

Prospects, Opportunities & Preparedness for CPEC

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Introduction

Geo-strategic Competition and Silk Roads

Soviet Approach



US Silk Roads Concept



CPEC/ Chinese B & R Initiative



Scope

- **CPEC Long Term Plan: Prospects and Opportunities for Socio-economic Development**
- **Academic Preparedness for CPEC**
- **Conclusions for Engineers & Engineering Education**

**CPEC Long Term Plan:
Prospects & Opportunities
for
Socio-economic Development**

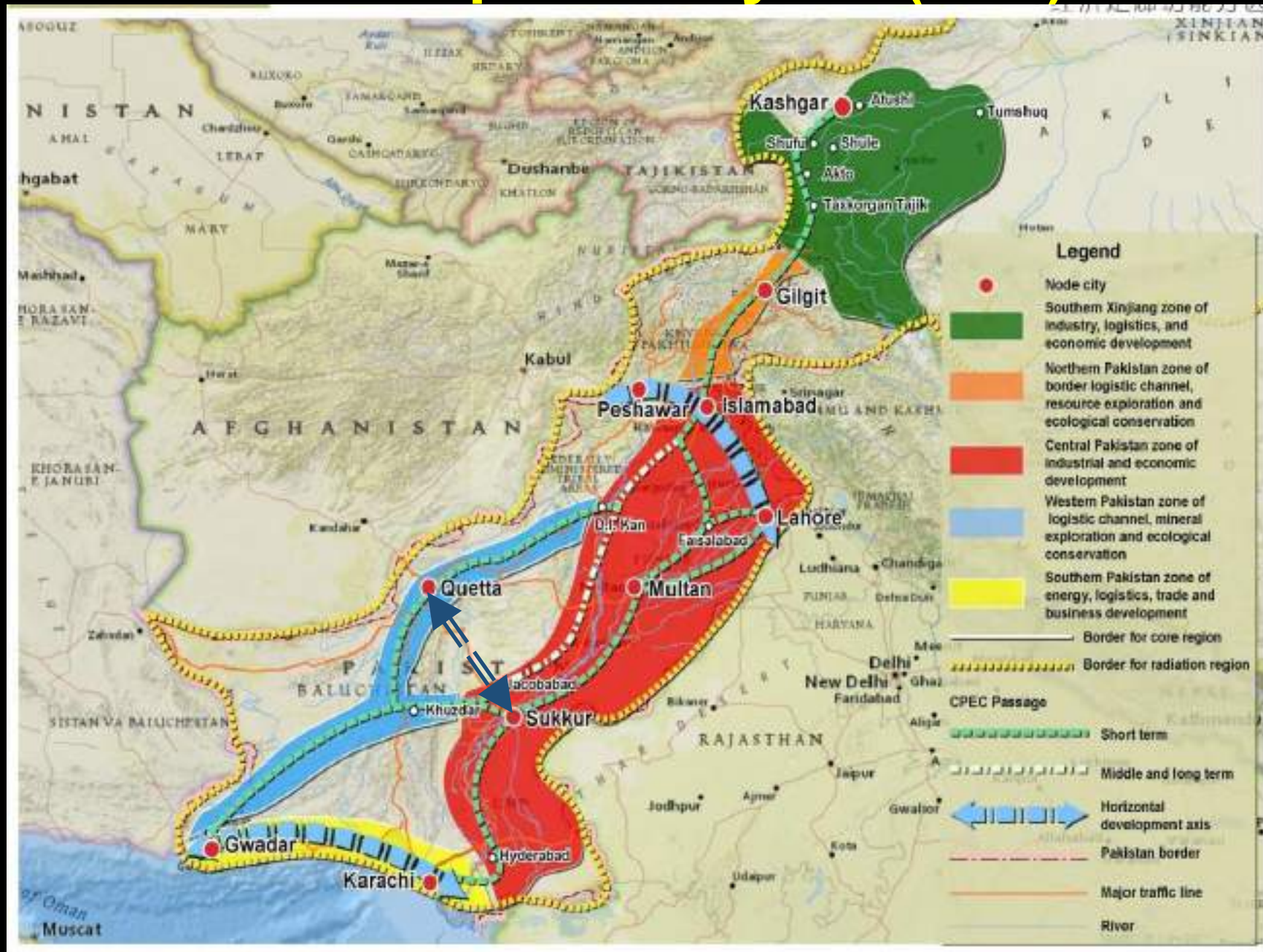
CPEC Long Term Plan

- (1) **Connectivity**, including infrastructure, for integrated transport system and establishment of digital corridor,
- (2) **Energy**-related infrastructure,
- (3) **Trade & industrial parks**,
- (4) **Agriculture & poverty alleviation**,
- (5) **Tourism** and development of **ocean economy**,
- (6) Cooperation in areas concerning people's **livelihood** & non-governmental exchanges and
- (7) **Financial cooperation** and border management.

