FRAMEWORK FINANCING AGREEMENT

VISAKHAPATNAM–CHENNAI INDUSTRIAL CORRIDOR DEVELOPMENT PROGRAM

Parties	This Framework Financing Agreement (FFA) dated 05 July 2016 is between India, acting by its President, and Asian Development Bank (ADB).
MFF Investment Program	India and the State of Andhra Pradesh (the State) are committed to implement the Visakhapatnam–Chennai Industrial Corridor Development Program (VCICDP) following the roadmap and investment program described in Schedule 1 hereto. The State's core infrastructure investment program as outlined as part of its draft Vision 2030 is \$30.8 billion and the short-term needs are placed at \$11.42 billion (2015-2020).[1] The Comprehensive Development Plan (2015), an exercise in parallel, prioritized actions for Visakhapatnam–Chennai Industrial Corridor (VCIC), focused on (i) improving connectivity (193 roads), (ii) industrial infrastructure improvements in 19 estates, (iii) associated power transmission enhancements for the industries, and (iv) upgrade to urban infrastructure with special reference to Visakhapatnam. The prioritized investment program (ADB component) over the next 8 years (2016-2024) is \$505 million equivalent, including a \$500 million loan and a \$5.0 million grant under the Urban Climate Change the Urban Climate Change Resilience Trust Fund (UCCRTF) under the Urban Financing Partnership Facility, but excluding a \$125 million policy-based loan component. The Investment Program will complement the ongoing efforts of the Government of Andhra Pradesh (GoAP) to enhance industrial growth and create high quality jobs. It will support priority infrastructure investments in the Visakhapatnam–Chennai Industrial Corridor (VCIC) and complement the GoAP's efforts on policy reforms and institutional development in the state's industrial sector. The subprojects under the Investment Program will focus on (i) internal roads, water supply, drainage, and industrial effluent treatment in selected industrial clusters; (ii) roads for connectivity between industrial nodes, ports, and urban areas, and road safety measures; (iii) power transmission and distribution system in the industrial corridor; and (iv) smart cities planning with climate change resilience and continuous water supply in Visakhapatnam, the key city in the VCIC.

[1] Details are in the Sector Roadmap (Schedule 1).

<table>
<tr>
<td>Multitranche Financing Facility</td>
<td>
The Multitranche Financing Facility (the Facility) is intended to finance the subprojects under the roadmap and investment program, provided that such subprojects comply with the criteria set out in Schedule 4 hereto, and that understandings set out in the FFA are complied with in terms of (i) location in the corridor; (ii) entity of significance in terms of contribution to growth and/or manufacturing; (iii) eligible sectors (urban environmental services, industrial area infrastructure, intrastate connectivity, and improving quality of power); (iv) compliance with safeguards; and (v) an acceptable economic and financial rate of return.
This FFA does not constitute a legal obligation on the part of ADB to commit any financing. At its sole discretion, exercised reasonably, ADB has the right to deny any financing request made by India, cancel uncommitted portion of the Facility, and withdraw India’s right to request any financing tranche under the Facility. Financing tranches may be made available by ADB provided matters continue to be in accordance with general understandings and expectations on which the Facility is based and which are laid out in this FFA.
Likewise this FFA does not constitute a legal obligation on the part of India to request any financing. India has the right not to request any financing under the Facility. India has the right at any time to cancel any uncommitted portion of the Facility.
India and ADB may exercise their respective rights to cancel the Facility or any uncommitted portion hereof, and ADB may exercise its right to refuse a financing request, by giving written notice to such effect to the other party. The written notice will provide an explanation for the cancellation or refusal and, in the case of a cancellation, specify the date on which the cancellation takes effect.
Financing Plan
The financing plan for the Investment Program is summarized below. Details are set out in Schedule 1 hereto.
<table>
<tr><th>Source</th><th>Amount ($ Million)</th><th>Share (%) of Total</th></tr>
<tr><td>Asian Development Bank
- ordinary capital resources (loan)</td><td>500.0</td><td>69.4</td></tr>
<tr><td>Urban Climate Change Resilience Trust Fund[a] under the Urban Financing Partnership Facility (grant)</td><td>5.0</td><td>0.6</td></tr>
<tr><td>Government (State of Andhra Pradesh)</td><td>215.0</td><td>30.0</td></tr>
<tr><td>Total</td><td>720.0</td><td>100.0</td></tr>
</table>
[a] Financing partners: the Rockefeller foundation and the governments of Switzerland, the United Kingdom and the United States.
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<tr>
<td>Financing Terms</td>
<td>ADB will provide financing for the subprojects and components</td>
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	under the Facility, as and when the subprojects and components are ready and a request is made under a periodic financing request. Each loan will constitute a tranche. Each tranche may be financed under terms different from the financing terms of previous or subsequent tranches. The choice of financing terms will depend on the project, and ADB's financing policies, all prevailing at the time the tranche is documented in a legal agreement and signed. Tranches may be provided in sequence or simultaneously, and some may overlap in time with each other. Commitment charges are not payable on the Facility. They are payable only on financing actually committed by ADB as a loan. ADB rules on commitment charges, which are in effect when the legal agreements are signed for a tranche, will apply with respect to such tranche. **Amount** The maximum financing amount available under the Facility is five hundred and five million US dollars ($505 million) including UCCRTF grant of $5.0 million. It will be provided in individual loans from ADB's ordinary capital resources and grant from the UCCRTF. **Availability Period** The closing date of any tranche will be on or before 30 June 2025. The last Periodic Financing Request (PFR) is expected no later than 30 June 2019. **Terms and Conditions** Each tranche will be used to finance components and a range of subprojects that meet agreed eligibility criteria, described in Schedule 4 of this FFA. India will provide the proceeds of each tranche to the State, and cause these to be applied by the State to the financing of expenditures of the Roadmap and Investment Program in accordance with conditions set forth in this Agreement and the legal agreements for each loan.
Execution	The Executing Agency for the Investment Program will be the State of Andhra Pradesh, through its Department of Industries and Commerce (DOIC). The Executing Agency will implement the Investment Program in accordance with principles set forth in Schedule 1 to this Agreement, as supplemented with more details in the legal agreements for each tranche.
Periodic Financing Request	India may request, and ADB may agree, to provide loans under the Facility to finance the Investment Program and its related components and subprojects upon the submission of a Periodic Financing Request (PFR). Each PFR should be submitted by India and confirmed by ADB. India will make

