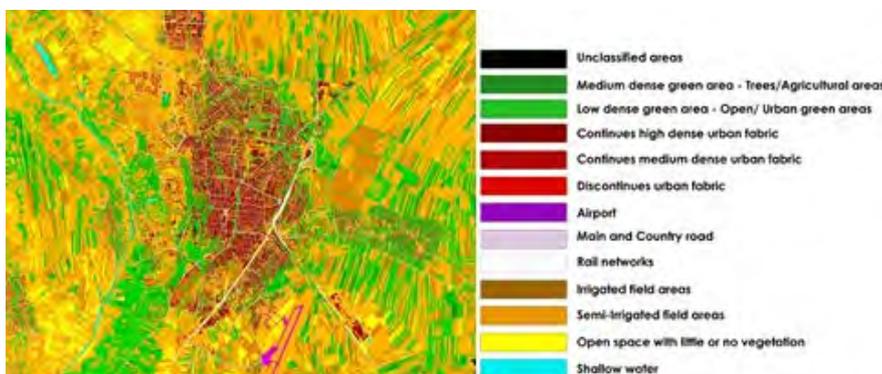


SETTLEMENT CHARACTERIZATION AND CHANGE ASSESSMENT

Urbanization represents a major challenge for water, sanitation and risks management. While cities in developed countries often struggle with high operation and maintenance costs and the decay of existing infrastructure, in the developing world rapid urban growth is seriously outstripping the capacity of most cities to provide adequate services to their citizens with the consequence of leaving an increasing number of people without access to basic water and sanitation services. In addition, expansion of soil sealing in urban areas limits infiltration and generates faster runoff within the watershed, increasing the risk of flooding following storm events and pollution in lakes, rivers and coastal waters by discharge of wastewater and sewage.

Earth Observation is becoming instrumental in geographical applications and demonstrated its usefulness in analyzing and forecasting changes in urban characterization and its impact on the hydrology of the urban and suburban environment, offering a reliable tool for decision making in. Various types of thematic analysis for urban management can be performed when combining these products with other geospatial and statistical data, such as demographic and socio-economic data. Spatially referenced indicators can be directly inferred and continuously updated for trend analysis. Indicators comprise for example population density, land consumption per capita, pressure on green urban areas, the exposure to natural hazards and climate change related risks. Furthermore, urban land cover and use maps serve as a starting point for a range of urban planning applications related to infrastructure development, soil protection, waste management, water supply and sanitation, and flood risk control etc.



Baseline urban classification map Gyumri city and surroundings, Armenia

SUMMARY

CHALLENGE

- Need for updated land information in urban areas for long-term planning of water demand and supply
- Need to identify urban infrastructure exposed to water related disasters
- Need of identification of potentially high risks areas regarding water issues such as contamination and access

SOLUTION

- The Earth Observation products can serve as reference information for short-term evaluation of water needs, and long-term decision-making processes regarding water quality protection, water-related disasters prevention and water supply distribution

VALUE

- Proper identification of urban infrastructure vulnerable to flooding, landslide risk and other water related-disasters
- Identification of human activities potentially contaminating water bodies and groundwater
- Earth Observation as an active tool in the decision-making process for urban water demand and supply

Satellite Earth Observation (EO) technology has a tremendous potential to inform and facilitate international development work. Since 2008 the European Space Agency (ESA) has worked together with the International Financing Institutions (IFIs) and their client countries to harness the benefits of EO in their operations and resources management.

EO4SD – Earth Observation for Sustainable Development – is an ESA initiative which aims to achieve a step increase in the uptake of satellite-based information in the IFIs regional and global programs, aiming at more systematic data user approach in order to meet longer-term strategic geospatial information needs in the individual developing countries as well as international and regional development organizations.

The EO4SD initiative cover a wide range of thematic domains including Water Resources Management which is regarded as one of the most critical development challenges.

The activities will start in spring 2016 and will run for a period of three years. The first year will be dedicated to stakeholder engagement and requirements consolidation and with years two and three focusing on information production, delivery and capacity building.

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