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 VIOLENCE

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 assumption 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.
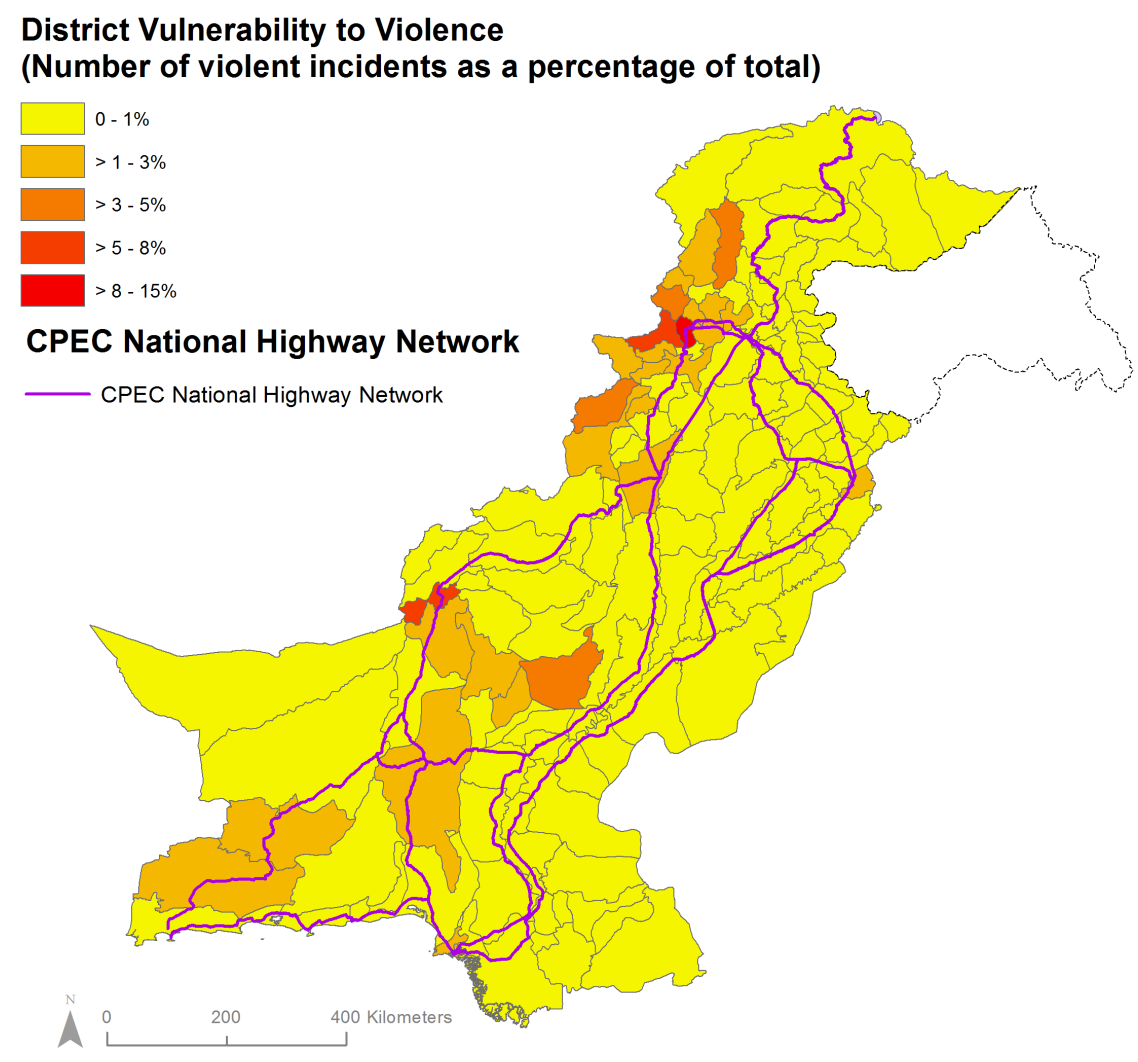
INCIDENCES OF VIOLENCE IN 2014 IN A 10 KM RADIUS OF THE TRADE