	available to the State and through the State to the implementing agencies, the proceeds of the tranche in accordance with the related PFR, and legal agreements for the tranche. Each individual tranche will be for an amount of no less than fifty million US dollars ($50 million) or its equivalent. ADB will review the PFR(s) and, if found satisfactory, prepare the related legal agreements. The components and subprojects for which financing is being requested under a PFR will be subject to the selection criteria set out in Schedule 4 hereto, satisfactory due diligence, and preparation of relevant safeguards and fiduciary frameworks and other documents. The Facility will be implemented in accordance with the general framework set out in Schedule 3 to this FFA and the Facility Administration Manual agreed between India and ADB. Until notice is otherwise given by India, the Secretary, Additional Secretary, Joint Secretary, Director, or Deputy Secretary in the Department of Economic Affairs of the Ministry of Finance of the Government of India are designated as authorized representative of India for the purposes of executing PFRs.
General Implementation Framework	The Facility will be implemented in accordance with the general framework set out in Schedule 3 hereto.
Procedures	The tranches to be provided under the Facility will be subject to following procedures and undertakings: (i) India will have notified ADB of forthcoming PFR at least 15 days in advance of the submission of the PFR. (ii) India will have submitted a PFR in the format agreed with ADB. (iii) ADB may in its sole discretion, with reasons provided, decline to authorize the negotiation and execution of any legal document for a loan. (iv) If ADB confirms acceptance of the PFR, the legal agreements will be negotiated and executed by the parties.
PFR Information	The PFR will be substantially in the form attached hereto, and will contain the following details: (i) Tranche amount; (ii) Description of subprojects and institutional capacity development and implementation support to be financed; (iii) Cost estimates and financing plan; (iv) Implementation arrangements specific to the subprojects; (v) Confirmation of the continuing validity of and adherence to the understanding in this Agreement; (vi) Confirmation of compliance with the provisions under previous Loan Agreement(s) and Project Agreement(s), as

	appropriate; and Other information as may be required under the Facility Administration Manual, or reasonably requested by ADB.
Safeguards	Attached under Schedule 5 are the safeguards frameworks that will apply during implementation of the MFF. ADB's Safeguards Policies in effect as of the date of signing of legal agreements for a tranche will be applied with respect to the components, subprojects financed under such financing tranche.
Procurement	All goods and services to be financed under the Facility will be procured in accordance with ADB's Procurement Guidelines (2015, as amended from time to time).
Consulting Services	All consulting services to be financed under the Facility will be procured in accordance with ADB's Guidelines on the Use of Consultants (2013, as amended from time to time).
Advance Contracting and Retroactive Financing	Under each tranche, ADB may, subject to its policies and procedures, allow on request (a) advance contracting of works, goods, services, and consultants, and (b) retroactive financing of eligible expenditures for works, goods, services, and consultants up to 20% of proposed individual loan, incurred prior to loan effectiveness but not earlier than 12 months before the date of signing of the related legal agreement. India acknowledges that any approval of advance contracting and/or retroactive financing will not constitute a commitment by ADB to finance the related project.
Disbursements	Disbursements of each loan proceeds under the Facility will be in accordance with ADB's Loan Disbursement Handbook, (2015, as amended from time to time) and detailed arrangements agreed upon between the government and ADB.
Monitoring, Evaluation and Reporting Arrangements	The PMU at the Directorate of Industries will establish a program performance monitoring system (PPMS) acceptable to ADB within 3 months of the effectiveness of the first loan under the Facility and under each succeeding loan in accordance with the Investment Program and individual project performance indicators including those in the Design and Monitoring Framework (Schedule 2).
Representations	India will cause the State to ensure the following actions: • The Facility funds are utilized effectively and efficiently to implement the Investment. • Program objectives are achieved. State through DOIC will ensure necessary actions to achieve the objectives of the Program. • Fiduciary oversight. Accounts for each project will be audited by independent auditors whose qualifications, experience and terms of reference are acceptable to ADB. The detailed consolidated project financial statements and the audited entity financial statements will be submitted to ADB within 6 months of the end of the fiscal year. • Counterpart funds. The State will ensure that sufficient

	counterpart funds are available from its budget for each fiscal year, in a timely manner, for the efficient implementation of the Projects under the Facility. • Subproject selection. All subprojects therein are selected and processed for approval, the criteria and procedures included under Schedule 4 of this FFA, as agreeable to ADB, India and the State. The State will post the criteria for subproject selection and details of sanctioned contracts/subprojects on the State's Investment Program office bulletin board and its website. • Safeguards. The projects under the Facility will be carried out in accordance with safeguard policies of ADB; and the Indigenous Peoples Development Framework, Resettlement Framework, and Environmental Assessment and Review Framework and India's and State laws as applicable to the Facility.
Undertakings	Attached as Schedule 6 are the undertakings provided by the Government of India and the State of Andhra Pradesh.

Signed in New Delhi as of the day and year first above written.