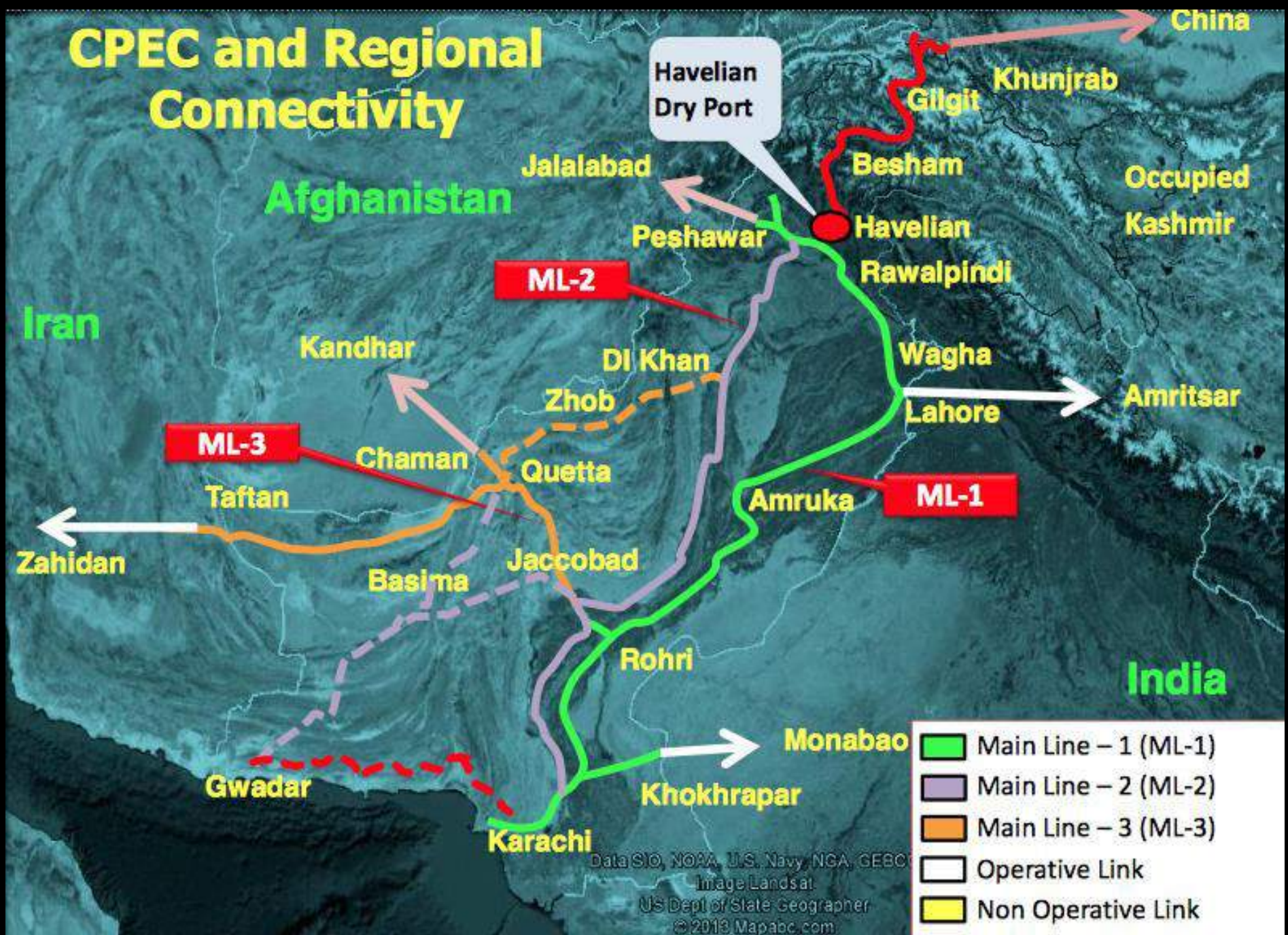
Timelines

- **Short-term** - Corridor will take initial shape - **2020**
- **Mid-term** - It will basically be established - **2025**
- **Long-term** - It will be fully completed - **2030**

CPEC: Spatial Layout (LTP)



CPEC and Regional Connectivity



Data SIO, NOAA, U.S. Navy, NGA, GEBCO
 Image Landsat
 US Dept of State Geographer
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CPEC Long Term Plan: Connectivity

“Connectivity is destiny”

— Parag Khanna

Advancing the Technologies for Connected Vehicles through Consensus Building

Connectivity
IEEE 802.3
Defining the physical layer and data link layer's media access control of wired Ethernet, in local area networks and wide area network applications.

IEEE 802.15
Wireless personal area networks allows the use of wearable and other short-range wireless devices (such as health monitors).

IEEE 802.20/802.21/802.22 Series
Communications standards for connecting vehicles to 802 systems.

Transportation Electrification
IEEE 2030 and its related standards are the first all-encompassing standards series providing alternative approaches and best practices for achieving smart grid interoperability.
IEEE 1547 Series
A series of standards for distributed power to maximize the benefits of interconnection.
IEEE P1562
Standard for array and battery sizing
IEEE 1901 Series
Standards relating to broadband connectivity over electric power lines.

Traffic Safety
IEEE 1512
Multiple standards for traffic safety, hazardous materials and public safety incident communications.

Cooperative, Autonomous and Automated Driving
IEEE P2040 Series
A series of standards for connected, automated and intelligent vehicles.

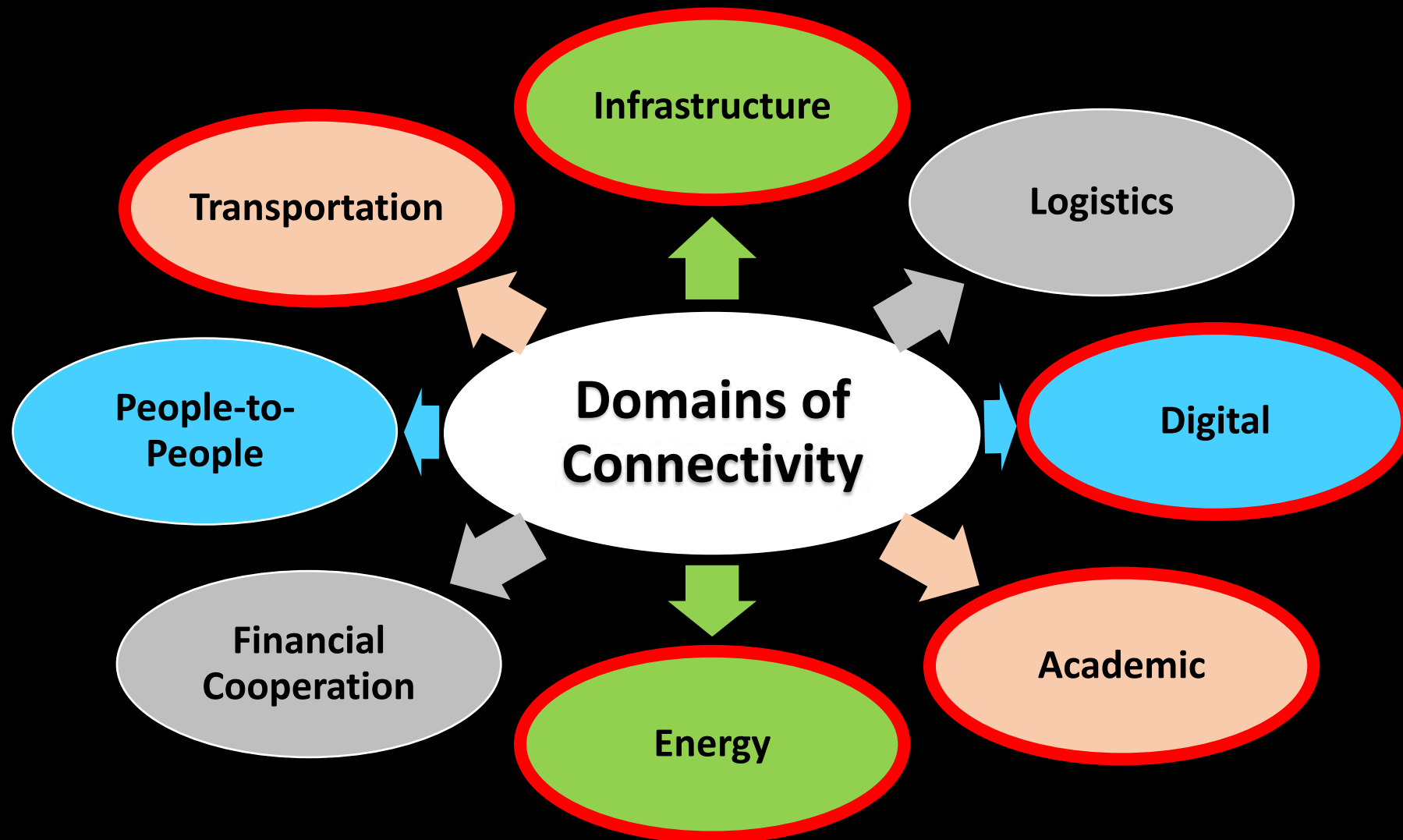
Smart Rail
A wide range of standards relating to electric rail operation including IEEE 11-2000, IEEE 18-2004, P1853.1, P1797, P1833, P1855, P1584, P1837, P1808, P2408, 1536, 1888, 1868, 1570, 1828, 1829, 1530, 1853 series, and 1098. As well as a series of standards relating to communication for rail transit systems, including IEEE 1473, 1474, 1475, 1476, 1477, 1482.1, and 1483.

Intelligent Transportation Systems
IEEE 1609
A family of standards defining the architecture, services and standard interfaces for secure vehicle-to-vehicle (V2V) and vehicle-to-infrastructure (V2I) wireless communications.
IEEE 1616
Standards for motor vehicle event data recorders.

