



"The advice sent to me by mobile SMS is very correct and useful. I can get it when I need it. This is very helpful in saving me water, diesel and fertilizer, and helps me have a good crop,"
Adel, a maize farmer in the Nubaria region, Egypt
(photo: Ivo Miltenberg)

Project Partners

- The Hydraulics Research Station, Sudan
- Soil, Water and Environment Research Institute, Egypt
- Directorate of National Meteorology, Mali
- The HEDBEZ Consultant, Ethiopia
- eLEAF - the Netherlands
- DLV Plant - the Netherlands

Funding

The project is funded by the International Fund for Agricultural Development (IFAD).



Enabling poor rural people to overcome poverty



eLEAF is a Netherlands-based high-tech company that supplies quantitative spatial data on water and vegetation on any land surface to support sustainable water use, increase food production and protect environmental systems.

Further Information: This leaflet has been produced by the International Water Management Institute (IWMI)

For more information on this project, contact:

Bharat Sharma, Principal Researcher and Coordinator - IWMI India, New Delhi

Email: b.sharma@cgiar.org

Phone: +91 11 2584 0811

Project website: <http://www.smartict-africa.com>

Front cover photo: Giriraj Amaranath



RESEARCH PROGRAM ON
Water, Land and
Ecosystems

Led
by:



RESEARCH PROGRAM ON
Water, Land and
Ecosystems

Led
by:



Connecting African Farmers

Phone-based weather and water information for smallholders

The use of modern communication tools has great potential to improve food security and livelihoods for smallholder farmers in Africa.

Successful irrigation development in many African countries remains low. Currently, only about 5% of agricultural production is supported by irrigation in sub-Saharan Africa. In many areas rainfall is highly seasonal and consequently, without water technologies, only one crop a year can be grown.

Furthermore, many farmers live in remote and isolated areas so receive little information about new technologies and processes.

So raising farm productivity is a key challenge for the continent. And this task is made all the greater by economic water scarcity (lack of resources to access water), rapid urbanization and increasing seasonal variability from climate change.

To address this, the *Smart ICT for Weather and Water Information and Advice to Smallholders in Africa* project is exploring the use of information and communication technology (ICT) to increase agricultural productivity.

The project aims to provide farmers with irrigation, agriculture, and weather-related advice and information direct to their mobile phones. These tools will enable growers to make more informed decisions, and negotiate more efficient and equitable transactions with water and farming-related service providers.

This three-year project began in 2011 and is being implemented in Egypt, Ethiopia and Sudan.

How it works

Each project site covers an area of around 3,600 km² - about the size of the city of Lagos. Satellite images, which can depict areas as small as 20 m², are analysed weekly for particular characteristics, such as changes in a field's soil moisture.

The imagery is combined with various data including weather records, river flow measurements and calculations of how well a particular crop may be growing at any given point.

Using a system called *Fieldlook*, complex water and crop growth models are run for each field, producing specific, customized advisories for each farmer. When changes in any of the parameters reach a critical level, an advisory is generated encouraging the farmer to take action.

For example, water stress patterns would result in a message being sent out in the appropriate local language, to advise the farmer to irrigate.

Approximately 60 farmers at each project site have been equipped with mobile phones, and given face-to-face

training on how to make the most of the technology and the new advisories accessible through it.