INDIA   ASIAN DEVELOPMENT BANK

RISHIKESH SINGH   M. TERESA KHO

SCHEDULE 1

MFF CONSTITUENTS

A. Road map

1. **Challenges to sustaining industrial growth in Andhra Pradesh.** In the State of Andhra Pradesh the manufacturing sector contributes to 12% of the State's GDP —lagging nationwide figure of 15%. Therefore, there is a pertinent need to usher in greater degree of industrialization. This will involve addressing challenges such as low Industrial diversification, and small and labor-intensive manufacturing sector, with low skills, productivity, and earnings. Key infrastructure in industrial clusters remains inadequate to support the burgeoning demand for plug and play industrial infrastructure and a robust skill inventory. However in a recent survey, Andhra Pradesh was ranked second among all states in India in ease of doing business.[1]Andhra Pradesh needs to further improve on procedures of doing business, labor-related laws, land management, and taxation laws for it to enhance its competitiveness and benchmark itself with the developed countries in the region such as Singapore, South Korea, and Malaysia.[2]

2. **Visakhapatnam–Chennai Industrial Corridor (VCIC) as a growth engine for Andhra Pradesh.** To lay the foundation for a long-term investment program, ADB supported the preparation of a conceptual development plan (CDP) and a regional perspective plan (RPP) for the VCIC, which included an infrastructure strategy to drive economic growth and the identification of nodes[3] for industrial development, high-potential industrial sectors, and a set of priority projects.[4] The CDP indicated that VCIC, with its long coastline and strategically located ports, provides multiple international gateways to connect India with vibrant global production networks. The RPP identified VCIC's high potential for generating additional employment and industrial output that can be achieved over the next 30 years.[5] ADB is continuing its support to the GoAP for strategic planning for a long-term, phased investment plan, among others, through master planning of the four identified industrial nodes. The VCICDP, which is a combination of an MFF and a PBL, will build on the existing concentration of industries and increase the density and flow of economic activities along the VCIC in a business-induced scenario compared to a business-as-usual scenario.

[1] World Bank. 2015. *Assessment of State Implementation of Business Reforms, September 2015*. New Delhi. India was ranked 142 among 189 nations in recent survey on ease of doing business (World Bank. 2016. *Doing Business 2016*. Washington, DC.).

[2] An important parameter of competitiveness is time to start a business, which is 21 days for Andhra Pradesh and 29 days for India. The same figures for other countries are: Singapore-2.5 days; South Korea-4 days; and Malaysia-4 days (World Bank assessment. http://wdi.worldbank.org/table/5.3).

[3] A node refers to a geographical area along the industrial corridor with high growth potential and encompassing a production enclave, an urban center, and a port along with a logistics and distribution network. Four nodes have been identified in the VCIC: Visakhapatnam, Kakinada, Gannavaram, and Yerepedu-Sri Kalahasti. An industrial cluster refers to an identified geographical area of industrial units within a node. For example, Visakhapatnam node comprises four industrial clusters: Pydibhimavaram, Atchutapuram, Nakkapalle, and Bheemunipatnam.

[4] The VCIC's conceptual development plan is available on the GoAP's website: https://www.apindustries.gov.in/APIndus/Data/Vizag-Chennai%20Industrial%20Corridor_Full%20Report.pdf
Summary of VCIC's conceptual development plan (accessible from the list of linked documents in Appendix 2).

[5] Summary of VCIC's regional perspective plan (accessible from the list of linked documents in Appendix 2). By 2045, the industrial output in VCIC is expected to rise to an estimated $295 billion in the business-induced scenario and an estimated $117 billion in the business-as-usual scenario from the current level of $16 billion. The business-induced scenario will require an investment of $31 billion in 30 years and $7 billion in 5 years.

3. **Administration of the manufacturing sector in the state**. Following are the main entities of the state to implement the industrial sector activities:

(i) **Department of Industries and Commerce**. This is responsible for governing the overall industrial activities in the state;
(ii) **Directorate of Industries**. This is the apex department, assisting industries in setting up industrial units, obtaining the approvals, sanctioning incentives and providing marketing assistance; and
(iii) **Andhra Pradesh Industrial Infrastructure Corporation (APIIC)**. Nodal agency for development and operation of industrial areas, parks, and estates in the state with all attendant infrastructures.

4. The sector is supported for skill development through multiple government and other institutions like Andhra Pradesh State Skill Development Corporation (APSSDC); Andhra Pradesh Productivity Council (APPC); National Skill Development Corporation (NSDC); Skill Development Center under the Commissioner of Technical Education; and Micro, Small and Medium Enterprises (MSME) Development Institute, Hyderabad.

5. **Issues faced by manufacturing sector**. Andhra Pradesh contributes less than 4% of the total national manufacturing output, while leading states like Gujarat, Maharashtra and Tamil Nadu contribute 18.8%, 16.7% and 11.7%, respectively. The gross value added (GVA) per employee, which is one of the measures of efficiency of manufacturing sector, is Rs.0.53 million GVA/employee in the organized sector for Andhra Pradesh compared to Gujarat (Rs.1.44 million GVA/employee), Maharashtra (Rs.1.21 Million GVA/employee), and Haryana (Rs.0.87 million GVA/employee).[6] This trend is underscored by the fact that high technology and high value-added industries contribute barely 15% to the industrial output of the state. Industrialization in Andhra Pradesh faces the following challenges:

(i) limited diversification and low adoption of technology: principal sectors contributing to the state's manufacturing sector are food processing, pharmaceuticals, mining and metals, machinery and equipment, chemicals, and textiles. There is skewed geographical spread–56% of the investment is concentrated in two districts (Visakhapatnam and Chittoor) and around 80% of the total investment is contributed by 1.4% of total number of industries. This is coupled with low transition from secondary to tertiary level (e.g., food processing industry has marginally advanced to tertiary level of processing, electronic industry has marginally moved from assembly units to manufacturing and units);
(ii) majority of the employment is in labor-intensive jobs, impacting productivity;
(iii) one-third of the manufacturing output is from unregistered industries, which is consistent for a decade implying that the unorganized sector has not transitioned into organized manufacturing;
(iv) infrastructure constraints within the industrial clusters and inadequate connectivity infrastructure and services have impacted competitiveness;
(v) weak enabling factors for manufacturing adversely affecting industry potential: use of obsolete technology, shortage of raw materials and their price volatility, limited availability of skilled man-power, shortage of quality power, deficiency of logistic infrastructure, inadequate rake supply, poor internal infrastructure (drainage, effluent treatment, etc.) quality and poor last mile connectivity, lack of finance as well as knowledge of sources of finance;

[6] Government of India. 2015. *Annual Survey of Industries, 2012–2013*. Delhi.