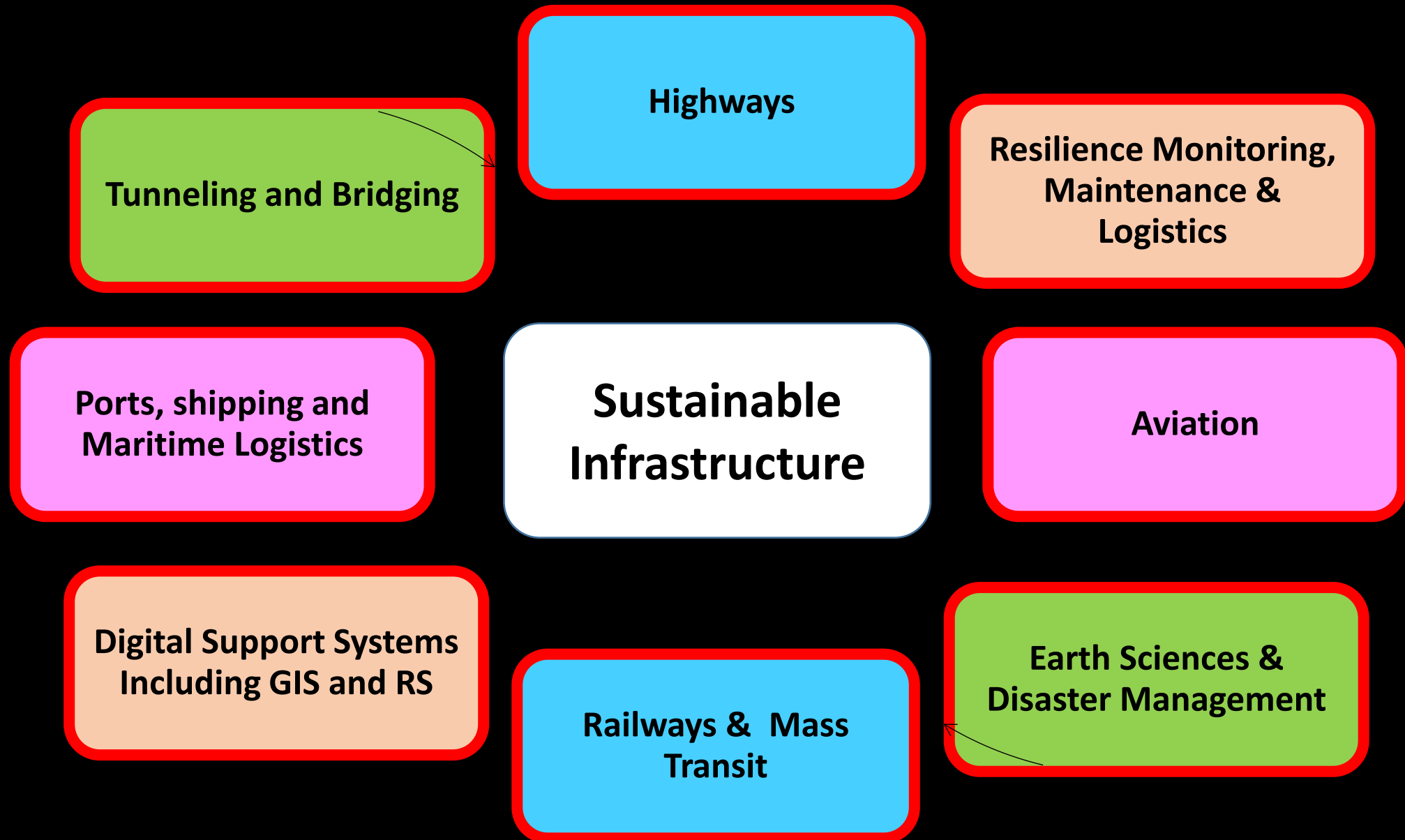
IEEE 802.11
WLAN to support communication between vehicles and the roadside and between vehicles while operating at speeds up to a maximum of 200 km/h for communication ranges up to 1000 meters.

And more...
IEEE Standards Coordinating Committee on Transportation (SCC42) leads the coordination of IEEE standardization activities for technologies related to transportation.

