Publishable executive summary

Project objectives and expected outcome

PLEIADeS addresses the efficient and sustainable use of water for food production in water-scarce environments. It aimed to improve the performance of irrigation schemes by means of a range of measures that consider the economic, environmental, technical, social, and political dimensions through a synergy of leading-edge technologies and participatory approaches. Major social and technical innovation was made possible by the comprehensive space-time coverage of Earth observation (EO) data and the interactive networking/connecting capabilities of Information and Communication Technologies.

A set of nine pilot Case Studies represents a sample of the wide range of conditions found in the Mediterranean and in the Americas, covering Portugal, Spain, Italy, Greece, Turkey, Morocco, Mexico, Peru, and Brazil.

PLEIADeS was expected to generate new knowledge on the functioning and performance of these pilot areas. This in turn aimed at providing the knowledge and information base for decision makers at all levels on agricultural water needs and consumption. It also set out to provide the basis for assessing the benefits and threats potentially brought about by new technologies to all actors in changing environments. The project was also expected to generate new tools for irrigation water management, combining innovative sensor technology with flexible easy-to-use Decision-Support Systems for adaptive management. These tools were designed to help farmers to control water more efficiently and improve the environmental and economic performance of their irrigation systems.

Work performed and results achieved

The main emphasis in the past fourteen months was twofold: firstly, on consolidating results from the campaigns, completing missing information, and continuing the analysis and the participatory evaluation with stakeholders. This included refining tools and frameworks, as well as intensifying the dialogue and collaboration with users and other stakeholders. Secondly, we focused on tying together loose ends and "closing down", by finalizing open tasks, documenting, disseminating, and transiting into post-project exploitation.

The final version of the **S**ystem of **P**articipatory **I**nformation, **D**ecision support, and **E**xpert knowledge for irrigation and **R**iver basin water management (SPIDER) was demonstrated at the 3rd and Final Plenary Meeting held in Menemen (Izmir, Turkey). The operational EO processing and product generation chain has been implemented and documented in its final form. The thematic frameworks have undergone a final revision, inspired by the experience from first implementation steps in pilots. This was followed by an in-depth analysis and synthesis of the results in the individual pilot areas.

Significant progress has been made in the participatory evaluation with users and other stakeholders. Several pilot areas have demonstrated favourable conditions for a sustainable implementation beyond the project lifetime. First steps in this process have already been achieved and roadmaps have been developed jointly with key stakeholders.

Two-page Factsheets have been created for each pilot area and for each thematic Workpackage. They were widely distributed to interested stakeholders, colleagues, and the media.
The coordinator UCLM organized a final International Info-Day on "Technology and Science for efficient irrigation: the European projects FLOW-AID and PLEIADeS" in Albacete on 11 November 2009 (jointly with Wageningen University as coordinator of FLOW-AID), which had peak attendance of 150 stakeholders from several European and Mediterranean countries.
The set of Pilot Stories has been consolidated and most of the videos are now available as ten-minute clips on YouTube (direct access through a button on www.pleiades.es)

Potential impact

Water is a critical issue worldwide and water conflicts are arising in many regions, with available resources diminishing in quantity and quality and the range of uses in competing sectors increasing. Periodic droughts and floods exacerbate conflicts and reveal the increasing vulnerability of water uses. Water for food production represents by far the largest share among all uses, but water demand is still growing with increasing population, especially in non-industrialized countries where it is the very basis of subsistence for large parts of the population. Lack of water can adversely affect the economic and social stability of entire regions.

PLEIADeS has introduced new technologies as tools to assist in irrigation water management to prevent or resolve conflict, offering the information to a wide range of stakeholders at their required space-time resolution in non-academic, non-technical, easy-to-use and intuitive form that encourages participation.

Working directly with key users and the relevant government organisations, including active stakeholder participation and gender mainstreaming, has proven to be a key for successful and sustainable implementation in policy and practice. Core users have clearly endorsed the system and have demonstrated their commitment to make post-project sustainable implementation a political and physical reality.

Intentions for use

Use of the information and knowledge generated by the project will be to some extent for further research, but mainly for exploitation. The main exploitable project result is the **S**ystem of **P**articipatory **I**nformation, **D**ecision support, and **E**xpert knowledge for irrigation and **R**iver basin water management (SPIDER) and the services provided around it.

The development of SPIDER in each pilot area has been driven by the needs and perceptions of the users. At all project stages, it was a joint venture of the project team composed of selected key stakeholders, information service providers, and research groups. From the very beginning, the clear intention was to implement an operational version in some pilot areas by the end of the project time. This has actually been achieved in several pilot areas, with details of this implementation tailored to the local situation.

The general philosophy is that of an open-source system that is made available to users on a non-commercial license basis. The consortium recognizes that tools developed in the project are intended to benefit all stakeholders, but could potentially reinforce social inequalities if used inappropriately. In view of these ethical considerations the consortium will continue to review the application of project tools and their transfer to third parties to guarantee their responsible use and to ensure compatibility with relevant Community water, agriculture, rural development, and international cooperation policy goals.

Consortium:

Name	*Short name*	*Country*
Universidad de Castilla-La Mancha, Instituto de Desarrollo Regional	UCLM-IDR	Spain
Junta de Extremadura, Dirección General de Agricultura	Junta Ex [2])	Spain
Instituto de Agricultura Sostenible, CSIC Córdoba	CSIC	Spain
Ministério da Agricultura, Desenvolvimento Rural e das Pescas	MADRP[2])	Portugal
Associação de Beneficiários do Caia	AB Caia [1]) [2])	Portugal
Ecological Economics and Environmental Management Centre, Universidade Nova de Lisboa	Ecoman	Portugal
Instituto Superior de Agronomia, Centro de Estudos de Engenharia Rural, Universidade Tecnica de Lisboa	ISA	Portugal
Istituto Nazionale di Economia Agraria (with CBN, Consorzio di Bonifica della Nurra [1]) [2]))	INEA [2])	Italy
Universitá Federico II di Napoli	UNINA	Italy
ARIESPACE s.r.l.	Ariespace [1])	Italy
Institut de Recherche pour le Developpement (IRD)-Centre d'Etudes Spatiales de la Biosphère	IRD-cesbio	France
University of Thessaly	UTH	Greece
NAGREF- Institute for Soil Classification and Mapping	NAGREF-ISCM	Greece
Integrated Resources Management Co Ltd.	IRMCo [1])	Malta
Agrohydrology Research and Training Centre	THAEM	Turkey
Dokuz Eylul University, Water Resources Management Research and Application Center	DEU-SUMER	Turkey
Université Cadi Ayyad, Marrakech, Faculté des Sciences et Techniques (with ORMVAH [2]), Haouz district water board, and ABHT[2]), Agence du Bassin Hydraulique du Tensift)	UCAM-FSTM	Morocco
Instituto de Promoción para la Gestión del Agua (with UNALM Universidad Nacional Agraria La Molina)	IPROGA [2])	Peru
Instituto Tecnológico de Sonora (with CNA[2]), Comisión Nacional del Agua)	ITSON	Mexico
Universidad de Sonora	UNISON	Mexico
Colegio de Postgraduados	ColPos	Mexico
Empresa Brasileira de Pesquisa Agropecuária (with CODEVASF[2]), Companhia de Desenvolvimento dos Vales do São Francisco e do Paranaiba)	EMBRAPA	Brazil
Utah State University, Logan UT	USU	U.S.A.

[1]): SME; [2]) : User

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