SenSPa - Sentinels for Sustainable Pasture Management

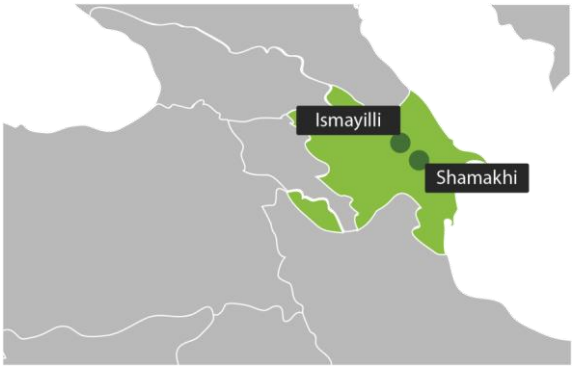
Extended Summary

Scope and Objectives: Governmental authorities, policy makers, land managers and livestock farmers have to take decisions about sustainable pasture management according to the rangeland productivity and status. However, collecting field data regarding the current condition of vegetation (plant cover, forage production) is time and labor intensive leading to lack or discontinuity of data and information and thus, pastures are degrading having direct impact to rural societies.

Addressing activity line 6 "Earth Observations (EO) for Sustainable Development" of the ESA/AO/1-9101/17/I-NB call topic, SenSPa will foster the introduction of a new EO application concept and a EO based tool for stakeholders and users **supporting sustainable pasture management in developing countries**. SenSPa aims to **demonstrate the use EO in pasture management and to develop an innovative EO application for sustainable pasture management**. The information will be made available via a **web-based tool for sustainable pasture management that will be tested in a use case in Azerbaijan**. The implementation of SenSPa will achieve the following Scientific Objectives (SO):

SO1	Develop the necessary infrastructures for supporting automated satellite data acquisition, pre-processing and processing of satellite (Sentinel-2) imagery for pasture monitoring.
SO2	Deliver a cost-efficient, marketable web-based service using up to date satellite information to support sustainable pasture management.
SO3	Demonstrate and verify the added value, flexibility and adjustability of the SenSPa services at regional scales and highlight the expected societal benefits of SenSPa application in developing countries.
SO4	Develop a methodological approach for modeling and assessing grassland productivity, rangeland condition and grazing capacity.
SO5	Engage stakeholders and promote the use of the SenSPa tool.

Geography: SenSPa is targeting Central Asia countries, whereas a case study is foreseen for testing and evaluating the system in Azerbaijan. In Azerbaijan, 40% of the working population is making some part of their living in agriculture. The government has targeted agriculture as one of the priority areas of diversification of Azerbaijan's economy. The demonstration use case in Azerbaijan will **highlight the benefit of SenSPa products and derivates** to its application in pasture monitoring and management.



Concept: SenSPa will promote a **multi-actor working scheme**, where EO experts come together with pasture management scientists, ICT experts, policy makers, agri-business representatives and farmers (including cooperatives), and act in a multi-disciplinary and synergistic way to provide **added-value, cost-efficient and real-life-tangible solutions** to various user categories.

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In specific, Sentinel images will be utilized to derive specific indicators that are used for vegetation monitoring and combine them with other ancillary data (soil maps, elevation data, livestock farming and farm data, etc.) in order to assist sustainable pasture management, decision making, planning of activities and in the long-term pastures' restoration. The information will be available to local and national public administrations, public and private stakeholders, as well as end-users, via a **web-based tool** that will be processing **continuously updated satellite data** along with ancillary data in order to **provide useful, up to date information for sustainable pasture management**.

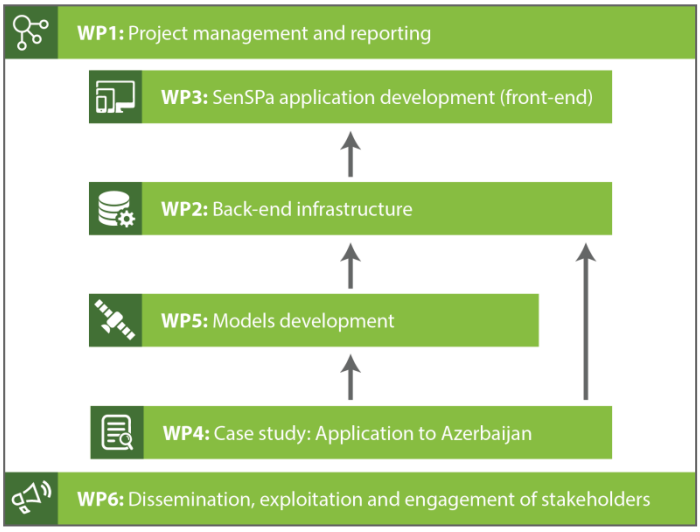
Users' Needs: SenSPa will address the needs of Governmental authorities, local administrations, public and private stakeholders and farmers/pastoralists regarding **efficient monitoring and sustainable pasture management. Nowadays, there is lack in such technology.** These stakeholders will be provided with **sound and up-to date evidence on the pastures status to reinforce decision making and planning mechanisms**.

Impact and benefits: The specific Activity Line (6) of the call intends to support international responses to global societal challenges. The expected impact and benefits arising from the innovative outputs of SenSPa correspond to **societal, economic and environmental benefits and increase of livelihood due to sustainable pasture management and improved grazing management**, such as:

1	SenSPa will contribute in a viable and locally adopted sustainable pasture management, that will reduce costs and increase the household income.
2	The SenSPa tool will allow sustainable pastureland production, leading to the increase of animal production (milk, meat etc), employment and investments.
3	SenSPa will support integrated and sustainable environmental planning, that will contain pastures degradation and in the long-term lead to pastures' restoration .

SenSPa is in line with the UN Sustainable Development Goals (SDG) and specifically addresses/contributes to reach the following: **SDG1 No poverty, SGD2 Zero hunger, SDG3 Good-health and well-being, SDG8 Decent work and economic growth, and SDG15 Life on land**.

Workflow: A flow chart presenting the logical flow of work in SenSPa is presented in the side diagram.



For more information please visit:
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