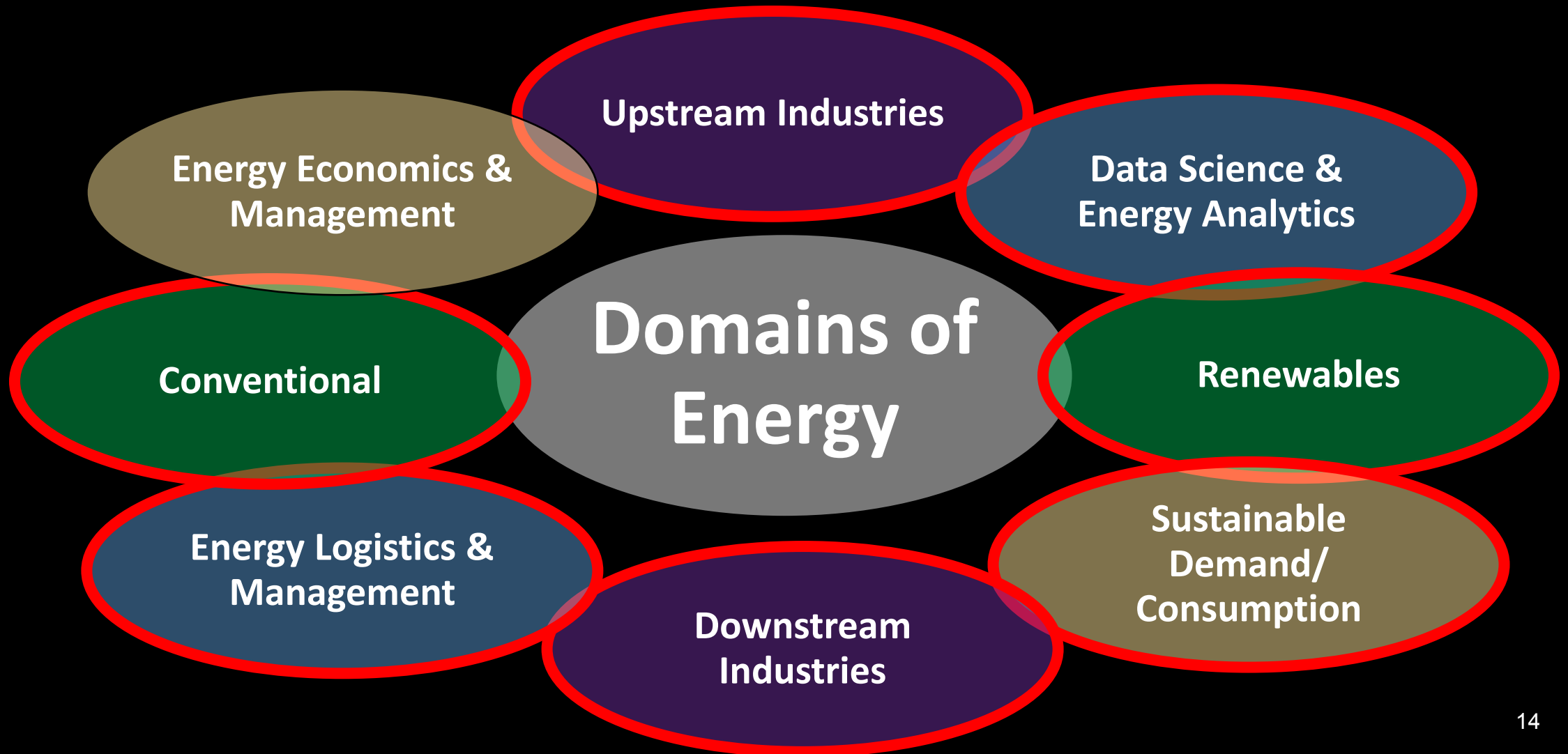
CPEC LTP: Connectivity



CPEC LTP: Sustainable Infrastructure

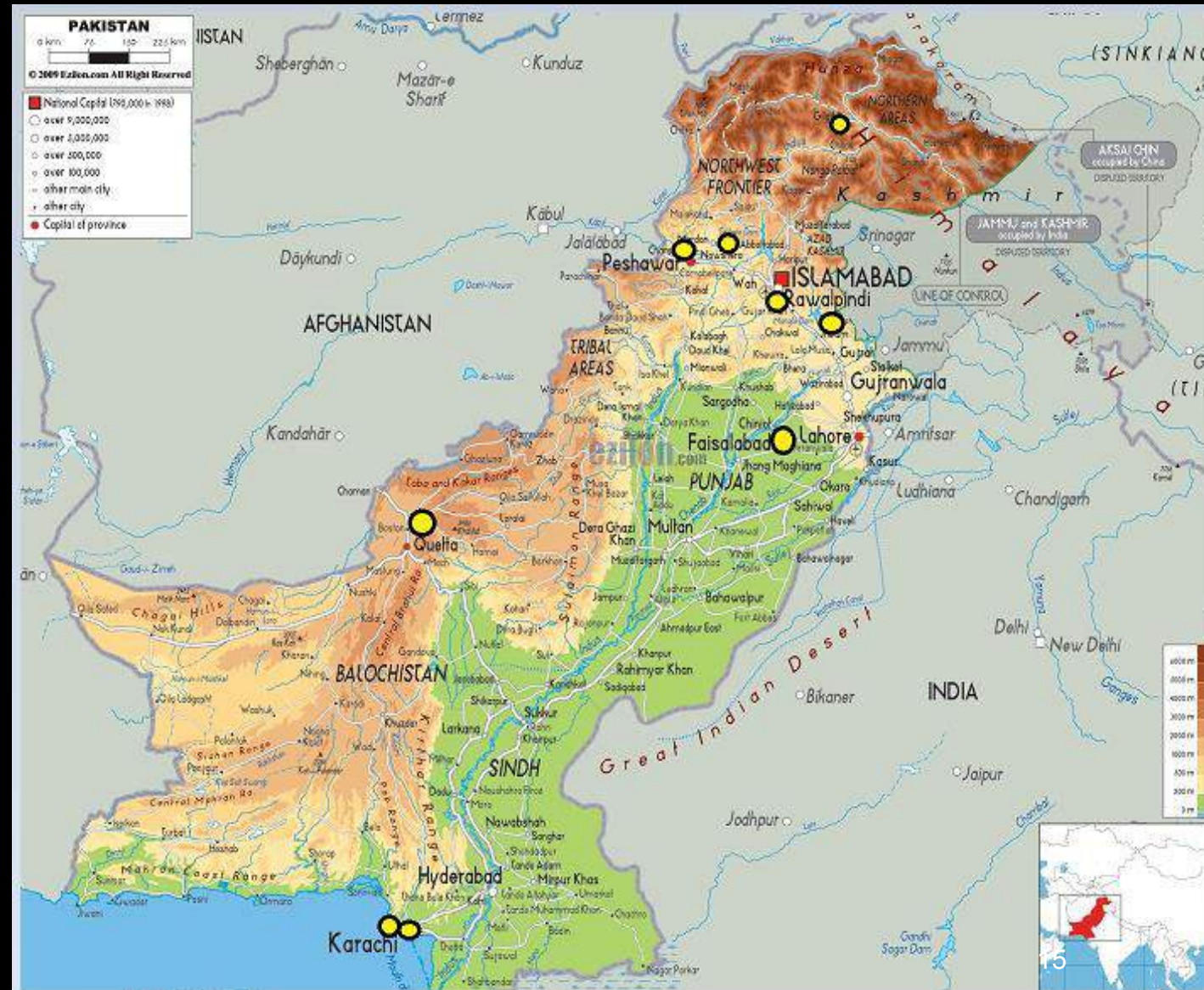


CPEC LTP: Energy



CPEC Special Economic Zones (SEZs)

1. Rashakai Economic Zone, M-1, Nowshera
2. China SEZ Dhabeji, Karachi
3. Bostan Industrial Zone, Quetta
4. Allama Iqbal Industrial City (M3), Faisalabad
5. ICT Model Industrial Zone, ISB
6. Industrial Park at Port Qasim, Karachi
7. SEZ at Mirpur, AJK
8. Mohmand Marble City, Peshawar
9. Moqpondass SEZ, Gilgit-Baltistan



CPEC SEZs: Industries

1. Gilgit

- . Marble / Granite
- . Iron Ore Processing
- . Fruit Processing
- . Steel Industry
- . Mineral Processing Unit
- . Leather Industry

2. Mohmand

On Completion of Feasibility Study

3. Rashakai

- . Fruit
- . Food
- . Packaging
- . Textile
- . Stitching
- . Knitting

CPEC SEZs: Industries

4. Islamabad

- . Steel
- . Food Processing
- . Pharmaceutical & Chemicals
- . Printing and Packaging
- . Light Engineering

5. Mirpur

On Completion of Feasibility Study

6. Faisalabad

- . Textile
- . Steel
- . Pharmaceuticals
- . Engineering
- . Chemicals
- . Food Processing
- . Plastics
- . Agriculture Implements

CPEC SEZs: Industries

7. Bostan, Quetta

- . Fruit Processing
- . Agriculture Machinery
- . Pharmaceutical
- . Motor Bikes Assembly
- . Chromite
- . Cooking Oil
- . Ceramic Industries
- . Ice and Cold Storage
- . Electric Appliances
- . Halal Food Industry

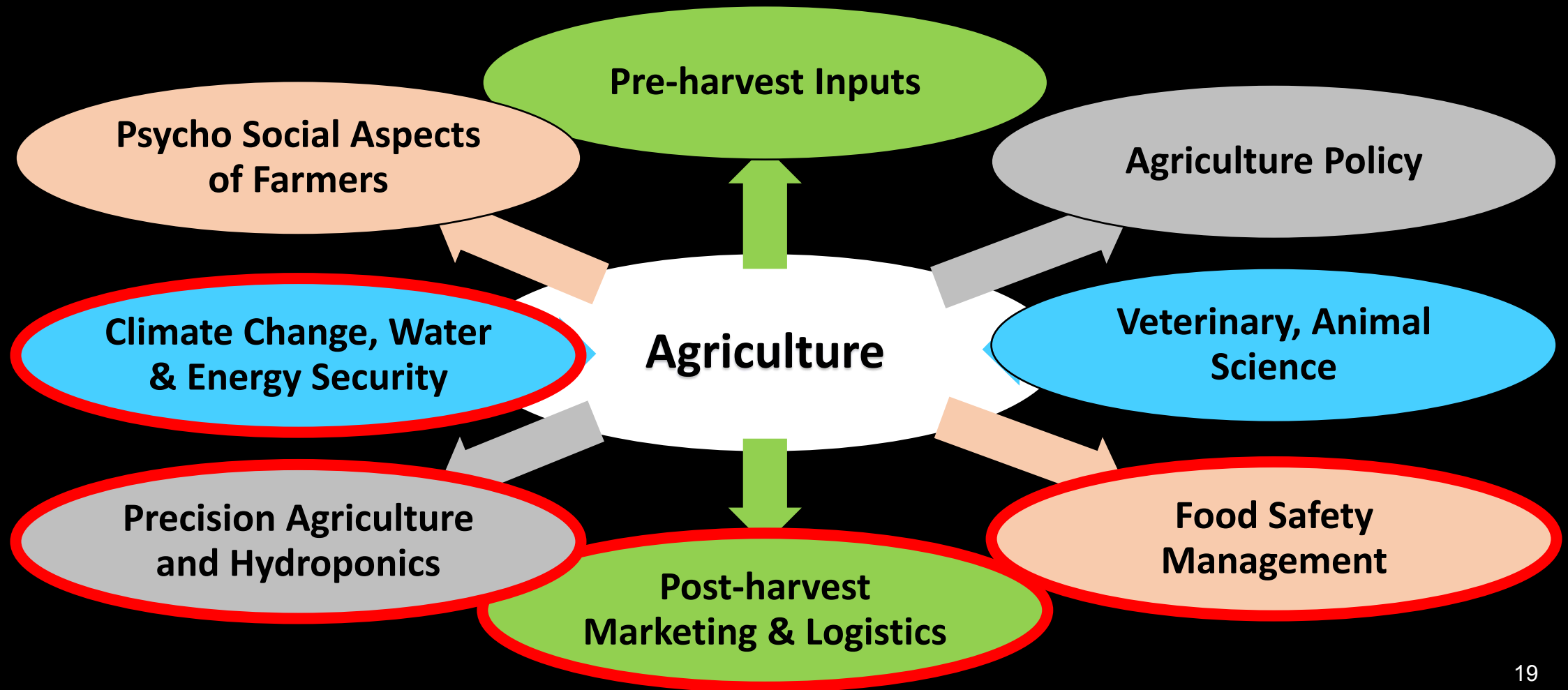
8. Port Qasim, Karachi

- . Steel
- . Auto & Allied Industries
- . Pharma
- . Chemical
- . Printing and Packaging
- . Garments