(vi) challenges to doing business: the state ranks second in terms of ease of doing business ranking which is much better as compared to its peers; however, Industrial units still face significant operational challenges; and

(vii) land availability: investors in Andhra Pradesh are looking for industrial land free from encumbrances and with plug and play facilities.

6. **Strengths and Potential of VCIC**. A transport corridor at the heart of VCIC that extends north to south over 800 kilometers along the coast connecting a set of economic nodes justifies the potential for the region to develop as an industrial corridor. The corridor includes prominent networks like National Highway 5, which is a part of Golden Quadrilateral, the Kolkata-Chennai rail route and seven non-captive operational ports. NH network of 2268 km and railway network of 2113 km combined facilitate easy movement of goods in and outside the corridor. Four existing major ports along with upcoming four non-major ports in the VCIC corridor complemented with .36 million twenty foot equivalent units (TEU) of dry ports provides impetus to the logistics infrastructure.

7. **Sectors and sector development plans**. With the support of the existing logistics infrastructure, growth in 78 industries in Andhra Pradesh are present driven by domestic or export demand. These industries can be broadly divided into 25 distinct sectors. “What is” and “what could be analysis” at the state, country, and global levels using parameters such as trends in foreign direct investment (FDI), other investments, exports and output identified seven key sectors with the following traits: high growth rates driven by domestic and/or export demand; competitive and comparative advantage at both the state and country levels; create employment opportunities and drive wages higher; and new and/or expanding and can be attracted to the corridor.

8. Following are the seven key sectors proposed for development plans in the coming years: Food Processing; Pharmaceuticals; Auto and Auto Components; Textiles; Metallurgy; Chemical and Petrochemicals; and Electronics.

9. Development plans of the above sectors aimed at achieving benchmark targets set by different states in India in parameters like total output, average factory productivity, average employee productivity, gross value added (GVA), and average investment per factory.

10. **Node-based approach**. Key prerequisite for supporting the expected growth by these seven sectors is the availability of land. Based on the discussions undertaken with the state government officials, 119 locations in government industrial park and special economic zones (SEZs) and private industrial parks and SEZs were identified as having vacant land. The focus of VCIC’s industrial transformation has been on enabling existing industrial agglomerations. Hence, all locations that were shortlisted have been analyzed for the presence of industrial units in close proximity to the shortlisted land parcels thus leading to a node based development approach. In addition, instead off identifying a single contiguous land parcel, attempts were made to identify a cluster of land parcels in close proximity to create nodes of substantial size.

Figure 1: Node Selection Criteria

Long list of APIIC and private Industrial Parks/SEZs

Assessing vacant land in the APIIC and private Industrial Parks/SEZs and including governmental lands available for consideration—**119 identified**

Stage 1—must haves for the lands identified to be considered as industrial nodes

- Locations with lands in excess of 500 acres or having over 2,000 acres of land in close proximity (<30–35 km)
- Land away from CRZ, forest, restricted and flood line areas
- Availability of water (Ground Water—Safe zone or access to surface water)
- Existing industrial agglomeration (Rs.1,000 crore of investment since 2000 within 50 km radius)
- Zone not considered for Master Planning under the Chennai Bengaluru Industrial Corridor

11 nodes have been identified after the stage 1

11. Detailed analysis based on the framework in Figure 1 was undertaken to identify potential zones for development. Zones that are being considered under other corridor projects, such as CBIC, were not considered under this project to eliminate duplication of development efforts. The 11 potential clusters identified were further screened on set of important (good-to-have) factors:

- proximity to existing or planned ports of less than 50 km for industries such as metallurgy, chemicals & petrochemicals and textiles;
- proximity to raw material (<25km) for industries such as food processing; and
- proximity to a city (<50km) for industries such as automobile, pharmaceuticals, medical equipment, electronics and aerospace.

12. Each location was further analyzed on the existing availability of connectivity infrastructure, skilled manpower and logistics infrastructure. Based on the analysis combined with discussions with governmental officials from Andhra Pradesh, following nodes were identified.

Table 1: Identified Nodes

Node	Land Parcels	District	Estimated Area (acres)
1	Atchutapuram, Nakkapalle	Visakhapatnam	4,500
2	Kakinada	East Godavari	5,000
3	Amaravati region	Krishna	4,000
4	Yerpedu, Srikalahasti	Chittoor	5,000

13. The northern node is centered on Visakhapatnam and is in close proximity to the ports of Visakhapatnam and Gangavaram, and the industrial activities in the immediate hinterland of these ports. The southern node is close to the urban centers of Tirupati and Nellore, the port cluster from north of Chennai to Krishnapatnam, and the industrial zones in their immediate hinterland, most notably Sri City. The two nodes in the central region are primarily green field; Amaravati and Kakinada.

14. **VCIC development objectives:** The node-based industrialization strategy proposed for VCIC is targeted to achieve regional and global competitiveness. Infrastructure development and urbanization are critical to attain this core objective. In order to achieve industrial transformation, following development objectives were proposed:

- **Increase the manufacturing sector's contribution to state and national output**. Current contribution of manufacturing sector to GSDP[7] of Andhra Pradesh is 10% which is below India's average of 15%.
- **Level regional industrialization**. Current industrialization is skewed towards Visakhapatnam and East Godavari. Visakhapatnam's manufacturing sector comprise 22% of districts GDP while for East Godavari, it is 13%.
- **Improve labor productivity:** Many industries in VCIC are engaged in labor-intensive activities in the formal sector where the small scales of operation and lack of technology, lower skills result in low-levels of productivity and wages.
- **Enhance regional and global competitiveness:** Industries in VCIC should seek to link with global value chains to drive export growth and competitiveness.

