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GIS @JSI



Using GIS to Optimize Delivery Systems in Tanzania

Optimizing delivery systems is increasingly recognized in countries as a way to save resources, reduce stock-outs, and streamline health logistics, thus ensuring access to life-improving health commodities when and where they are needed.

In 2013, JSI, through the USAID | DELIVER PROJECT, received a request from the Government of Tanzania to help improve supply chain efficiency by optimizing the direct delivery system. By analyzing delivery routes to local health facilities and assessing transport resources, the Medical Stores Department (MSD) could reduce the cost of distribution.

The JSI team brought together several different complex data points to achieve the goal. First, the team had to find local health center locations—only about 60% of the facilities had a validated geocode.

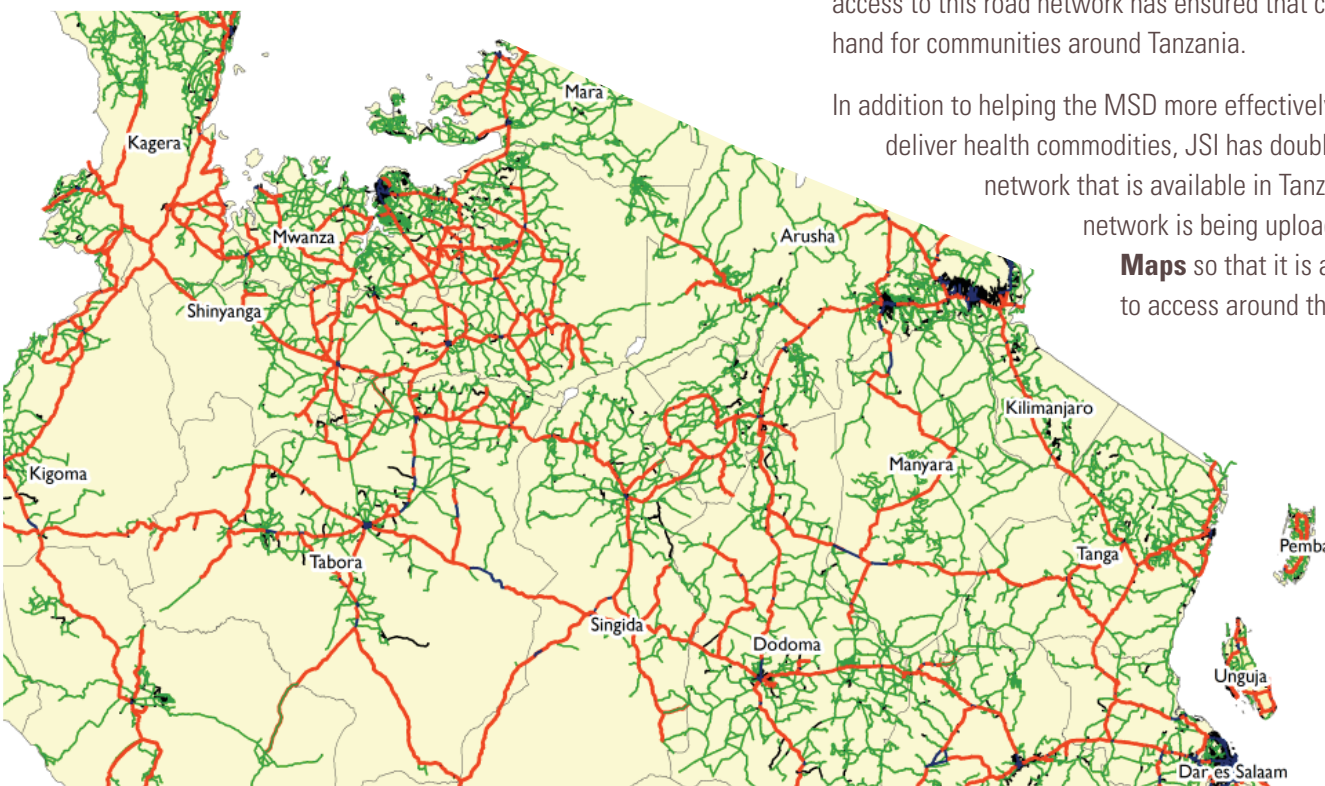
Second, many roads needed to be mapped and travel speeds calculated—including the variable speeds between the wet and dry seasons, particularly on dirt roads.