9. Dhabeji, Karachi

- . To be determined after feasibility study

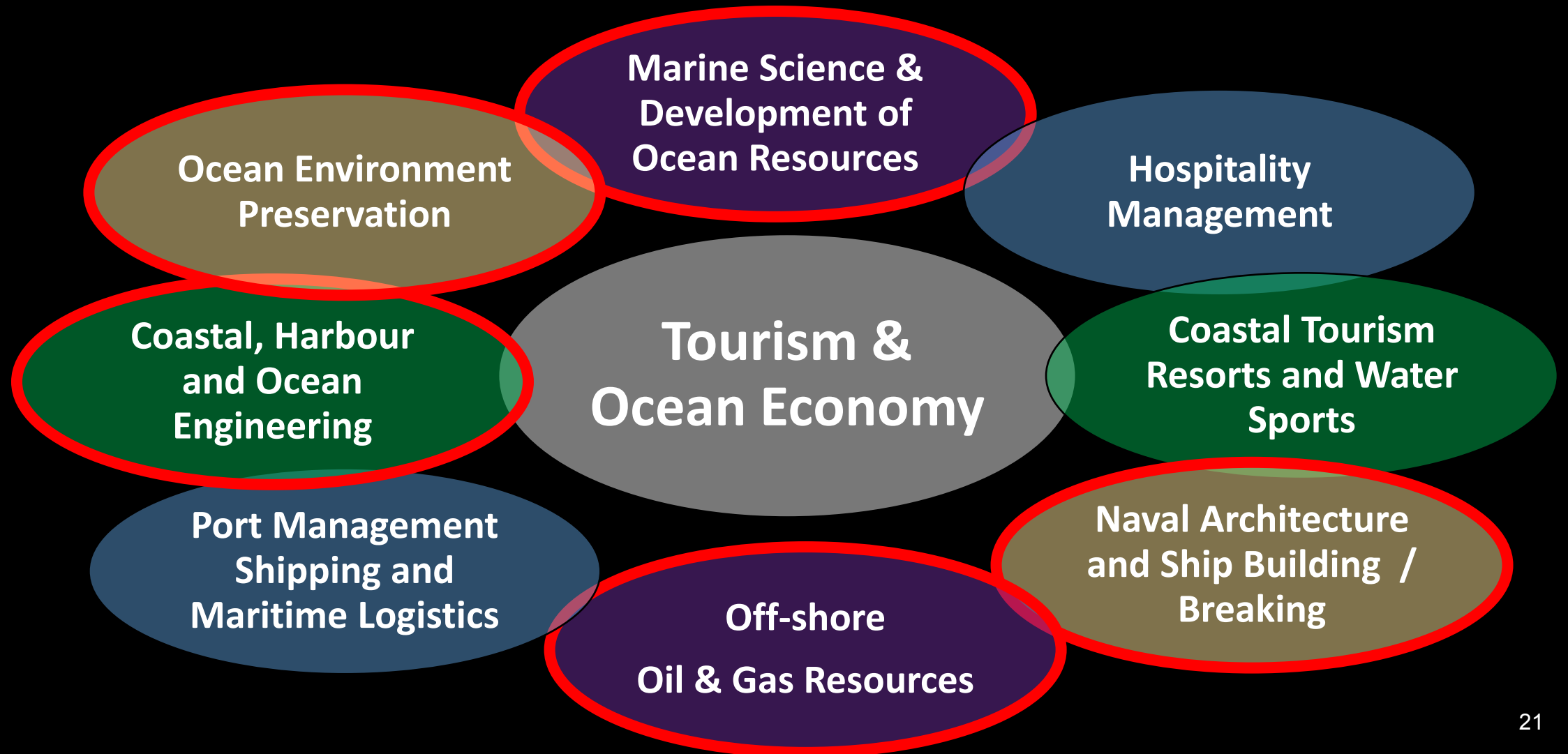
CPEC LTP: Agriculture and Poverty Alleviation