| CPEC Routes (see map CPEC Routes)	INCIDENTS OF VIOLENCE IN A 10 KM RADIUS
CENTER	281
EASTERN	2887
NORTHERN	67
WESTERN	2504
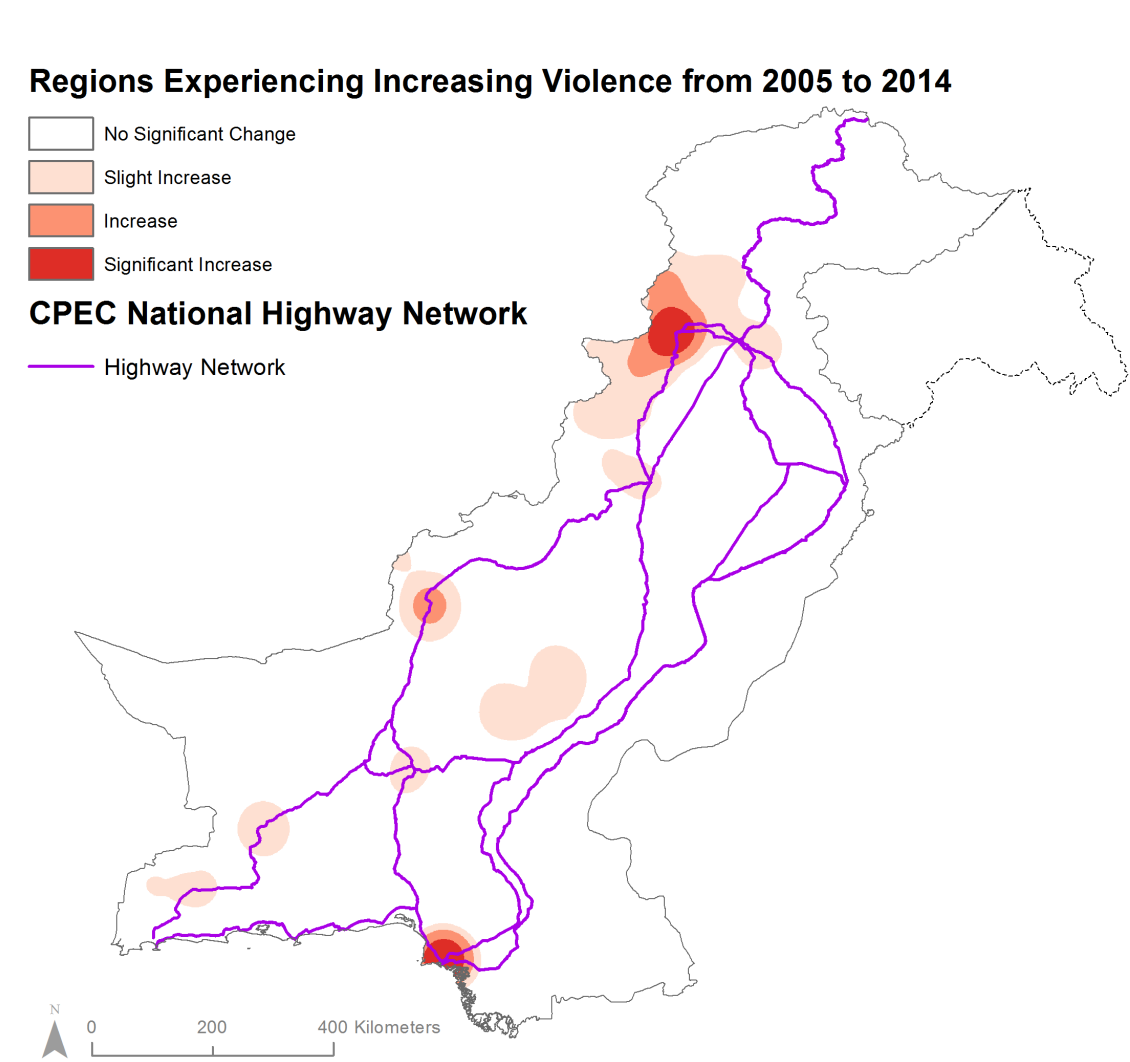
DISCUSSION