15. **Imperatives for achieving objectives:** In order to obtain the above objectives, enabling policy environment, infrastructure development and skill upgrading are the most important levers. As the corridor will be primarily oriented towards manufacturing, the development focus can be categorized as follows:

- **Multimodal Transport Infrastructure to enable competitive supply chains**. Nodes of manufacturing do not function in isolation, but as part of a supply chain, aligning with domestic or global value networks. Inbound and outbound logistics from the industrial nodes will need to consider capacity and service provision at key infrastructure gateways like ports and airports, as well as the network connectivity between the nodes, gateways, and hinterland consumption centers.
- **Energy Infrastructure**. Access to 24-hour supply, reliable network infrastructure and cost of power are important elements for augmenting the ability for value added manufacturing. Several industries proposed for VCIC's industrialization

[7] Gross state domestic product (GSDP) is composed of three major components – agriculture, industry and services sectors. Manufacturing is a part of Industry sector. Manufacturing is classified as registered and unregistered manufacturing sector (Socioeconomic Survey of Andhra Pradesh, 2014-15).

strategy–including pharmaceuticals, automobiles, and oil refineries, cement plants etc. have high dependence on power.

- **Urban infrastructure:** With the development of nodes in the corridor region, increase in population will need more water supply and sewage treatment plants both for sustenance and industrial requirement. Key sources of water supply in Andhra Pradesh are ground water and surface water.
- **Policy initiatives:** The action plan for any successful economic corridor also hinges on institutions and regulations supporting the ease of doing business. Single Window Systems, Information Technology enabled systems, integrated check-post at borders and rationalizing value-added taxes and entry tax structures across participating states are some of the policy initiative enabling ease of doing business.
- **Skills development:** Critical to enhanced manufacturing levels in the corridor necessitates skill upgrading and thereby employability of local population. The foundation for the effort being establishment of centers of excellence and in upgrading/ strengthening local skill upgrading centers.

16. **Project identification**. To support the expected growth, projects needs to be identified in each of the infrastructure sub-classes. The process of projects identification is done in the backdrop of projects already planned or proposed by the Government. A three-pronged approach was followed to identify projects.

- **Corridor-level intervention**. Projects related to strengthening spinal and grid connectivity from the perspective of the overall competitiveness of VCIC as it is part the larger East Coast Corridor from Chennai to Kolkata.
- **Node level intervention 1**. Projects connecting the four nodes identified with the core gateway ports and airports proximal to the nodes. Each node was mapped against a specific port cluster and airport node.
- **Node level intervention 2**. The strategy was to identify projects to inter-connect nodes, gateways and hinterland centers outside the VCIC region.

17. After project identification, each of them is assessed for strategic importance to the node and categorized as critical, need to have or good to have. Critical projects address the gaps in connectivity issues between the hinterland centers and the coast. Need to have projects have limited effect in the short term but can be considered as a mean to support long term growth. Further, state of readiness of the projects was addressed based on the following categories:

- Conceptualization
- Feasibility being studied
- Feasibility assessed
- Procurement
- Implementation

18. Critical and vital, need to have projects that are in a high state of readiness are proposed for immediate or short-term execution. Projects that are good-to-have or have a low state of readiness are proposed for medium- or long-term execution.

B. Strategic Context

19. **India's manufacturing sector.** While India has seen a rapid structural transformation and achieved strong economic growth since 1991, it must continue to create economic opportunities for its large labor force, which is increasing by about 12 million a year, to sustain its economic growth and realize its demographic dividend.[8] With limited prospects for job creation in agriculture, one of the most pressing policy challenges in India is to create more productive and well-paying jobs in manufacturing and services. India's services sector has had significant growth and increased wages since 1991.[9] Manufacturing, which has higher untapped potential, is lagging and has contributed almost at the same level of 15% of GDP and 12% of employment each year over this period.[10] India's National Manufacturing Policy (2011) calls for increasing the manufacturing sector's contribution to at least 25% of GDP and enhancing job creation in manufacturing to create 100 million additional jobs by 2022.[11]

20. **India's industrial corridors and policies to stimulate manufacturing.** India has adopted an 'industrial corridor' approach to stimulate manufacturing and an "Act East Policy" to integrate the Indian economy with dynamic global production networks of Asia.[12] The industrial corridor approach involves creation of an efficient multimodal transport network supported by quality infrastructure and logistics within a defined geography, and a policy framework that facilitates business operations for integration with global production networks. Industrial corridors are central to India's "Make in India" initiative, which encourages investments into the manufacturing sector to stimulate growth and create high quality jobs. In line with these policies, the government and ADB identified the East Coast Economic Corridor (ECEC), which is India's first coastal corridor extending over 2,500 kilometers (km) from Kolkata in West Bengal to Tuticorin in Tamil Nadu. The ECEC aims to stimulate growth through network externalities, linkage with urban and industrial clusters and by integrating with regional value chains in Southeast and East Asia.[13] The VCIC, which covers more than 800 km of coastline in Andhra Pradesh, is proposed to be developed as the first phase of ECEC. The VCICDP is in line with ADB's country partnership strategy for India. [14]

C. Policy Framework

21. Industrial Corridors entail creating globally comparable infrastructure in a designated pathway, and providing a conducive and competitive environment for setting up businesses. Industrial corridors are normally conceived along major transport arteries, typically rail trunk routes, as they provide the vital connectivity to the area/ region and facilitate efficient movement of freight and people. They enable optimal utilization of a region's potential for growth by facilitating economic agglomeration and industrial clustering. An industrial corridor might have a number of industrial clusters. An industrial cluster is a geographically proximate group of interconnected companies and associated institutions in a particular field, linked by commonalities and complementarities (external economies). Enterprises can better improve their competitiveness due to the presence of specialized suppliers of raw materials, parts and components, machinery, skills and technology as well as other supporting services. The

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[8] Government of India. Planning Commission. 2011. *Report of the Working Group on Employment, Planning and Policy for the Twelfth Five Year Plan (2012-2017).* New Delhi. Current total labor force is estimated at 530 million.

