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## Time to "Rewet the Swamp" – Application of Georgian Data Cube to Elucidate Drainage Patterns and Potential for Wet Agriculture and Forestry on Kolkheti Lowland

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It was established recently that gravity drainage is inefficient on Kolkheti Lowland along the Black Sea coast of Georgia and that novel approaches are urgently recommend, such as implementing rewetting schemes to restore ecosystem services and enhance economic values of these areas through wet agriculture, biofuel production with native wetland species, and/or afforestation, to achieve sustainable outcomes in both ecologic and economic terms. Water Detection, Fractional Cover and Urbanization remote sensing tools, provided by Georgian Data Cube (comprising Landsat sensor Analysis Ready Data), developed recently with UNEP/GRID support, were applied on multi-year timescale basis for Kolkheti lowland to identify priority areas with high potential for rewetting. Water Detection tool allowed establishment of low effectiveness drainage areas, as demonstrated by high cumulative values for the presence of water, indicating water-logged areas as potential intervention sites for wet agroforestry. Water Detection combined with Fractional Cover tool allowed comparative analysis of non-photosynthetic vegetation and bare soil areas versus high water detection areas to single out those lands on the Kolkheti lowland, where drainage seems effective and dry agriculture is pursued versus those lands where drainage is not effective and dry agriculture is not actually happening. Urbanization tool can also be applied to detect human activities, such as agricultural activities, visualising those areas, which are subjected to active vegetation removal on an annual basis due to crop harvesting and those areas, where vegetation was not removed, staying vegetated most of the time, interpreted as abandoned agricultural lands. Regular patters combining non-use agricultural with cumulative water covered areas could thus help locate candidate sites for piloting wet agriculture on Kolkheti Lowland in Georgia. In addition to sustainable economic practices, rewetting could certainly benefit core ecological areas of Kolkheti Lowland, protected by both national designation as Kolkheti National Park and international designation as Central Kolkheti Ramsar Site.