

THE USE OF SATELLITE IMAGERY AND ARTIFICIAL INTELLIGENCE TO ANALYSE CRITICAL ROAD LINKS

Technical workshop

13th November 2023
Addis Ababa, Ethiopia

Concept Note

1. Background

At least 80% of persons and goods in Africa are transported by road, making roads the most significant continental asset. Roads are significant, highly valuable, and unmaintained public assets. However, the high value of the road network can be rapidly compromised, as well as the safety of road users and their activities. Inadequate corridor road maintenance could result in, among other things, delivery delays, road accidents, and an increase in the cost of final products. Digitalization can aid in improving maintenance management and achieving high levels of efficiency.

Research and innovation remain the centrepiece of transport optimization through digitalization. Regarding digitalisation, ECA seeks to work with member States and corridor management organisations to harness innovative technology to improve the efficiency of regional transport corridors. It also seeks to use satellite imagery and artificial intelligence to assess the condition of transport corridors in the context of the Programme for Infrastructure Development in Africa (PIDA) and the implementation of the African Continental Free Trade Area (AfCFTA). Hence, as 80% of commodities and people in Africa are moved by road, the condition of the latter is crucial for the smooth implementation of the AfCFTA. To this end, ECA, through the Private Sector Development and Finance Division and the African Centre for Statistics, has worked with the Centre for Transport and Logistics of the Sapienza University of Rome to implement a pilot project on the LAPSSET Corridor (Lamu Port – South Sudan - Ethiopia Transport Corridor). The project resulted in the development of a methodology that uses a combination of satellite images and artificial intelligence to assess the condition of regional transport corridors.

The objective of this study research is to use satellite images and artificial intelligence to assess the condition of roads identified as critical to optimizing the benefits of the African Continental Free Trade Area. In the frame of the project implementation, ECA projected to build its own capacity and that of its member States to assess regional transport corridors using satellite images and artificial intelligence.

The first phase of the project consisted in a scoping process with the definition of an assessment system based on GIS and artificial intelligence. The second phase consists in the development of an accessible GIS/AI tool for corridor management institutions and its effective use on selected corridors.

2. Objective

The objective of the Capacity Building Workshop is to provide a first interactive training to corridor management institutions and selected countries on the process and proceed with the calibration of the tool. The meeting will also allow Experts from the University of Sapienza and ECA to adjust the tool to some realities expressed by the users.

The first part of the workshop will focus on opportunities provided by digitalisation and artificial intelligence to support the transport sector. It will also be an opportunity to share knowledge on advanced technologies and digital solutions applied to transport infrastructures.

The second part will present the ECA research project as well as the tool, which is still under development and assess the need for supplementary information from Corridor management institutions.

The last part of the meeting will provide opportunity to Corridor management institutions to share their actual system of maintenance as well as their thoughts on the tool and their needs.

3. Expected outcome

The capacity building sessions will impart participants with enhanced understanding on the benefits and advantages of using innovative and smart technologies in transport infrastructure.

Essentially, the outcomes of the workshop are:

- Better understanding of new tools and opportunities offered by digitalisation to improve transport systems and transport infrastructure operation and management;
- Expectations and needs of Corridor Management Institutions are well discussed and mainstreamed;
- The parameters to calibrate the tool of ECA are defined and agreed upon.
- Improvements of the tool are outlined.

4. Format of Session

The presentations will be followed by general discussions. The meeting will be in hybrid format, both in-person and virtual.

5. Language of the meeting

The meeting will be held in English.

6. Participation

The workshop will be attended by representatives of member States, African Union Commission, Regional Economic Communities (RECs), United Nations organisations, UIC (Union Internationale des Chemins de Fer), academia and sectoral organisations, LAPSET Corridor Authority, Central Corridor Transit Transport Facilitation Agency (CCTTFA); Northern

Corridor Transit and Transport Authority (NCTTA); Rwanda, Uganda, Ethiopia, Kenya, South Sudan, Tanzania.

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