

Challenge 5 „Climate actions, environment, resource efficiency and raw materials”
HORIZON 2020 (8th Framework Programme EU)
Offer for the participation in the project that will be prepared for the 1st call for proposals

The institution	Name: Institute of Technology and Life Sciences, Kujawsko-Pomorski Research Centre
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Is interested in the participation in a project that will be prepared and submitted in the following topic:	
Number of the open topic and Title (from Work Programme)	WATER-2-2014/2015: Integrated approaches to water and climate change
Short description of the organisation: Staff of the centre carries out research and development studies on intensively agriculturally used areas (mainly in Wielkopolska, Kujawy and Pomorze regions) and is active in implementation, dissemination of achievements, advisory, education, training, promotion, invention and monitoring in the scope of: land reclamation, water management in rural areas, irrigation and drainage, water deficit, meteorological and agricultural drought, water balances, water pollution and water quality protection. The subjects of the study carried out in the centre concern on: biological, environmental, agricultural and economic determinants of rational use of soil and water resources of intensively agriculturally used areas. <u>Range of works:</u> water management in agriculture, soil and water quality, nutrient outflow in drainage waters due to agricultural activity, crops water demands, strategies of water management in agricultural catchments, hydro-meteorological protection and flood control with the use of a network of automatic stations in the Wielkopolska, Pomorze and Kujawy regions, modelling of water and nutrient movement in the agricultural catchments in Kujawy using SWAT model, as well as modelling of crop yield (using WOFOST model) and crop winter survival (with modified CERES model).	
Proposed contribution to the project: Our staff is prepared and able to: <ul style="list-style-type: none"> • model crop productivity and water requirements under different management scenarios using SWAT and WOFOST models, • model crop winter survival using modified CERES model, • assess the influence of future climate change on crop yield and water balance in intensively agriculturally used catchments in Kujawy region. <p>Since 2012 we also monitor daily water discharge and nutrient concentration in surface water of pilot catchment in Kujawy region. We can also measure water discharge with standard methods. In the laboratory our staff is able to assay: nutrients (N, P) concentration in surface water and groundwater (using FIA-method).</p> <p>In the Kujawsko-Pomorski Research Centre we have collected multi-year (more than 30 years) daily meteorological data from 3 stations representative for Kujawy region as well as data about physical and chemical properties of soil types typical in that region.</p>	
Chosen references (publications, others): <ul style="list-style-type: none"> • Łabędzki L. Estimation of local drought frequency in central Poland using the standardized precipitation index SPI. <i>2007 Irrigation and Drainage</i> Vol. 56, Issue 1: 67-77. • Śmietanka M., Brzozowski J., Śliwiński D., Smarzyńska K., Miatkowski Z., Kalarus M. Pilot implementation of WFD and creation of a tool for catchment management using SWAT: River Zgłowiaczka catchment, Poland. <i>Frontiers of Earth Science in China</i> Volume 3, Number 2 / June, 2009: 175-181. • Łabędzki L. Expected development of irrigation in Poland in the context of climate change. <i>J. Water Land Dev.</i> 13 (2): 17-29. • Brzozowski J., Miatkowski Z., Śliwiński D., Smarzyńska K., Śmietanka M. Application of SWAT model to small agricultural catchment in Poland. <i>J. Water Land Dev.</i> No. 15, 2011: 157-166. • Velthof, G.L. , Lesschen, J.P. Webb J., Pietrzak S., Miatkowski Z., Pinto M., Kros J., Oenema O. The impact of the Nitrates Directive on nitrogen emissions from agriculture in the EU-27 during 2000-2008. 2013. <i>Sci.of the Total Environment.</i> (in press). 	