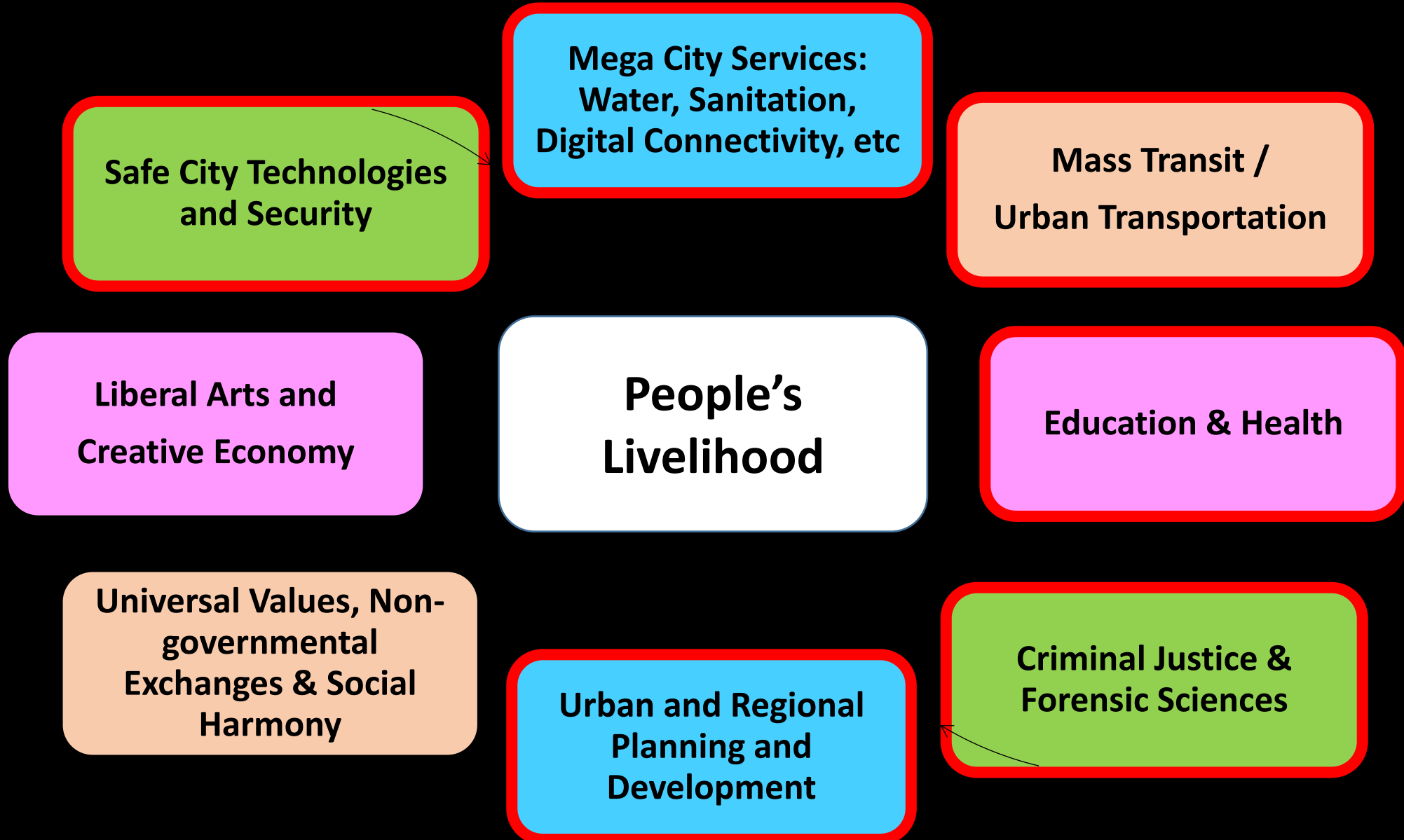
EEZ & Coastal Tourism Development



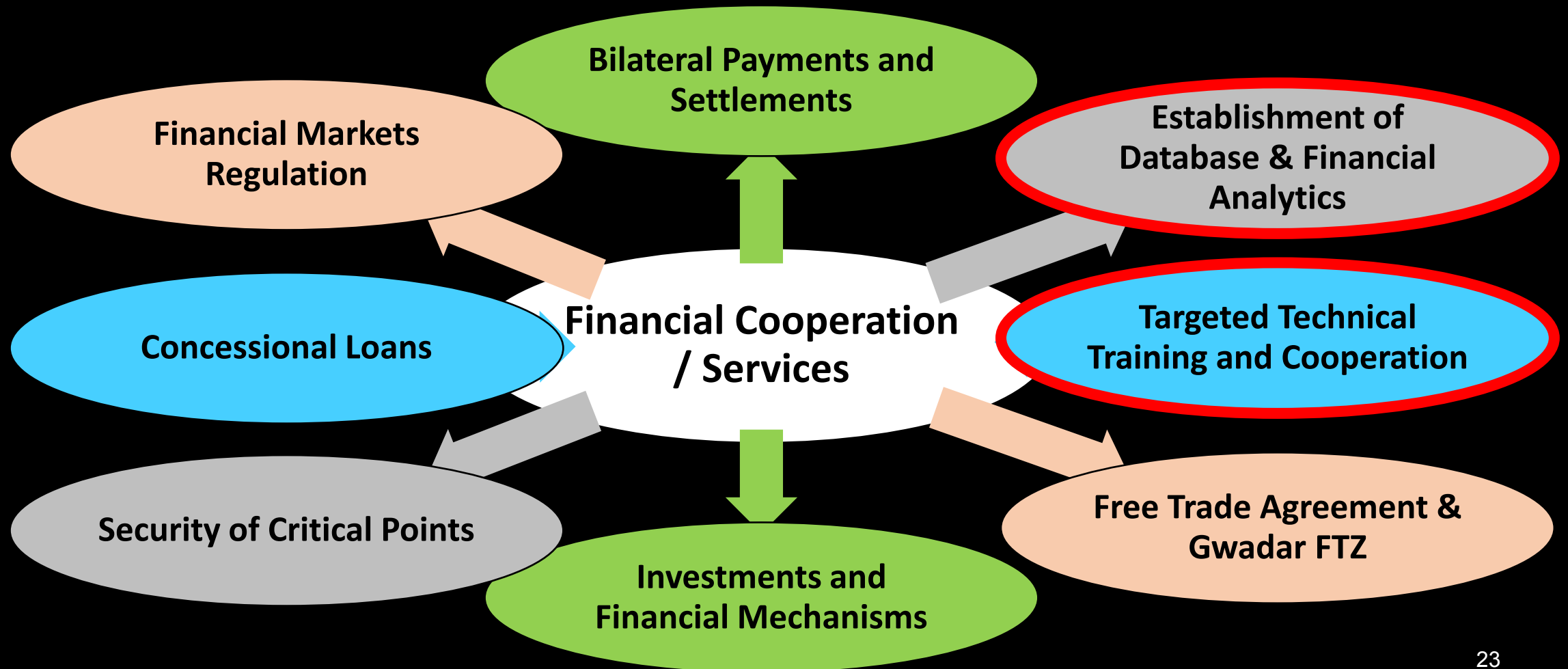
CPEC LTP: Tourism & Ocean Economy



CPEC LTP: People's Livelihood



CPEC LTP: Financial Cooperation



Academic Preparedness for CPEC

HEC Plan/ Preparedness

Implementation Mechanism

1. Linkages with leading Chinese Universities
2. Capacity building of existing universities
3. Establishment of **new HEIs** to cover knowledge gaps
4. Establishment of Science & Technology Parks
5. Support provinces in vocational / technical training by establishing Skill Universities to develop quality faculty

HEC Plan/ Preparedness

Implementation Mechanism: Alliance with Chinese Universities

1. Establish alliance of 50 universities from each country
2. Learn from Chinese industrial & science parks
3. Develop understanding of Chinese language, culture & civilization
4. Promote joint research covering a broad range of issues
5. Increase faculty & student exchanges
6. Promote interaction between the think tanks
7. Exploit scholarship opportunities in Chinese universities

CPEC Consortium of Business Schools/ Universities

Chinese Universities



CPEC Consortium of Business Schools/ Universities

Pakistani Universities



Lahore University of
Management Sciences



Institute of
Business Administration
Karachi



COMSATS
INSTITUTE OF
INFORMATION TECHNOLOGY



University of the Punjab



Institute of
Management Sciences



BUITEMS
Campus Management Solution



National University
of Computer and
Emerging Sciences



Sukkur Institute of Business Administration



Pakistan Institute of
Development Economics

**Capacity Building
of
Existing Universities**

HEC Plan/ Preparedness

Implementation Mechanism

Capacity Building of Existing Universities

- Establish Integrated Research Centers (IRCs) and Area Study Centers (ASCs) in selected universities to cover knowledge gaps in areas of academic focus and promote civilizational harmony
- Reorientation of faculty development program
- CPEC focused research
- National Institutes of Applied Technologies (NIATs)

HEC Plan/ Preparedness:

Integrated Research Centers

Province	Engineering and Technology	Agriculture & Sciences	Business & Management Studies	Social Sciences & Humanities	Total
Punjab	5	3	-	1	9
Sindh	2	2	2	1	7
KP	1	2	1	1	5
Balochistan	1	1	-	1	3
GB	-	-	1	-	1
AJK	1	-	-	1	2
Federal	4	1	2	1	8
Total	14	9	6	6	35

