'Space for Food Security'- Side Event

Report ESS Side Event

2 June 2016 - World Forum - The Hague

Netherlands Space Office

Ministry of Foreign Affairs

WATERWATCH COOPERATIVE

Purpose of the Conference

Under the auspices of the 2016 Dutch Presidency of the Council of the EU, the fourth successful edition of European Space Solutions took place in The Hague from 30 May 3 June 2016 at the World Forum Convention Centre. This major 5-day conference brought together business and the public sector with users and developers of space-based solutions.

The purpose of the Side-Event "Space for Food Security" was to determine the state-of-the-art for geo-data applications for AgriFood, the challenges and opportunities we see in front of us and how we can accelerate and make use of the opportunities we see.



Participants

A number of 80 people participated ranging from European and Netherlands Space Agencies, companies involved in geo-data applications, ICT and data companies, Dutch and European governmental staff and policy makers, companies and Non-Governmental organizations involved in the nexus of Water and AgriFood, staff and students from universities as well as investors.
















Part 1: Challenges & Opportunities

Vincent Everts, trend watcher of new technologies, kicked of the event by giving an insight in the rapid development of technology and the influence this has in our daily life. Especially the impact of information technology on our societies is all over. Innovative technologies cause a complete change in organizing processes. Satellites and sensor technology are drivers and be inseparably part of the future development.

As a special guest, he interviewed astronaut and doctor André Kuipers, who flew two space missions and spent a total of 204 days in the International Space Station. In his presentation André showed us the image of the world as he saw this from space. He showed us not only the beauty of our planet but also its vulnerability and the effects on the planet of human intervention. He made a passionate plea for all to ensure that our planet remains a source of life to all.

Listen to the interview with André Kuipers for New Business Radio:
https://soundcloud.com/newbusinessradio/sets/andre-kuipers-en-ruud-grim-in-digital-transformation

In his presentation "Creating Impact with Data", Prof. Dr. Emile Aarts, Rector Magnificus of Tilburg University introduced us to the impact of big data on AgriFood. we are entering the fourth industrial age in which the speed of datafication proceeds is staggering. The expectations are that in 2020 there will be 50 billion Internet connected devices. This 'Always-On Society' will generate true Big Data which will be the 'oil of the 21st century'. Data *science* is the next big thing which seeks to use all relevant, often complex and hybrid data to effectively tell a story that can be easily understood by non-experts. He sees four disruptive elements of big data:

1. Entity matching: we find hidden structures.
2. Process Mining: we can find unknown facts.
3. Validation: we can deal with messiness
4. Visualization: we can show what it means

Technology and data science will drive the future of Agri and Food. High Tech will give farming a new face. Farming will become more digital: informed, connected and integrated including farmers, suppliers, logistics and consumers. Smart farming will be done as part of a circular economy.

These developments have led Tilburg University and TU Eindhoven to launch the Jheronimus Academy of Data Science (JADS) with four Master programs at three different locations and focused on six dedicated themes including Agri, food and life science.

Part 2: Geo-data applied in AgriFood

Four examples were presented of business cases using geo-data based applications.

Case 1: Sat4Rice Vietnam - Mark Woltman, VinaNed

Sat4Rice aims to improve the effectiveness of existing extension services and output of smallholder rice farmers in the Mekong Delta. This is done by enriching the existing basic agricultural information with advanced geo-data. Through the project 300.000 rice farmers in the Mekong Delta are reached. After the pilot ends, the service will be scaled-up further to reach around 12 million rice farmers in the Mekong Delta and beyond. Though the pilot project is partly paid with (Dutch) development aid, eventually the pilot should also prove that the scaling-up can be done on the basis of a business model.

Thesis 1: Smart Farming can only be successful when driven by a business case

1. Agree

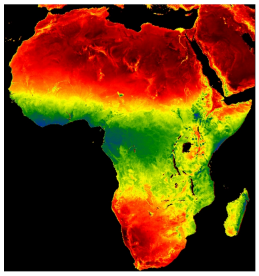
2. Disagree

Most participants agreed with the thesis though some felt that governments also have a core responsibility for ensuring food security. Not everything can be left to the market.

Case 2: Agricultural Insurance Services in West Africa - Anaar Kara PlaNetGuarentee.

PlaNetGuarentee is a specialized inclusive insurance broker that implements innovations in the fields of health, life and climate insurance. PlaNetGuarentee designs breakthrough innovations in social protection and inclusive insurance in New areas of risk: collateral and vulnerable populations. Wherever PlaNetGuarentee works, it is in touch with local populations in order to design solutions adapted to their needs.