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.
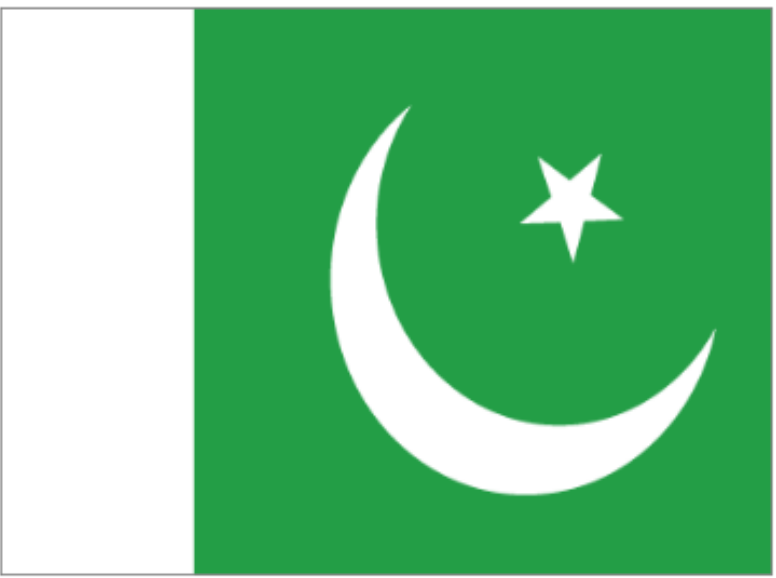
ANALYSIS 2 - ROUTE ACCESS

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.

CPEC ROUTES
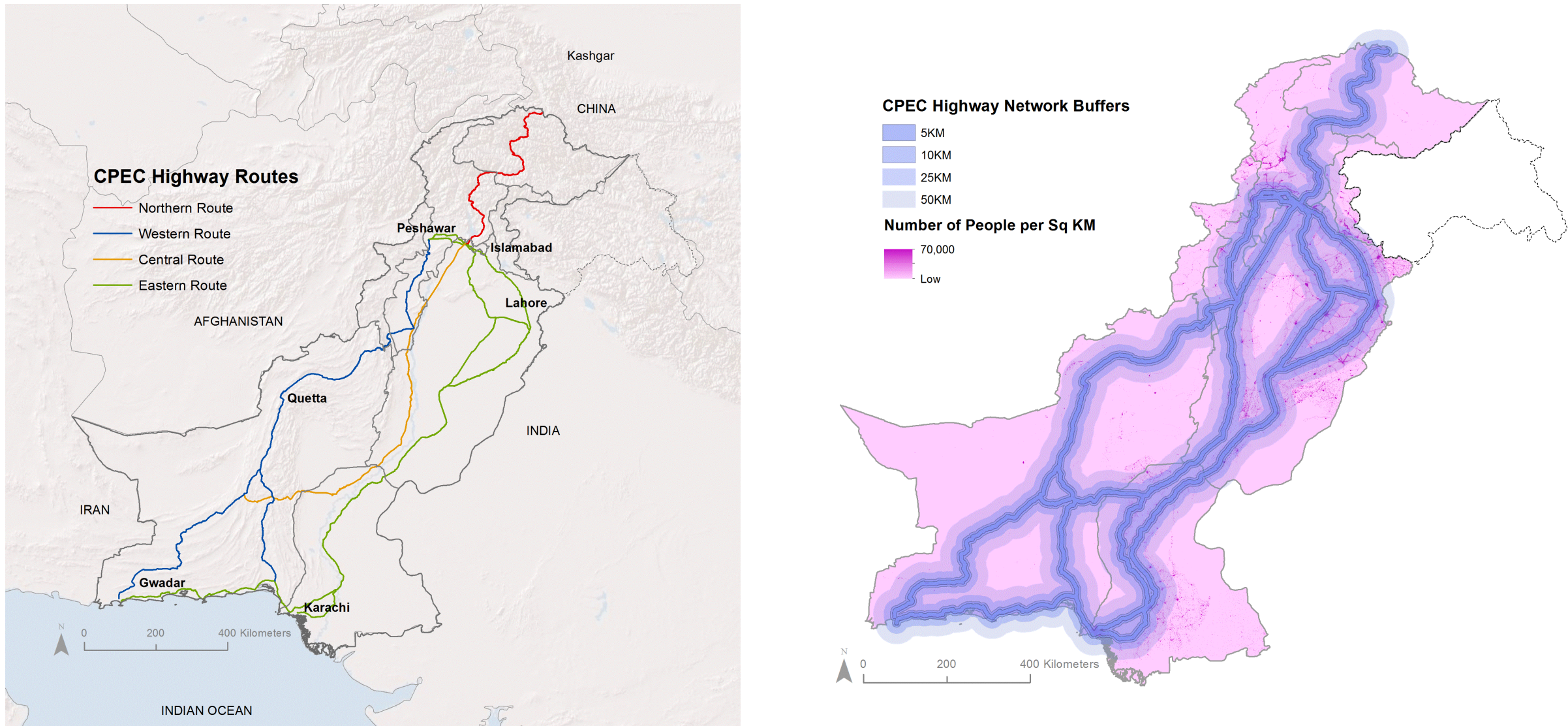
POPULATION PROXIMITY TO THE CPEC HIGHWAY NETWORK (BY REGION, IN KILOMETERS (KM))