Using the data collected from delivery trucks' GPS devices, the JSI team was able to map the secondary road network across the entire country and classify all roads in terms of travel speeds.

After merging the data, JSI developed a quality assessment process to ensure that every line and every facility was connected to the digital road network, and then began the road network analysis. Driving distances for a vehicle in average conditions as well as differentiating between wet and dry seasons was calculated. JSI's quality component shows the actual roads and the speeds possible based on road conditions.

Today, health commodity deliveries in Tanzania are more predictable and reliable, thus saving funds in the short and long-term. Ultimately, access to this road network has ensured that commodities are on hand for communities around Tanzania.

In addition to helping the MSD more effectively and efficiently deliver health commodities, JSI has doubled the digital road network that is available in Tanzania. The road network is being uploaded to **Open Street Maps** so that it is available for everyone to access around the globe.



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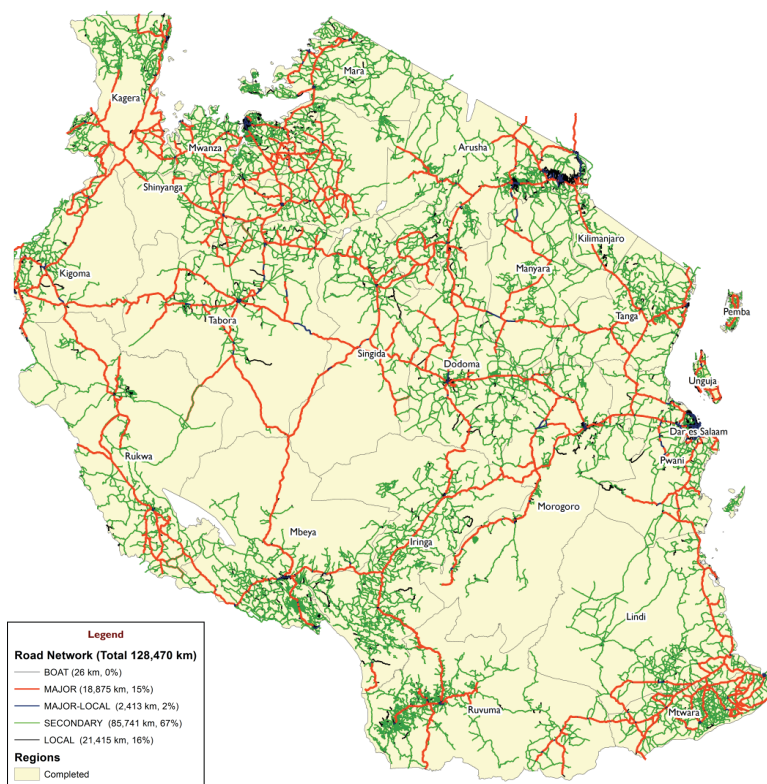
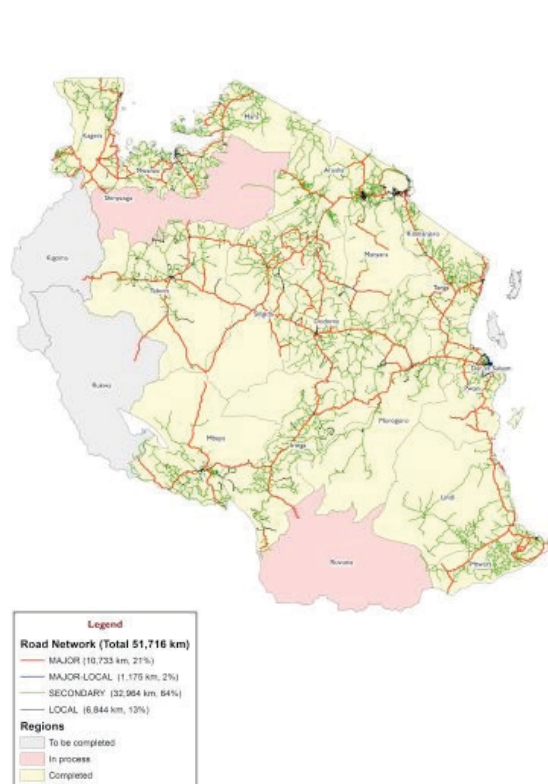
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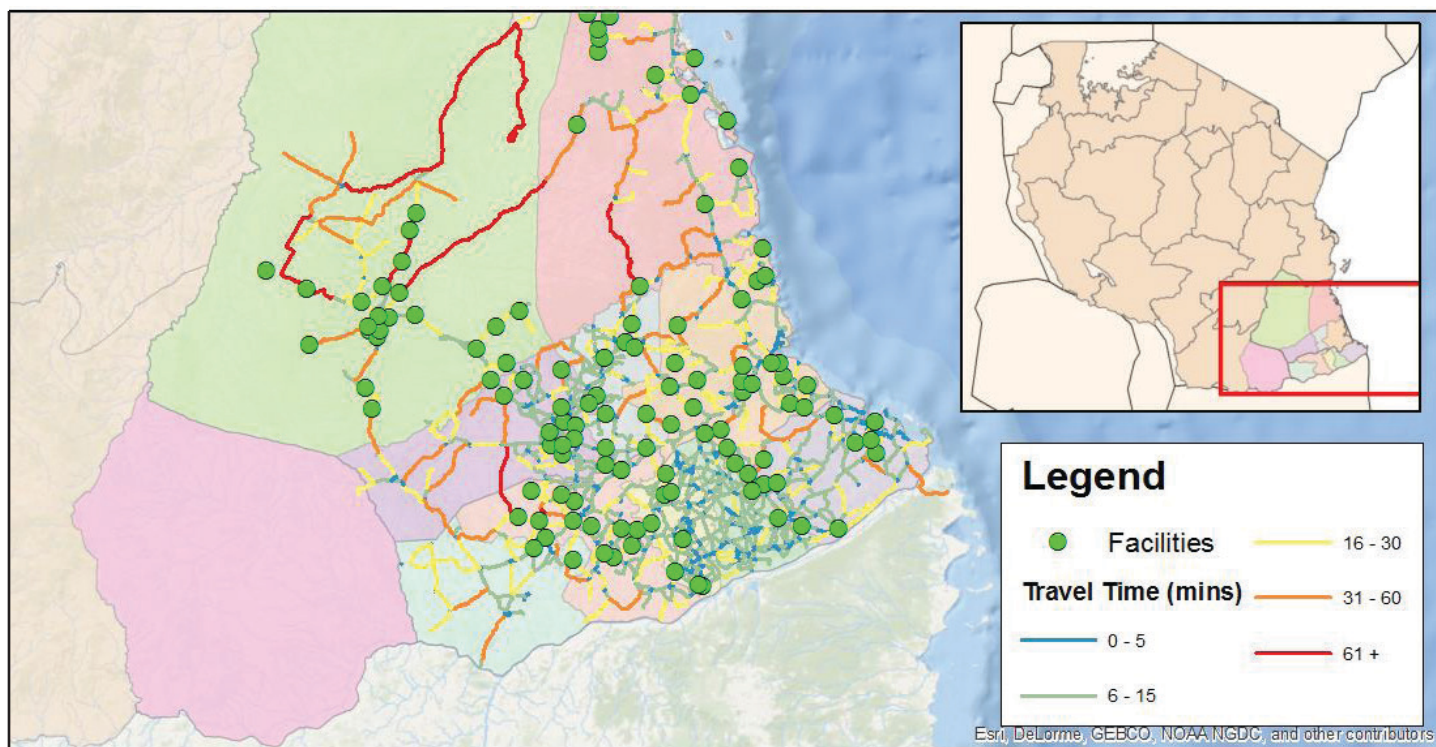
Tanzania

Road Network Mapped (May 2014)

(August 2015)



Combined new road and facility location data



John Snow, Inc., is a public health consulting firm working in the US and in more than 70 countries around the world. Continuing the pioneering public health principles developed by Dr. John Snow to halt a cholera epidemic in the 1840's, we use mapping technology to unlock and analyze critical public health information.