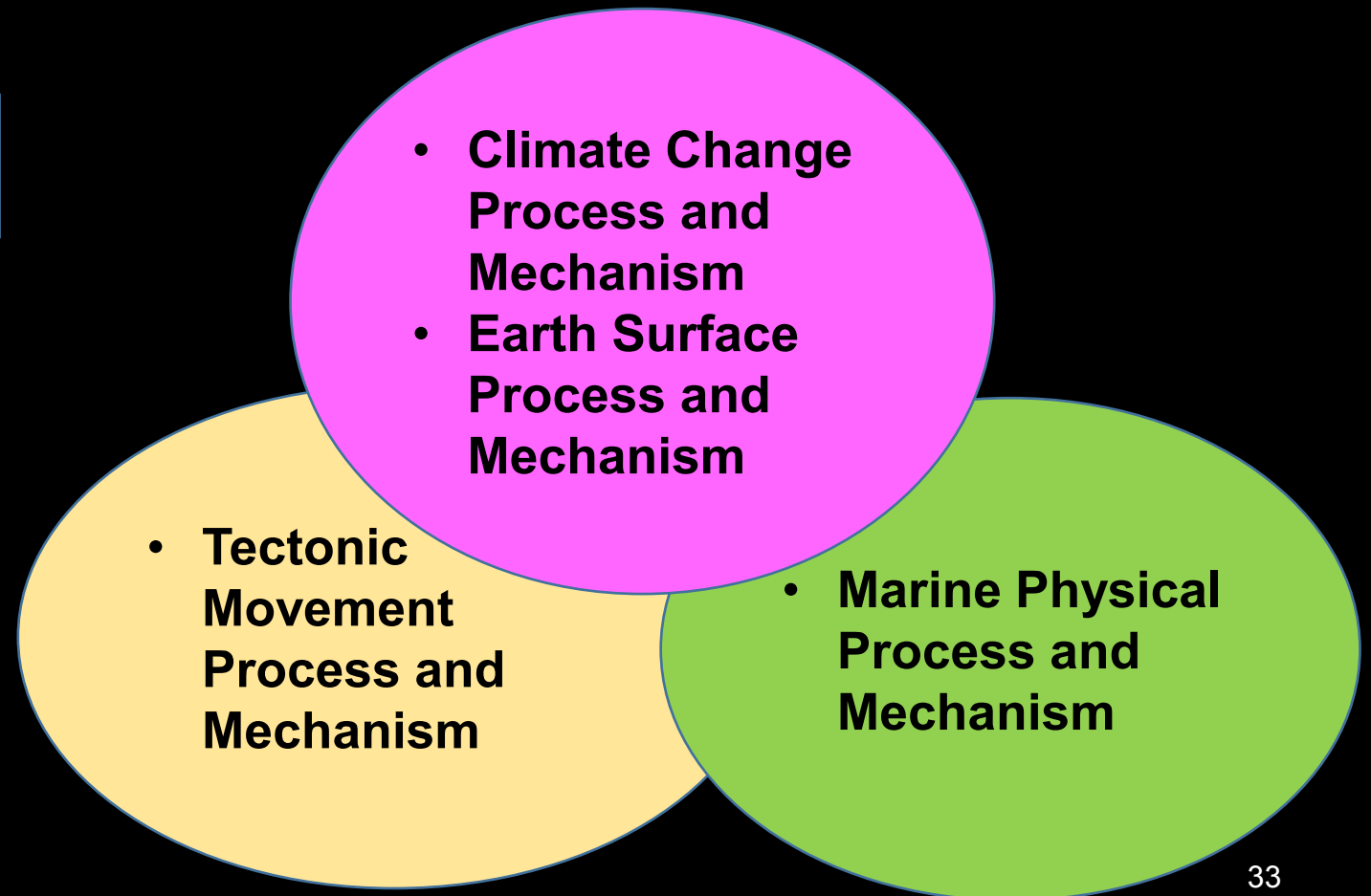
HEC Plan/ Preparedness: Faculty Development Program

- Faculty Development Program (PhDs) - 2000
- Post-Doc Training - 1000
- PhD Education Abroad - 2000
- US Knowledge Corridor (Phase-1) - 1500

HEC Plan/ Preparedness: China-Pakistan Joint Research Center on Earth Sciences

Areas of Research Focus

- Atmosphere
- Hydrosphere
- Lithosphere
- Cryosphere
- Biosphere



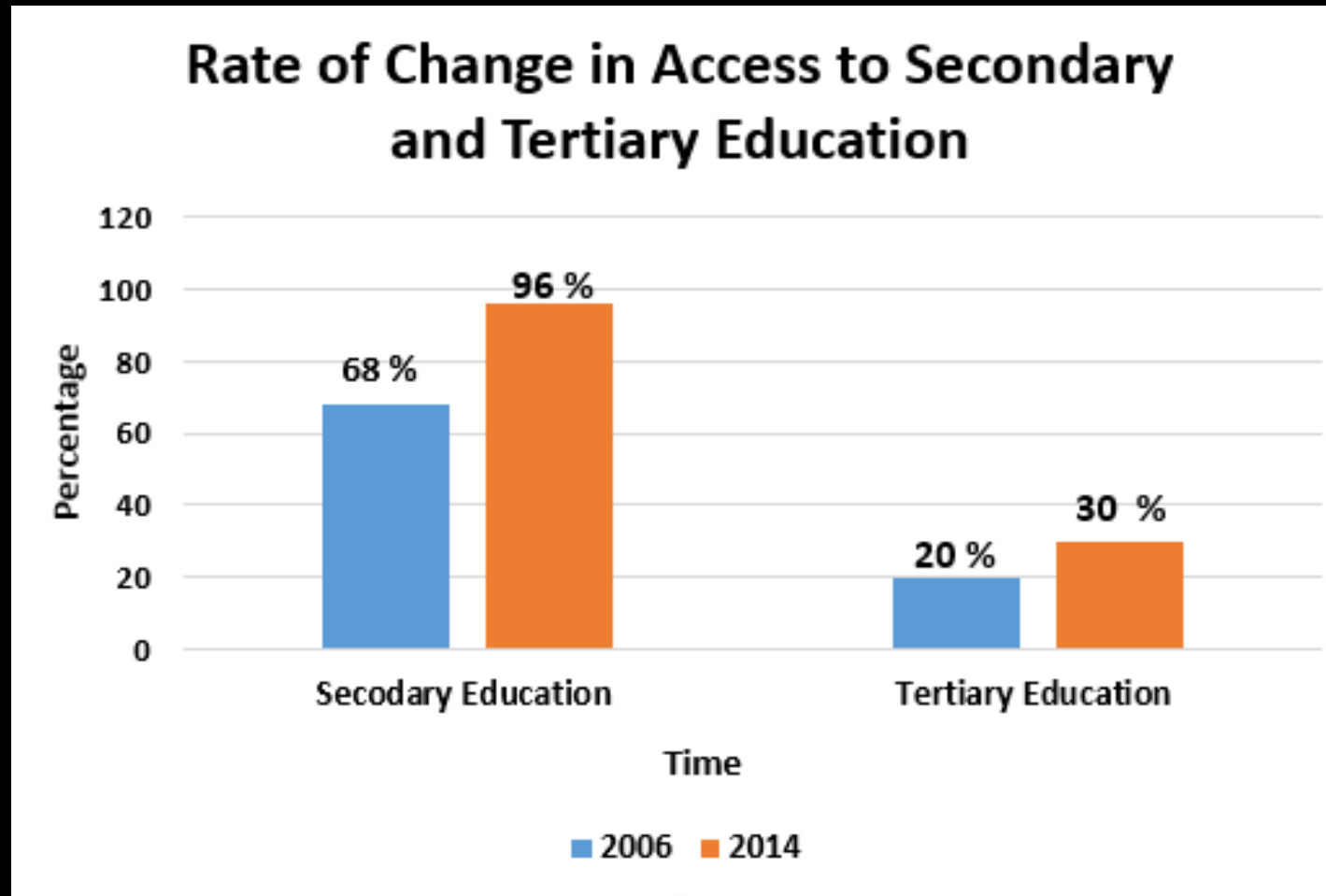
Conclusions for Engineers & Engineering Education