	5KM	%	10KM	%	25KM	%	50KM	%	Population (2005)
Pakistan	50M*	31%	70M	43%	105M	65%	139M	86%	162M
Azad Kashmir	0	0%	27K	1%	1.2M	31%	3M	75%	4M
Baluchistan	2.1M	27%	2.5M	32%	3.3M	43%	4.9M	64%	7.6M
FATA	17K**	0%	28K	1%	138K	5%	824K	23%	3.5M
Gilgit-Baltistan	298K	27%	344K	31%	462K	42%	707K	64%	1.8M
Islamabad	289K	16%	946K	53%	1.7M	96%	1.7M	96%	21.6M
Khyber Pakhtunkhwa	7.0M	33%	9.4M	44%	14M	67%	18M	85%	1.1M
Punjab	22M	27%	34M	40%	56M	65%	77M	90%	86M
Sindh	17M	49%	22M	62%	27M	77%	30M	86%	36M

POPULATION PROXIMITY TO THE CPEC HIGHWAY NETWORK (BY ROUTE, IN KILOMETERS (KM))

ROUTE	5KM	10KM	25KM	50KM
CPEC Eastern Route	36M*	54M	87M	115M
CPEC Western Route	4.5M	5.9M	9.4M	15M
CPEC Northern Route	3M	4M	5M	12M
CPEC Central Route	3.9M	5.9M	12M	29M

*M = 1,000,000

*M = 1,000,000 and **K = 1,000 individuals

DISCUSSION

Based on 2005 population data, most major regions have 25% or greater of their population within a 5KM radius of the highway network. Almost all regions also have a majority of their population within a 50KM radius, indicating that the route does provide connectivity to the majority of the masses within Pakistan. An estimate of populations within different radii was also conducted by route to see which route provides access to the greatest number of people.

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.