[9] Share of services sector in India's GDP increased from 30% in 1950s to 38% in 1980s, and to 56% in FY2013.

[10] Manufacturing in the People's Republic of China, Malaysia, and Viet Nam contributes 25% or more to their GDPs.

[11] Government of India, Ministry of Commerce and Industry. 2011. *National Manufacturing Policy, 2011.* New Delhi.

[12] Details of industrial corridor approach are available on http://www.makeinindia.com/live-projects-industrial-corridor Five industrial corridors have been launched by the government in its budget for FY2015.

[13] Asian Development Bank Institute. 2015. *Connecting South Asia and Southeast Asia, 2015.* Tokyo. http://www.adb.org/publications/connecting-south-asia-and-southeast-asia

[14] ADB. 2013. *Country Partnership Strategy: India, 2013–2017.* Manila.

industrial corridors have three complementary components: trade and transport corridors, production clusters producing goods both for domestic consumption and exports, and urban centers along the corridor. Each cluster is composed of an urban center, a transport hub, and one or more production enclaves, each contributing to the activities of the others.

22. Successful “industrial corridors” involve operationalization of an efficient multimodal transport network within a defined corridor supported by quality infrastructure, logistics, and an enabling policy environment, that includes support for trade facilitation, distribution networks, urban clusters, and international getaways. Such corridors facilitate growth by easing infrastructure bottlenecks, improving access to markets, stimulating trade and investment, and boosting productivity and efficiency through associated network externalities and agglomeration effects. Industrial corridors also promote inclusive growth by expanding economic opportunities in backward regions and providing forward linkages with urban centers and industrial clusters. Furthermore, strategically located national industrial corridors boost regional cooperation through increased investments and trade, production fragmentation and specialization, and linking domestic producers with global production networks (**Figure 2**).

Figure 2.1. Schematic of Industrial corridor

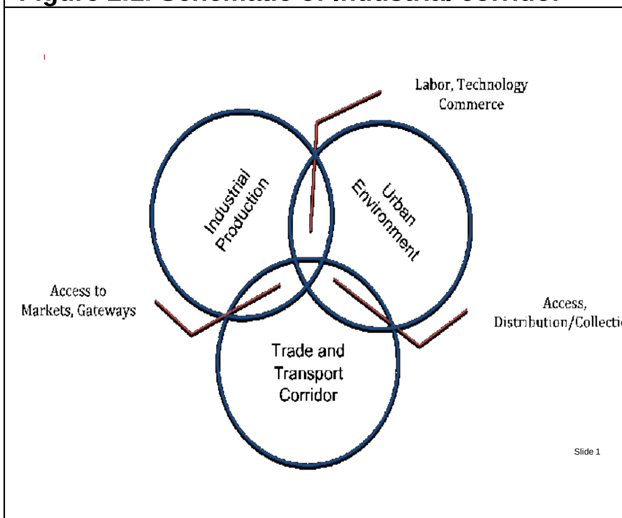
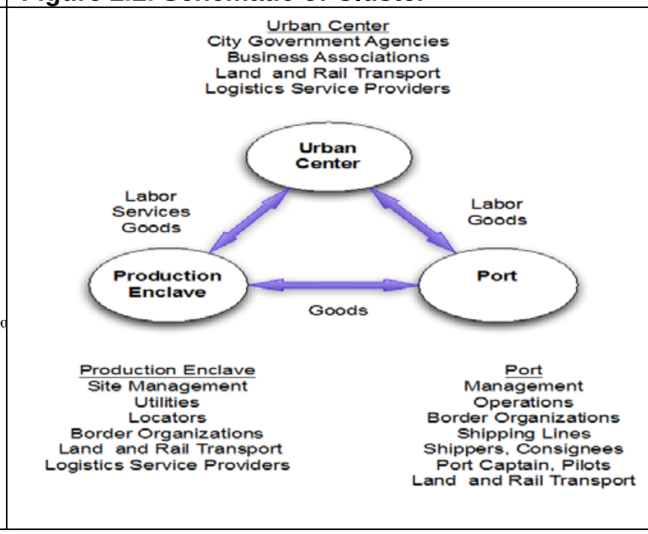
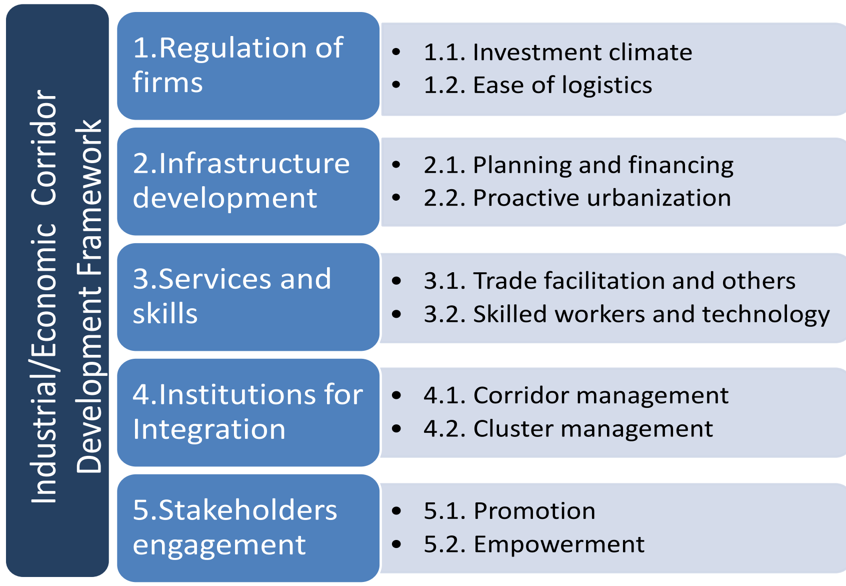