Rate of Urbanization in China

- Plans to move 250 million people to urban centers in 10 Years



Rate of Change in China: Education

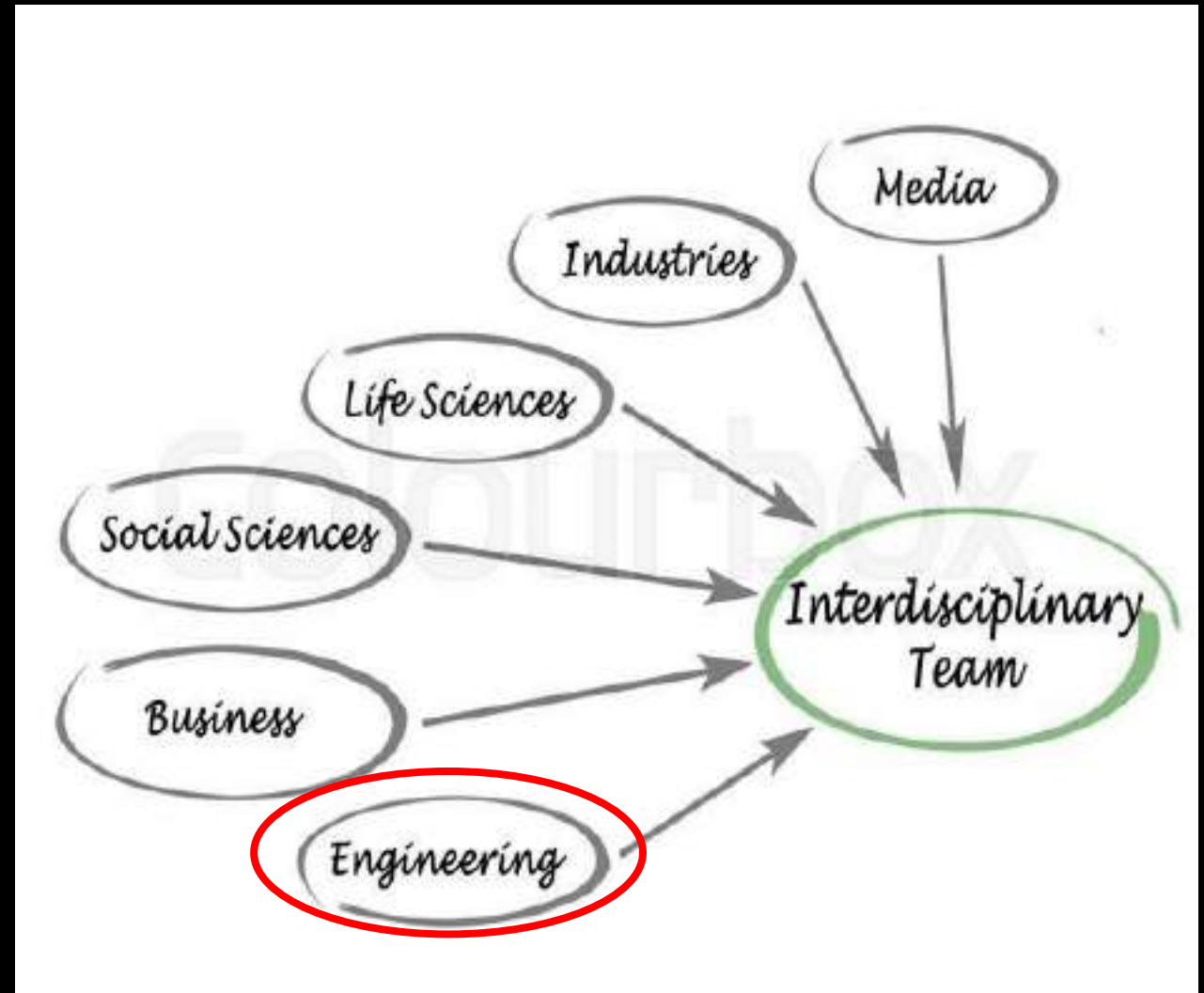


Project Planning and Management: The Chinese Way

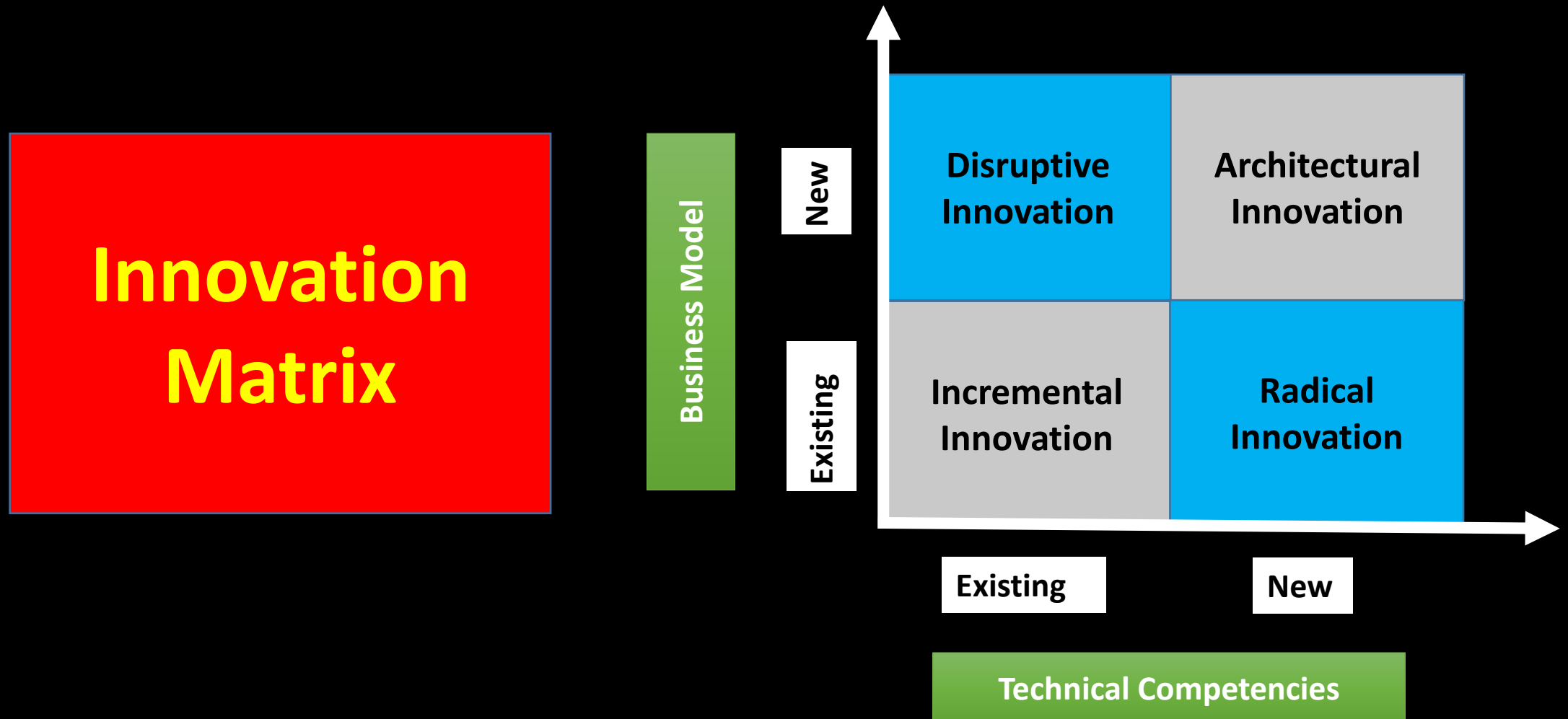
- **Project execution and management by Chinese is superb.**
- **We need to learn from their handling of operational, legal and logistic issues.**

Inter-disciplinary Engineering Education

- Must add at least two eminent persons/ scholars/ scientists to PEC Governing Body from each knowledge domain.
- Engineering curriculum must have interdisciplinary character in line with international best practices



Innovation & Interdisciplinary Education



Value talent, lest they flay away



Thank You