HISTORIC ECONOMIC GROWTH IN REGIONS SURROUNDING THE CPEC HIGHWAY NETWORK

LIGHTS AT NIGHT 1993   **LIGHTS AT NIGHT 2013**

% ECONOMIC GROWTH FROM 1993 TO 2013 NATIONALLY	% OF AREA IN A 10 KM RADIUS EXPERIENCING GROWTH
0—50 %	85%
50—100%	15%
100—500%	0.15%
500—1500%	0.01%
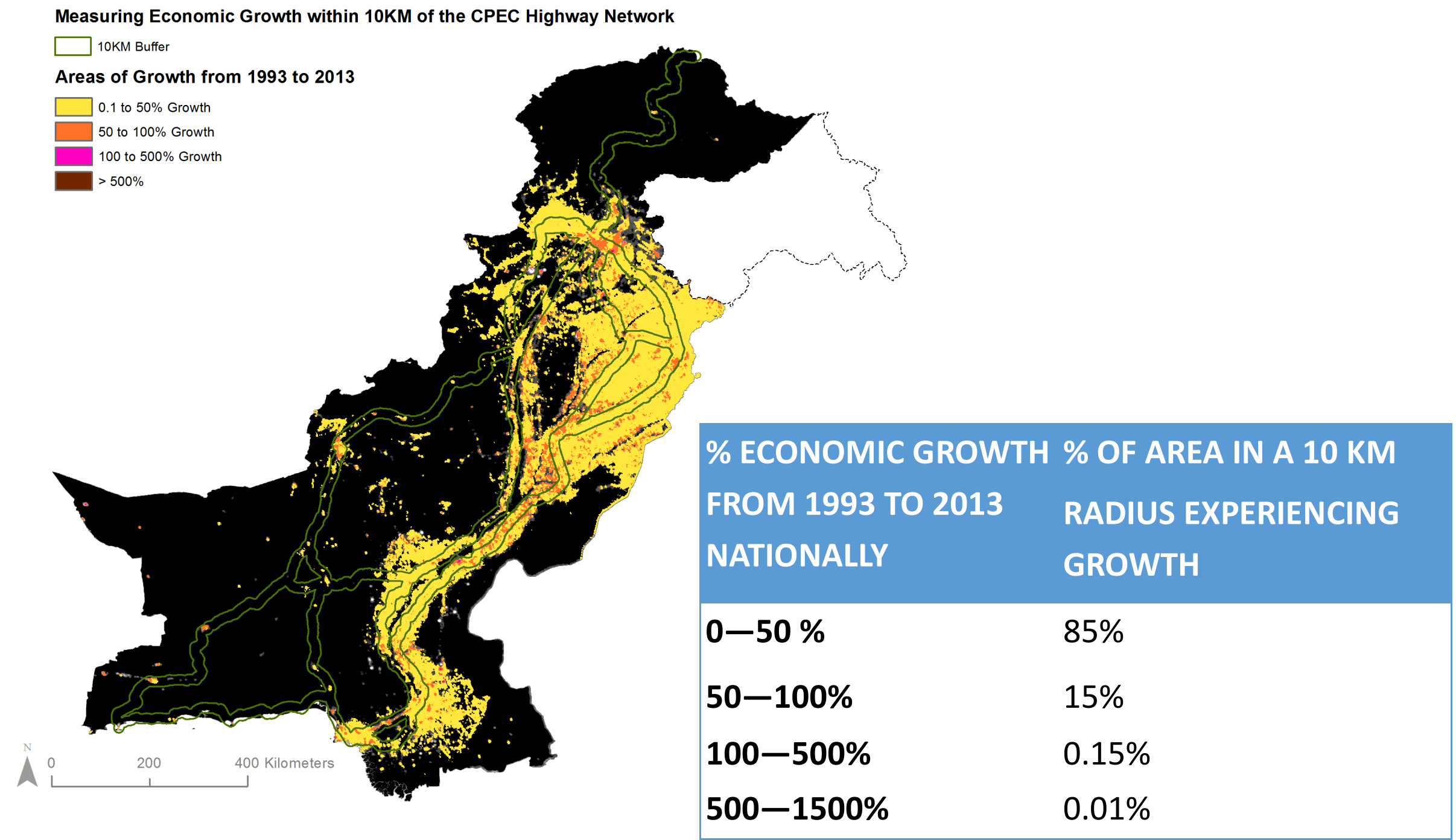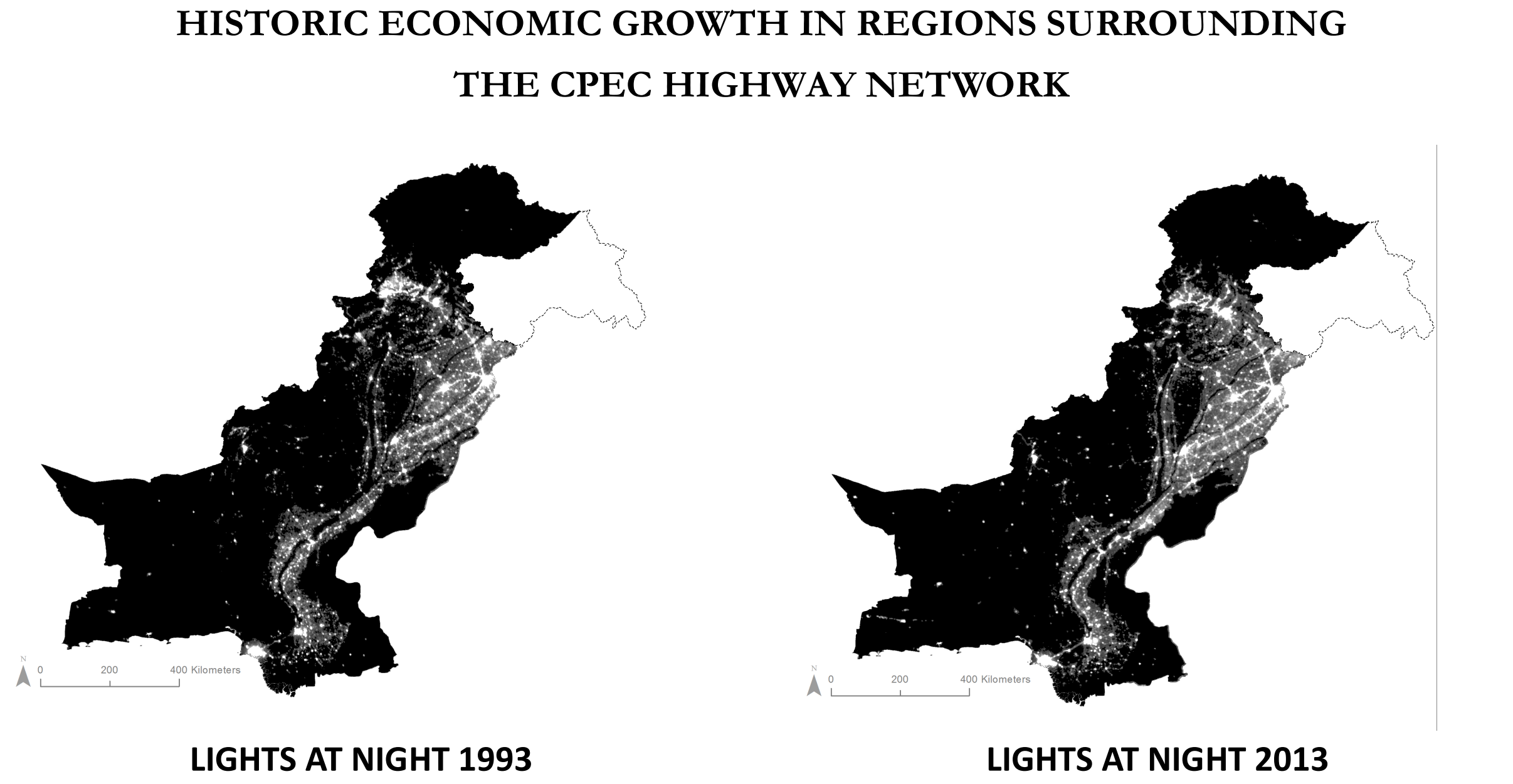
DISCUSSION

Based on the analysis, it is evident that regions around the highway network have experienced economic grown 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.

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