javier suggested some references to Chen:

GALLEGO, F.J. and DELINCÉ, J., 2010, The European Land Use and Cover Area-frame statistical Survey (LUCAS). In *Agricultural Survey Methods*, R. Benedetti, M. Bee, G. Espa, F. Piersimoni. (Ed.),pp. 151-168 (New York: John Wiley & sons).

Remote sensing and land cover area estimation - INT. J. REMOTE SENSING, 10 AUGUST, 2004,VOL. 25, NO. 15, 3019–3047
F. J. GALLEGO

5 Summary of action in 2012

This action list is a follow-up of the action lists agreed at the Rabat and Hefei workshops

No of deliverables	Task	Description	Partner Institutes	Action / Implementation	Deadline (Month)
D21.1	**Experimental databases**	**Field experimental / observation data related to the phenology and the field management practice**	**Alterra** **INRA** **AIFER**	**Alterra will send a question list to the local partners (in Morocco? and) on Huaibei Plain in China.** **CAAS will help Alterra and AIFER to collect historical phenological records in the agronomical experimental sites in the region.** **Alterra will look at the availability and the usability of phenological data in Morocco collected between 2001 and 2005.**	
D21.3	Regional statistic database	Databases have been collected	INRA AIFER	Report to be submitted in month 12 (January 2012)	12
D22.1 and 22.2	**Usability report and strategy report on CGMS adaptation for morocco**		**Alterra** **INRA**	**Status: partially delayed** **To be submitted as soon as possible** ***Scheduled in February?***	12
D23.1 and 23.2	**Usability report and strategy report on CGMS adaptation for morocco**		**Alterra** **AIFER**	**Status: partially delayed** **To be submitted as soon as possible** ***Planned in February?***	12
D31.2	Ground info database	Experimental observation data for different varieties of wheat in Morocco and rice on Jianghuai Plain in	UMI / INRA / JAAS	The observation will last two years. The calibration will be fine-tuned during these years. JRC agro-pheno structure database can also be used	**MS1 = month 24**

		China. The targeted observation includes phenological parameters and the field management practice.		as reference. *INRA will plan some new observation to fill the project database on will rely only on JRC agro-pheno database?*	
32.1	Sensibility analysis report	Application of BioMA on rice growth on Jianghuai Plain, China	UMI/JRC		12
32.2	Databases for parameterisation		UNM/JRC	Databases need to be yearly updated	30
D41.1	**Databases on winter wheat yield for two study region**		**INRA** **AIFER** **CAAS**	**The yield data have been collected as planned. The empirical model can be established based on the collected data. However, there is always room for improvement. INRA asked AIFER and CAAS to help collected more yield statistical data on Huaibei Plain (in the neighbouring districts, province) if feasible.**	
D43.2	**Empirical models for yield forecasting**		**INRA** **AIFER**	**Investigate the dekads of biophysical variables used for regression on Huaibei Plain**	
51.1 and 51.2	Segment sampling DB and accuracy assessment report	Raster Database	CAAS INRA	Final version is due for the month 30. But it will be started in the year 1 and gradually updated.	30
61.1 **62.2**	**CGMS tool box**	**application of statistical analysis for use of yield forecasting**	**Alterra**	**Normally it is due for the Month 30 and 36. Now it will be available at month 14. Thus more updates and improvement possible.** **Integration of remote sensing indicators should be possible (possibility of testing multiple (combinations of) dekads??).**	

5.1 Updated schedule for E-AGRI events (Progress Meetings, E-AGRI Workshops and (on-site) training sessions)

event	2011	2012	2013	2014
Progress meetings **Who:** members of consortium plus the European Commission **What**: Project implementation progress Admin/consortium issues	*Limited consortium meeting:* *Review of the project progress in 4 workgroups or* *reinforce the communication aspects: dissemination of E-AGRI results in Africa. May be held together with other food security projects.* Autumn 2011, Brussels (EC)? **First meeting 23rd Nov**	2nd Progress meeting When: October /November 2012 Where: *Nanjing* *Organizer: JAAS* *To be combined with BioMA workshop*	2nd Progress Meeting When: September 2013 *Where: The Netherlands* *Organizer: Alterra*	Final meeting When: Feb. 2014 *Where: Ispra* *Organizer: JRC* *Or: Rabat* *Organizer: INRA*
E-AGRI workshops **target**: Policy makers from ministries of agriculture, attachés of agriculture of EU, DG's INFSO, RTD,AGRI **Aim**: promotion and dissemination of European crop monitoring technology		When: 2012? 2013? 2014? Where: Beijing, China Organizer: CAAS	2013 Where: Kenya Organizer: DRSRS to be hold together with other projects such as AGRICAB	
Training sessions in Aggro-meteorological modelling	CGMS set up Nov. 2011, Hefei, China Organizer: Alterra	BioMA Setup ?? JRC (Marchello?) October China CGMS set up September Morocco	BioMA Piloting ? Morocco ? China CGMS Piloting ? Morocco	

				?	China	
Training In RS Applications	Training at INRA October, 2011 In Rabat, Morocco	Training at INRA-DSS and VITO Spring 2012 Introduction of field sampling 2012 Organizer: CAAS To be confirmed		To be determined		
Capacity building in Kenya		Introduction of crop growth monitoring using agro-meteorological modelling		Training on crop acreage estimation combining aerial and Satellite data		

Annex: Agenda of the Day

Progress meeting – 23rd November 2011
JRC –Ispra (Italy)

Programme

9.00 – 9.15	Welcome address O. Léo (MARS Head of Unit) and/or S. Niemeyer (AGRI4CAST Action Leader)
9.15 – 9.45	Presentation of E-AGRI partners and E-AGRI project Q. Dong (VITO/ project coordinator) –
9.45 – 10.00	WP1 presentation / VITO
	Coffee break
10.30 – 10.45	WP 2 presentation / Alterra
10.45 – 11.00	WP3 presentation / UNI/JAAS/JRC
11.00 - 11.15	WP4 presentation / VITO/INRA
11.15 – 11.30	WP5 presentation / CAAS/VITO
11.30-12.30	Questions/Discussion (Moderator: Q. Dong)
12.30 – 13.45 lunch (JRC / piccola mensa)	
Meeting restricted to E-AGRI partners	
13.45 - - 15.30	Discussion on interim report and deliverable (15 min / WP) Moderator: Q. Dong
	Coffee break
15.00 –	Discussion Near term actions (action list) and next events/meetings
17.00 End of meeting	