Figure 2.2. Schematic of Cluster



23. To make industrial corridors contribute to the NMP, policy reforms are essential. An illustrative list of measures that are essential include policies for spearheading rationalization and simplification of business regulations, including the use of single window clearance mechanisms; an “exit policy” that aims to balance firms’ needs for adjusting employment levels in response to market conditions with workers’ needs for income security; financial and institutional mechanisms for technology development, especially for SMEs; large scale infrastructure development and; clustering by means of setting up National Investment and Manufacturing Zones. Given the complex factors, dimensions, stakeholders, among others, that through complex interplay will define the effectiveness of industrial corridors, it is essential to underpin the policy reform agenda under a robust framework. The purpose of the framework is to anchor the policy dialogue, and assist in defining policy reforms in a phased manner. Figure 3 provides the framework of the Industrial Corridor Development, which is explained further in this section.

Figure 3. Industrial Corridor Development Framework



1. Regulation of firms

24. Improving ease of doing business would be the prerequisite for success of any industrial corridor. The two key regulatory dimensions which would need to be addressed are:

(i) improving investment climate which essentially covers ease of securing requisite clearances/licenses/approvals from respective government agencies for setting up businesses, as well as renewal of the same during the normal course of business, and winding operations down (when reallocating capital and labor to more productive uses makes economic sense); and

(ii) streamlining logistics both at intra and inter-state level through harmonized tax policies and inspection procedures.

a. Investment climate

25. Making the investment climate conducive for establishment and operation of industrial undertakings involves simplifying the processes, reducing the timelines and ensuring greater transparency associated with clearances / compliances required for: (i) establishment of new units or expansion, modernization, and diversification of existing units; (ii) operating a business in its normal course; and (iii) exiting a business when capital and labor can be redeployed to more productive uses. These fall under various categories including entrepreneur's memorandum (EM) I and II; VAT and other tax related; labor related compliances; environmental clearances; power and water connections.

b. Ease of logistics

26. Logistics, in the context of industrial corridors, essentially covers: (i) Intra-state movement of inputs and outputs across separate administrative jurisdictions (districts for example); (ii) Inter-state movement of goods; and (iii) movement of goods across international borders. These include integration of check posts; streamlined inspection and clearance processes; and inter-state coordination mechanisms.

2. Infrastructure development

27. Industrial corridors need development of basic infrastructure, establishment and operation of production activities, the trade and transport between clusters of production and consumption and the value added by the supply chains used domestically and in international trade. The major factors for the cohesive development of the corridor will be the presence of good connectivity and availability of skilled workforce along the network. The influence area for each corridor is different (50–150 km). The ideal distance on either side is dependent on various parameters, which include coverage of significant population and area, integrating with the existing and planned major industrial developments, inclusion of major urban centers in the vicinity and capitalizing on existing infrastructure strengths. Infrastructure and proactive/planned urbanization are critical to the success of industrial corridors.

a. Planning and financing

28. Infrastructure investment requirements will be huge. The goal of the government is to enable as much investments as possible from private sector or through well designed public-private partnerships (PPPs). Where infrastructure investments are not fully bankable, governments may need to incentivize through viability gap financing and other mechanisms to reduce project risks or undertake/guarantee some of the risks. A predictable and effective infrastructure regulatory regime will be critical for credible and well-funded private sector to participate in the infrastructure development along the industrial corridors.

29. Monetization of land value can be a significant process through which infrastructure, especially in a cluster, can be financed. Historically, some of the highest appreciations in assets take place when agricultural land is converted for commercial or industrial use in urban areas. If properly ring-fenced, land used for industrialization and associated urban growth around industrial corridors could be monetized, as has been successfully demonstrated in the People's Republic of China, for funding next round of infrastructure development or expanding the scope and depth of the existing industrial corridors. Special institutional mechanisms are required for upfront infrastructure investments in the acquired non-urban land, and then to monetize developed land to recover infrastructure investments.

b. Proactive urbanization

30. India's urbanization has been challenged by "ribbon development", which is the result of new industrial clusters developing away from existing cities with limited investment in transportation or urban development. Through proactive and planned urbanization that is synchronized and synergized with surrounding industrialization, a more efficient and productive economy can emerge around the industrial corridors. This means that new industrial clusters away from existing cities should be supported by investments in (i) supportive urban development near industrial clusters at a safe distance, (ii) improved urban infrastructure in existing cities, and (iii) regional mass transit connecting existing urban areas, new urban areas and new industrial clusters.

31. The existing large cities may service the needs of the growing urban population while the rural and peri-urban areas around these cities may be developed into large industrial clusters, to service the need for industries. Government will have to ensure that the connectivity infrastructure between these urban nodes and industrial clusters is of high quality, in order to maximize the synergies between them. The proximity to these large urban agglomerations

might also ensure the availability of a larger pool of skilled and semi-skilled workers for the industries.

3. Services and skills

32. In addition to infrastructure, a number of ancillary services are required to make clusters within an industrial corridor operate effectively, and to ensure that synergies between clusters over the industrial corridor are established and exploited. These services can be under two broad heading: (i) those that are related directly to industrial production, inventory, movement of goods and logistics; and (ii) those that relate to human capital and technology/knowledge related.

a. Trade facilitation and others

33. Globally, efficiency of distribution network has improved dramatically with the introduction of modern logistics, the primary component of which has been the distribution center. Distribution centers are typically located near one of three places: the point of production, the final market or a modal interchange. For the typical cluster they would be within the production enclave at the periphery of the urban center or in the area behind the port. Building efficient logistics will entail, among others, establishment of: inland container depots, distribution centers, portnet information systems, e-governance platforms providing similar services; and port community organizations. Trade facilitation, applicable to both international and interstate trade, is critical to ensure smooth movement of goods across borders, and involves mainly: (i) customs modernization and harmonization, (ii) standards and conformity assessment, (iii) cross-border facilities improvement, (iv) through transport facilitation, and (v) institution and capacity building.

b. Skilled workers and technology

34. Productivity gains have two key dimensions (i) innovation and adaption of appropriate technology; and (ii) skilled and motivated workforce; industry needs both to flourish. To be at the frontiers of global competitiveness, the industrial corridor should be nationally and internationally renowned for the strength of key knowledge sectors. The corridor should be a place of quality employment, skills training and education at all level. New partnerships between industry and universities and research centers within the corridor and also between the entities in the corridor and across the world will be essential to develop cutting-edge advantage.