Problems faced by farmers include: extreme climate events, Increased risk of bad harvests, food insecurity, forced to dip in to their savings or not able to pay back their credit. PlaNetGuarentee offers satellite-based insurance services using the model of Index Insurance. This insurance pays out on the basis of a predetermined index for loss of assets and investments. Insurance mitigates the impact of climate events and secures future production, stabilizing income in the whole agriculture value chain: farmers, banks and MFI's, agriculture suppliers, production companies. By providing satellite data for food productions, the farmers are able to mitigate the risks.



Thesis 2: Index Insurance is a first tool to help farmers stabilize their revenues and increase their access to finance.

1. Agree

2. Disagree

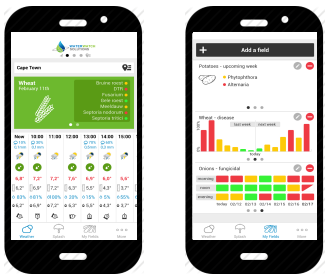
Most people in the audience agreed with this thesis. The lack of crop insurance in Africa, Asia and Latin America is a major reason why farmers are not able to recover from a bad harvest. Index insurance can be an important tool but not the only condition for farmers to recover.

Case 3: Crop Disease Alert India - Jeroen Plesman, Waterwatch Solutions BV

The Crop Disease Alert App developed by Waterwatch Solutions aims to warn farmers if there is a risk of disease for their crops. It provides the optimal time slot when and how to act. This will result into:

1. Reduction of use of pesticides.
2. Increased yield due to less production loss.
3. Increased efficiency through better planning

The pilot is carried out with HDFC bank in India in which a few hundred farmers in 19 different locations in India participate. If successful, the application will be made available to the approx. 1 million farmers serviced by the HDFC bank.



Thesis 3: Entering a local market can only be achieved by partnering with local financial partners.

1. Agree

2. Disagree

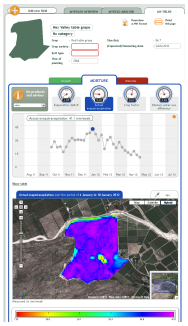
A number of people in the audience felt that a local partner may give added value but this may not be true in all cases.

Case 4: FruitLook South Africa - Maurits Voogt, eLeaf

FruitLook is an innovative service offered to farmers in the Western Cape in South Africa. Many fruit farmers are confronted with climate changes and limited water. FruitLook is based on the latest satellite image technologies. The basic package contains 9 growth parameters such as the actual evapotranspiration, biomass growth and nitrogen content to help famers understand where irrigation water and nutrients are required, and how much to apply. It supplies weekly updates on growth, moisture and minerals.

The impact of FruitLook is that it improved water productivity (the amount of water needed for 1 kg of crop) by 10% for 60% of the users.

Water Productivity = Crop yield (kg) / water consumption (m3)



Thesis 4: Governmental financing is a necessary condition for implementation of space solutions for food security.

1. Agree

2. Disagree

A lively discussion started on this thesis. A majority of people felt that governmental financing might be necessary to enable pilot programs but not necessarily in the scaling-up of such services.

Part 3: How to acceleratie geo-data applications for Food Security

Interview Ruud Grim - Netherlands Space Office (NSO)

Ruud Grim is the coordinator of the 'Geodata for Agriculture and Water' (G4AW) Facility of the NSO implemented on behalf of the Dutch Ministry of Foreign Affairs. The Facility promotes and supports private investments for large scale, demand driven and satellite based information services. It runs over 14 projects & partnerships across 10 countries with over 70 public organizations, private sector operators, NGO's, farmer cooperatives, research institutes, satellite data/service operators and other companies.

Ruud stipulated the necessity to work on the application of satellite data for societal purposes. He explains the big difference in farmer productivity in the Western world and elsewhere. While Western farmers are able to yield 8 - 10 tons per hectare, their African counterparts only yield about 1 ton per hectare. Traditionally farmers are used to look for signals in nature to guide their farming process. Due to climate change, the farming process has become more capricious and less predictable. Good and timely information derived from earth observation sate is therefore key factor.

The aim of the G4AW program is to increase the food production of farmers in Africa and Asia with 10%. The 14 projects implemented through G4AW have the aim of reaching a total of at least 3 million farmers. The first lessons are promising as the number they like to reach in the first 3 years are far beyond this target.

