Leveraging Technology In Invasive Species Mapping

SERVIR
Eastern & Southern
AFRICA

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Why this project?

Kenya has had several invasions of alien species that have had negative impacts on biodiversity, agriculture and human development. For instance, prickly pear out-competes native plants, precludes grazing and browsing near it, and inhibits the proliferation of indigenous species. The Northern Kenya Rangelands in the recent decades has experienced increased infestation by invasive plant species shrinking forage space available for both livestock and wildlife. An Invasive Species App has been co-developed and is currently being used in tracking locations and sightings of invasive species of trees or shrubs and the extensiveness of their effects. The App is customized to include any list of local invasive plants present in an area, take photos of the invasive species and is also able to work offline in cases of no internet connection in the remote areas.

Fig. 1: A section of wildlife/livestock forage land infested with *Acacia reficiens*, degrading and narrowing space for conservation.

Approach/Project Activities

Fig. 2: Android Application's Main Page

Fig. 3: Application's Conceptual Framework.

Fig. 4: A rangeland coordinator collecting Opuntia Spp distribution data using invasive species app

Results

Fig. 5: Snippet of data storage table in the spatial database

Fig. 6: ISMS web geoportal, levering GEE; this is handy in validating the collected field points

Fig. 7: Snippet of Downloaded data from ISMS (Invasive Species Mapping System) web geoportal

Objectives

▶ To enable tracking locations and sightings of invasive species of trees or plants.

▶ To map extensiveness of the invasive species effects on forage lands.

▶ To enhance paper-less field data collection and transfer; securing and delivering data to the office in near real-time.

