

CLIMAGRI – Climate Change and Agriculture

FAO/UCEA CLIMAGRI^{med} PROTOCOL FOR COLLABORATION

Development of a network in the Mediterranean region on climate change and agriculture

Technical component (iv)

Development of a land evaluation system useful for defining climatic risk for agriculture due to climate variability and climate change in the Mediterranean area at local and national scale

International Consultants on Climate Change Impact Assessment

Report of the First Mission to Turkey

Duration: 14 - 21 November 2003

International Consultants:

- Pierpaolo DUCE (CNR-IBIMET, Institute of Biometeorology, National Research Council of Italy)
(e-mail: duce@ibimet.cnr.it);
- Andrea MOTRONI (SAR-Sardegna, Agrometeorological Service of Sardinia)
(e-mail: motroni@sar.sardegna.it);
- Lucio BOTARELLI (ARPA-SMR, Regional Agency for the Prevention and the Environment of the Emilia-Romagna Region)
(e-mail: lbotarelli@smr.arpa.emr.it).

Counterparts:

- Agrohydrology Research and Training Center (ARTC)
P.O. Box 35660, Menemen/IZMIR, Turkey;
- Soil and Water Research Institute of Rural Services (MRI)
P.O. Box 35660, Menemen/IZMIR, Turkey.

Principal researchers involved:

- Orhan ODEN (Director of ARTC, Soil Fertility expert)
(e-mail: orhanoden@yahoo.com);
- Halit KARAMERCAN (Deputy Director of ARTC)
(e-mail: halitkaramercan@yahoo.com);
- Melek GURBUZ (ARTC, Soil Science Specialist)
(e-mail: melek_g@hotmail.com, melekgurbuz@yahoo.com);
- Dilek KAHRAMAN (ARTC, Agricultural Engineer)
(e-mail: dkahraman@hotmail.com, dkahraman@yahoo.com);
- Yildirim KAYAM (MRI, Irrigation Specialist)
(e-mail: yildirinkayam@hotmail.com);

- Ulfet OZSOY (MRI, Soil and Land Fertility Expert)
(e-mail: ulfetozsoy@hotmail.com);
- Gulay YOLCU (MRI, Land Conservation Expert)
(e-mail: gulay_g2000@yahoo.com).

Evaluation of the existing situation of the meteorological and agronomic sectors in terms of data availability, methodologies for analysis, logistic infrastructures and identification of a suitable counterpart for an effective transfer of methodologies:

ARTC and MRI seem to be suitable counterparts for an effective transfer of methodologies. During the period 1999-2003 they conducted studies on *Impact of climate, agro-technology and socio-economic factors on wheat and cotton yields* and recently started a new research project concerning *Impact of climatic change and variability on agricultural production of Western Turkey*. Most of data (climate, morphology, pedology, land use, land capability for agriculture, etc.) required to evaluate climatic risk for agriculture in the agricultural areas where ARTC and MRI Team suggested to transfer Land Evaluation system methodologies are available or collectable. ARTC and MRI have constituted an interdisciplinary research group to develop CLIMAGRImed activities and they ensure good facilities for data analysis and good logistic infrastructures.

Factors which could hamper implementation of activities:

ARTC and MRI research scientists emphasized the fact that they do not have experiences on Geographic Information System (GIS) and they need some GIS software to manage and analyze spatial data. They can make any type of analysis only at station level. This could be a critical factor during the phase of implementation of the larger project proposal we would like to draft. In any case, at the moment this is not a critical factor to reach the main objectives of CLIMAGRImed.

Work plan and schedule of activities:

Preparation of data and metadata

- Selection of the agricultural areas where to apply Land Evaluation analysis for climate risk in agriculture; during the meeting held in Menemen the Egean coastal zone was selected: this region (approximately 30.000 km²) is characterized by a Mediterranean-type climate and includes the most important agricultural areas of Turkey;
- Description of the selected area in terms of meteorological, climatological, pedological, agronomic characteristics;
- Inventory of data availability;
- Selection of weather station data-sets (temperature and rainfall, at least 20-30 years) that will be used to calculate bioclimatic indexes.

Identification of data-sets to be collected

- During the meeting in Menemen, data required by the methods and analysis procedures developed in CLIMAGRI were briefly examined. Before the first mission of the counterparts, ARTC and MRI scientists will prepare a report containing a complete list of all data collectable indicating also if they are in digital format or not.

Data analysis

- During the meeting in Menemen, methods which can be used to calculate bioclimatic indexes were discussed in detail. The indexes calculations, based mainly on growing degree-days and a simplified water balance model, and the procedure to analyze climate variability were also performed using a 30-year data-set provided by ARTC and MRI scientists. A detailed work plan will be prepared during the second meeting;

- Interpolation models which can be used to spatialize temperature and rainfall data and standard procedure to obtain climatological maps will be discussed during the second meeting.

Activities to be completed before the first mission of the counterparts

- Before the first mission of the counterparts, preparation of data and metadata and identification of data-sets to be collected need to be completed.