Listen to the interview with Ruud Grim for New Business Radio:
https://soundcloud.com/newbusinessradio/ruud-grim-nso-digital-transformation#t=3:45

Panel Discussion

During the panel discussion, associate professor Kees de Bie of the University of Twente, Kaushik Ramakrishnan working at UTZ on the First Mile project, Astrid Hackenberg from Microsoft Netherlands, Fons Nelen from Nelen & Schuurmans, and Ed Flohr, investor discussed the dilemma's and opportunities in the field of Geodata/ICT applications for AgriFood.

Fons Nelen explained that for their company the world exist out of pixels. It is a comparison of data and looks to uncertainty . They combine different sources, whereby the knowledge of the farmer is very important as they are experienced in the field. He doesn't has the opinion that only satellites can solve our problems. The face competition from science institutions and are no in favor of sharing all knowledge yet because they experiences competition from the Science world.

For Kees de Bie data is not just information. You have to make a distinction between these two. If there is no quality you will loose the farmer. In respond on a question about competition he mentioned that science will train for the skilled people and therefore is complementary to the value adding sector

Astrid Hackenberg mentioned that Microsoft is a technology firm, but it does invest in this kind of technology. There are several examples: buy skills for Africa; Microsoft employees can use their skills to assist or the philanthropies. This fund helps in many different ways. Microsoft like to collaborate with smart ideas.

As an investor Ed Flohr is involved in sustainable topics. He believes in technology and that it can solve the problems. In his opinion there is a difference between an idea and an innovation. As long as you can't make business from your idea it is no innovation.

Kaushik Ramakrishnan from UTZ mentioned the added value of these techniques for farmers who are confronted with the effects of climate change and El Nino. The effects of climate change are strong in the areas where UTZ is active: coffee, tea, cacao. With the right information at the right time farmers can take the right decisions and increase their yields and their water productivity.

Interview Marcel Beukeboom - Ministry of Foreign Affairs

Marcel Beukeboom is leading the Food and Nutrition Security team of the Ministry of Foreign Affairs since August 2012. As a member of the Management Team of the Department for Inclusive Green Growth, he is responsible for the development and implementation of Dutch policies for food and nutrition security.

He reacted on the question which innovation he is most enthusiastic about. He explains that for the Ministry the aim is to reach as many farmers possible and to bring down the number of hungry people. In the year 2000 the world community adopted the Millennium Development Goals aiming for a period of 15 years in halving the number of hungry people and the number of poor people. In 2015 the UN adopted the Sustainable Development Goals which intend to bring the number of poor and hungry people to zero. This however is the most difficult part. New innovations such as the applications in Geodata for Agriculture and water are needed to achieve this.

The present Dutch Government decided a few years ago to combine Foreign Trade and Development Cooperation. Many people at the time were skeptical about this combination but the results show that his policy is successful. The G4AW program of the Ministry of Foreign Affairs executed by the NSO is an example of this approach.

Part 4: Take Away

At the end of the event, Ad Bastiaansen, chairman of Waterwatch Cooperative made a number of observations. This side event took place at the European Space Solutions 2016 conference and the link to the European policy is therefore appropriate. Phil Hogan, EU Commissionar for Agriculture & Rural Development stressed the need for cooperation. In this event we saw a number of examples of good cooperation such as the alliances of private partners and knowledge institutes the G4AW alliances program and the eco-system Waterwatch Cooperative is building.

During the discussions of the panel and with the audience, many pointed at the important facilitating role of the government as well as to financially support the sector to adapt new disruptive technologies more easy for end-users including farmers. Part of the EU-policy is its emphasis on new innovations which contribute to improve agricultural productivity and sustainability. During the Side Event this was confirmed by André Kuipers who pointed at the vulnerability of our planet and the need to rethink our present productions and consumption patterns.

Part of the EU policy is to make agriculture more knowledge-based. Anaar Kara reconfirmed the need for this by explaining the benefits of using Geodata in insurance products. Maurits Voogt showed that the techniques used by eLeaf to monitor and improve the water productivity is also a step in the right direction.

Emile Aarts pointed at the fact that farming becomes more and more digital which is necessary for precision farming. The slowdown in the innovations in the AgriFood sector at this moment is caused by the hesitation of investors to facilitate the deployment of innovations. The coming period a lot of effort therefore should be invested not only in the development of new techniques but also in the development of applications and sound business models. One way to do this is to invest in building up an eco-system of private partners, knowledge institutes and governmental institutes. One example of this is the development of Agri-Space Den Bosch.

A strong plea during this side event was for developers and suppliers to listen more carefully to the market and the end-users. Instead of being focused (only) on technology, it is necessary to listen to what farmers need.