THE PROMISE OF A SILK ROAD— CHINA-PAKISTAN ECONOMIC CORRIDOR (CPEC)

Analyzing the Political and Economic Viability of the Proposed CPEC Highway Network

INTRODUCTION

The China-Pakistan Economic Corridor (CPEC) is an ambitious multibillion-dollar agreement announced in 2015 by the Chinese President Xi Jinping and Pakistani Prime Minister Muhammad Nawaz Sharif. Central to CPEC is the development of a highway network, dubbed part of the new silk-road initiative of China, that will give China land access to the warm-water port of Gwadar, permitting China to further expand its global influence.

In Pakistan, CPEC has been labelled a “game-changer” by leaders. It offers to create economic opportunity for many Pakistanis through access to trade and infrastructure, particularly in underdeveloped areas. However, it has also stirred political controversy from provinces that have long felt economically marginalized. As a result the government has announced a plan to develop multiple routes (see image CPEC routes) that utilize the existing highway network to politically or economically significant regions to the route. A special branch under the Pakistan Army has also been established to guard the trade route against security threats.

This project aims to understand the viability of the proposed CPEC highway network by understanding the following:

1. Determining where the trade route is vulnerable to violence
2. Calculating how many people (by province and route) will be in close proximity to the trade route to ensure greater political acceptability
3. Discerning whether emerging economic regions in Pakistan are connected via the trade route to determine the extent of connectivity

ANALYSIS 1 - VULNERABILITY TO VIOLANCE

METHODOLOGY

Security of the trade route has been a paramount concern of both the Chinese and Pakistani governments. However, at the same time, the route offers to create economic opportunity with the asumption that it will inhibit violence in the long-term. To analyze this, the XY data of violence from the Global Terrorism Database (GTD) for the period 2000-14 was plotted. Using this data, the following maps were generated: Districts Vulnerability to Violence, and Regions Experiencing Increasing Violence from 2005-2014. For the violence analysis, buffers around each of the routes were generated to determine which one had the highest degree of violent incidents in its proximity.

ANALYSIS 2 - ROUTE ACCESS

METHODOLOGY

To determine route access, CPEC highway network was generated using both the road network available on Humanitarian Data Exchange (HDX) and by manually creating line data for missing spots, using the Government of Pakistan proposed CPEC route and Open Street Map as a guide. Subsequently, 5KM, 10KM, 25KM and 50KM buffers were created around the entire highway network. Zonal statistics pertaining to the buffers were created, using the LandScan 2005 population data, to determine the population living within the radii mentioned earlier. Population data within the vicinity of the route was analyzed on national and provincial levels. The hypothesis of this portion of the study was that the greater the percentage of people living within the buffer zones, the greater the political acceptability of the route.

ANALYSIS 3 - CONNECTIVITY OF EMERGING REGIONS

METHODOLOGY

Given that regional economic data was not readily available on Pakistan, the Stable Lights at Night data from the Night from National Oceanic and Atmospheric Administration (NOAA) was used as a substitute. This dataset is increasingly utilized by economists as a proxy for economic growth. Raster data from 1993 was subtracted from that of 2013 to determine areas of major growth over the last 20 years. Within this areas, areas of growth were ranked on a scale of 0.1% to 1500% based on the variations in light data.

DISCUSSION

Based on the analysis, it is evident that areas around the highway network have experienced economic growth by significant amounts over the last 20 years. However, this analysis was solely conducted to determine areas of growth and does not analyze other regions nationally that might have faced stagnation. Therefore, this should not be interpreted as national growth but only that of certain regions, particularly those around the CPEC network.

DATASETS


Cartographer: Usman Mohammad
Class: GIS for International Applications, DHS 207, Spring 2016
Projection: Transverse Mercator (WGS 1984 UTM 41N)
May 9, 2016

INCIDENCES OF VIOLENCE IN 2014 IN A 10 KM RADIUS OF THE TRADE ROUTE

The maps above and the table on the left indicate that the CPEC highway network faces several security threats, with certain districts and routes being especially vulnerable. Securing the route will be paramount to ensuring that each route leads to prosperity in accompanying regions.

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