**Abstract proposal for possible contribution to Unesco Climate Services and Water Security projects**

The Earth Observation group of VITO (Flemish Institute for Technological Research) has an extensive expertise in different parts of the remote sensing data chain, from sensor design over the development of thematic applications for water, agriculture and biodiversity monitoring.

After discussion, we feel this experience can contribute to the Water Security and Climate Services project.

Possible contributions to the project could be:

* *Delivery of EO datasets*

VITO is responsible for the storage, processing and distribution of several global datasets of time series of satellite based indicators in the framework of the projects MARSOP and Copernicus Global Land service. We are also experienced in the data fusion of high and medium resolution satellite imagery. We could enhance access to a wide range of products from different satellites (Proba-V, METOP-AVHRR, Sentinel 2/3), climate data and support in managing and pre-processing imagery. Such datastreams could be ingested in existing data integration systems already up- and running by UNESCO or other partners.

* *Development of an early warning system for drought monitoring*

We are experienced in the set-up of early warning systems. One of the most recent examples is the development of the Agricultural Stress Index System (ASIS) for the Food- and Agricultural Organisation of the United Nations (FAO), a global operational drought monitoring system. We could contribute the UNESCO project with the (co-)development of a Near Real Time early warning system for drought monitoring which could integrate data from different satellites and even other datasets already available by UNESCO and partners.

* *Support in developing and implementing user oriented tailord climate services*

Our experts could work together with UNESCO and local staff to design and implement climate services pilots such as:

* + Incorporation of climate indicators and services into food security monitoring systems
  + Strengthening regional and national level food security early warning systems, to include climate and seasonal monitoring
  + Provision of tailor made climate analysis and/or bulletins to smallholders
* *Capacity building and training on the use of time series for vegetation and rainfall monitoring*

The free and easy to use SPIRITS software developed by VITO and already adopted by various users throughout the world has all the capacities on-board for the generation of early warning indicators based on time series of vegetation indices. We could provide the SPIRITS software and set-up capacity building activities, from simple introductions on the use of EO data till advanced workshops for vegetation and drought monitoring.

* *Analysis of long term time series of EO data for climate services.*

We could contribute the projects by providing relevant information on climate serivces to support adaptation, mitigation and disaster risk management. Possible examples of such information could be: drought vulnerability maps, analyzing phenological parameters and trend analysis of climate and vegetation indices data.