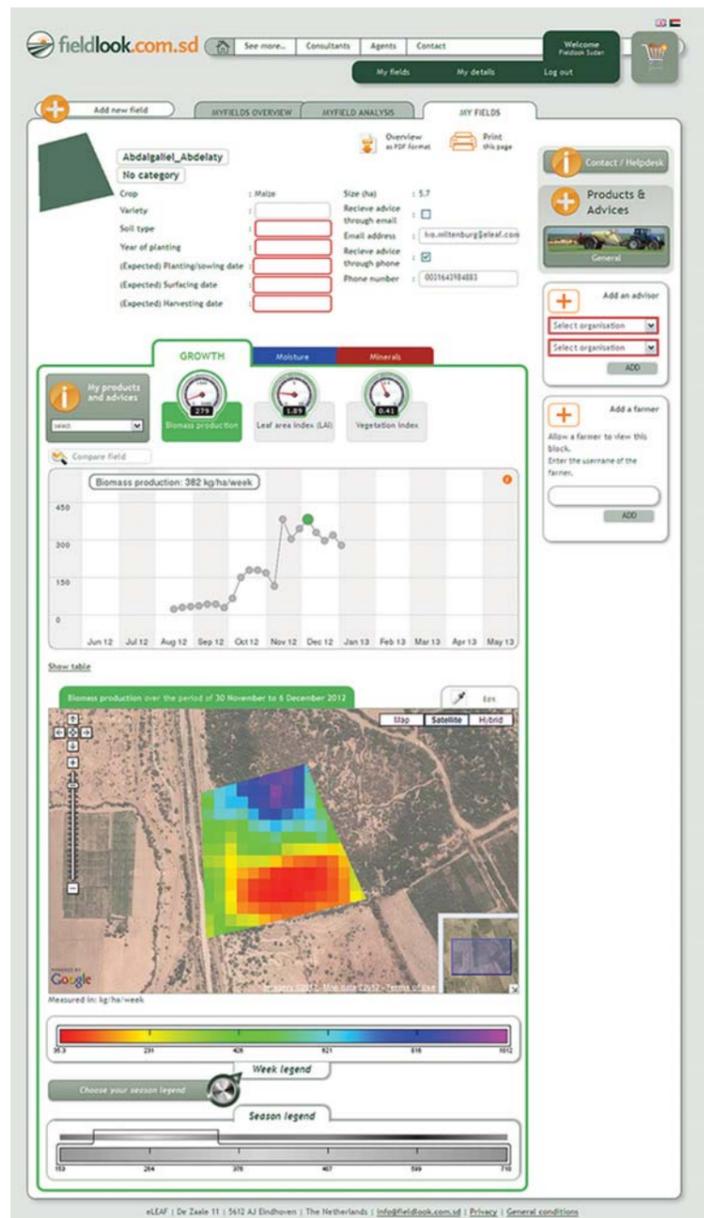
Providing individual farmers with specific advice enables them to plan, at field level, what to plant and irrigate, and they can also find out when weather conditions are just right for maximum success.

Looking to the future

As a further service, real-time flash flood forecasts by text message are now being developed.

The project is organizing a number of study visits and capacity building programs for farmers, and other water and agriculture professionals, at each project site.

After the initial phase has been evaluated, researchers plan to explore partnerships with local telecom service providers to further develop and expand these services throughout Africa.



The Fieldlook display for Sudan

Egypt

Nubaria Farmers have begun receiving weekly Arabic updates on vegetation growth and the water use efficiency of their fields. The system is interactive so farmers can request information via SMS and then receive instant irrigation advice, based on soil-water conditions and weather forecasts. fieldlook.com.eg

Sudan

Mareb The Gash River rises in Ethiopia and Eritrea, before flowing into a very arid region of Sudan. The river's flow can best be characterized as spate or flash flood. Though very useful as the only source for spate irrigation, these flood events are unpredictable, so farmers are unable to fully exploit this water for agriculture. IWMI is collaborating with the Sudan Hydraulics Research Station, local phone line providers, and farmers, to develop near real-time flood forecasts for mobile phones based on a hydrological model fed by field data and supported by remote sensing images. fieldlook.com.sd



Ethiopia

Arata Chufa Irrigation Scheme Farmers are now able to receive text message information and advice in Amharic, tailored to their own fields and crop requirements. The agricultural information is derived from high resolution satellite imagery which compares the current status of biomass growth and water use efficiency of the crop in a specific field with the status of neighbouring fields with the same crop at the same stage of development. Based on this, an interactive Irrigation Planner service advises farmers when to water their fields. fieldlook.com.et