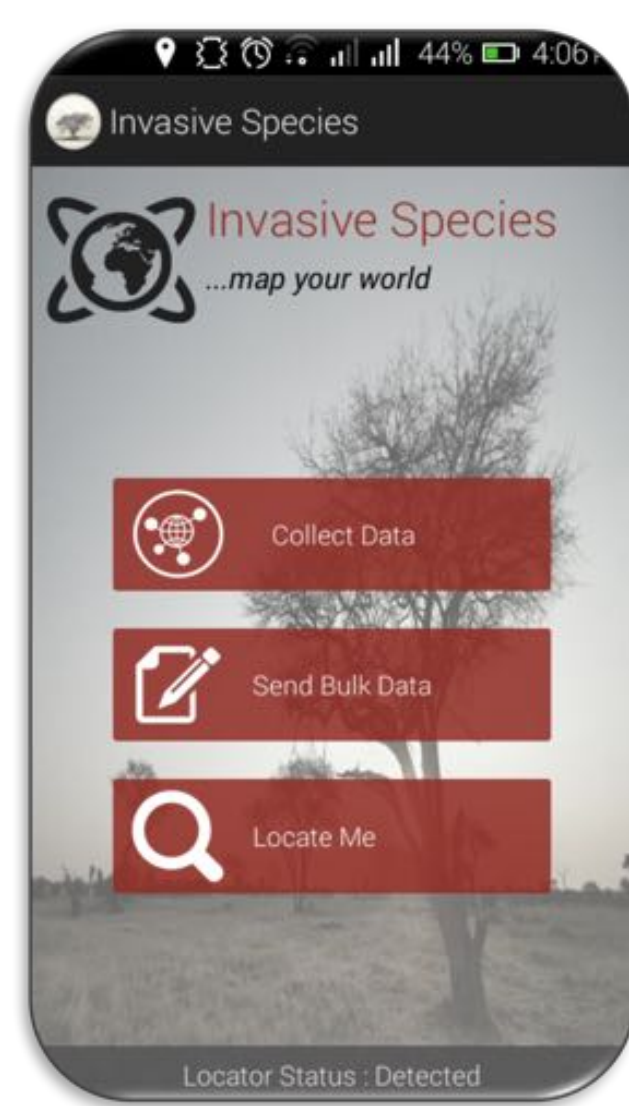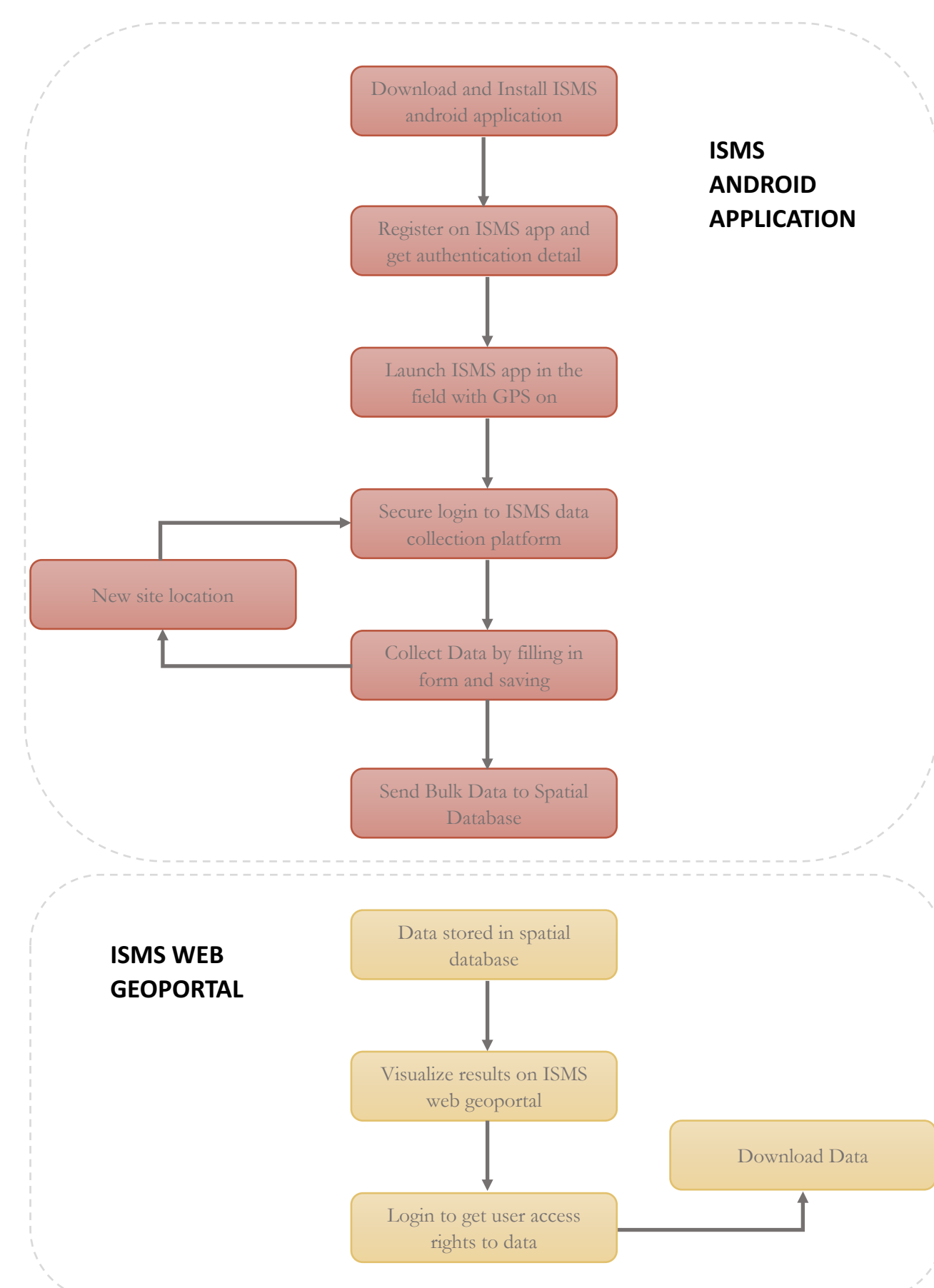▶ Improving quality and accuracy of data for monitoring invasive species.

Earth Observations and Other Inputs

Field data collection on invasive species occurrence and distributions, and predictor variables data: Mapping and modelling the current and future habitats of invasive species requires data on their occurrence and distribution. Besides explanatory variables (roads, degradation, settlements etc.) provide information on species distributions;

Acquisition and processing of Earth observation, climatic, bioclimatic and GIS data: Acquiring and conducting image processing of remote sensor data to extract invasive species habitats information. Climatic data is essential in future suitable habitat projections.

Outcomes/Anticipated Impacts

▶ Improved capacity for stakeholders trained in the usage of an application system for near real-time field data collection.

▶ Improved utilization of the App for invasive species data collection and analysis.

▶ Increased awareness on ISMS (Invasive Species Mapping System) tool and invasive species distribution data.

Project Partners

▶ NRT – Northern Rangeland Trust

▶ LWF – Laikipia Wildlife Forum

▶ KWS – Kenya Wildlife Service

▶ LEWA – Lewa Wildlife Conservancy

▶ ZSL – Zoological Society of London

▶ Marwell Wildlife

▶ Mount Kenya Trust

Project End Users

▶ Academic & Research Institutions

▶ Non-governmental

▶ Learning Institutions

▶ Community-based organizations

▶ Local communities

▶ Conservation organizations

▶ County governments