35. What links innovation and technology to human capital are the industry-university-national research laboratory linkages. The governments need to play proactive role in the industrial corridors to enable and ensure strong linkages between industry and universities within the corridor and outside the corridor. In terms of skill variation across the corridor, the gap in case of skilled and semi-skilled labor is expected to be very high. The workforce requirement for the manufacturing, services and primary sectors along the corridor will depend upon the opportunities being created in the manufacturing sector. Government will have to create a strategy to improve this demand significantly by boosting the manufacturing sector along the corridors.

4. Institutions for integration

36. Coordination failures among diverse entities of the government at each level (central, state, local government) is compounded further by the sheer number of stakeholders involved,

resulting in significant challenges for an industrial corridor to be established and succeed. Lack of empowered institutional structures both at the corridor level and at the cluster level lead to number of failures that cannot be addressed by the markets on their own, especially when such institutions are necessary to provide single-widow solution for stakeholders to deal with plethora of regulatory, tax and policy issues. Only through concerted efforts of the governments, such empowered institutions could be established; these, however, entail changes in several acts and rules. The Figure 4 below lists indicative functions of corridor and cluster management entities.

Figure 4.1 :Functions of corridor management

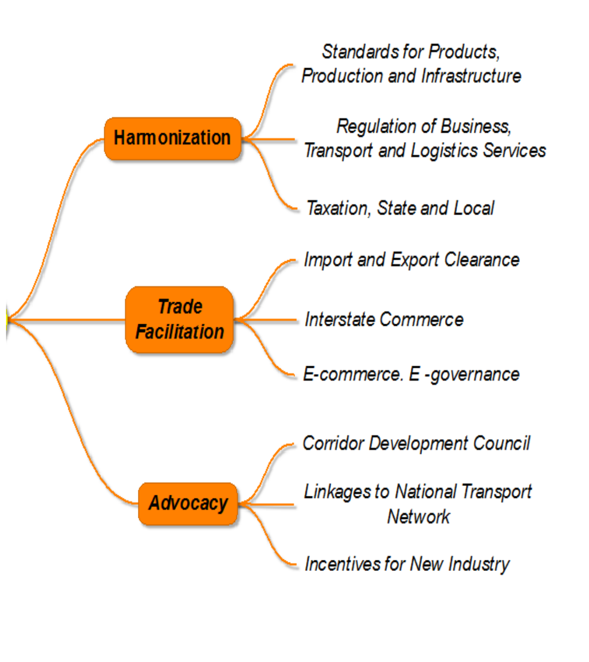
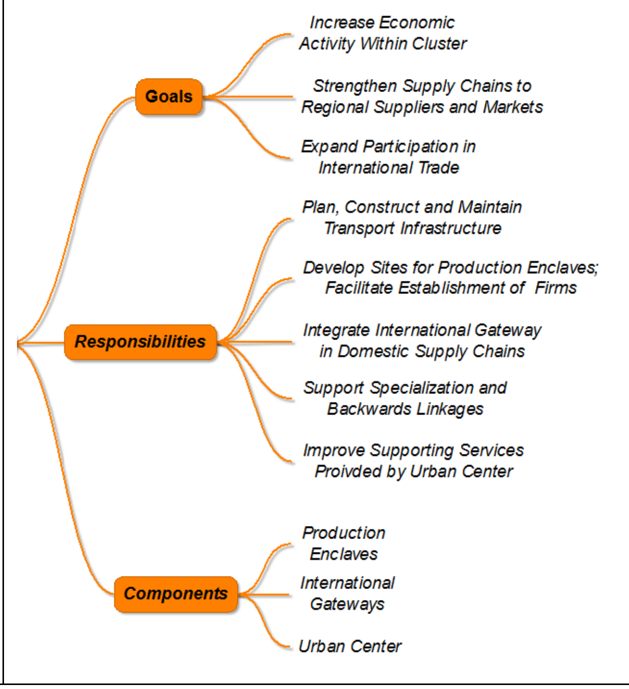


Figure 4.2. : Functions of cluster management



a. Corridor management – national level

37. Given the three tier government structure of India—central, state and local—a national level corridor development entity will be required to encourage establishment of regional corridor development entities. An indicative list of tasks of such a national level corridor management entity would be as follows:

- ensure that the states do not restrict/impair inter-state trade, investment and labor mobility;
- reconcile respective states' existing standards and regulations that govern trade, investment or labor mobility, with agreement on not establishing new standards or regulations that operate to restrict or impair the same;
- ensure uniformity/standardization in policies and regulations;
- Prescribe minimum threshold service levels for individual compliances across different administrative jurisdictions in the corridor;
- enable integration of channels for regulatory compliance across individual agencies/organizations to the extent possible so as to minimize the number of government interfaces for businesses/units; and

- evolve suitable mechanisms for monitoring service levels, initiating remedial measures as well as dispute resolution.

b. Corridor management – regional level

38. There are two types of regulatory issues which need to be addressed as part of corridor management, those which are specific to a particular state and issues which involve more than one state (transit across state borders, for example). An indicative list of actions to be implemented by the state governments is as below.

- Set up empowered institutional structures for according clearances / approvals prior to business commencement through Single Window system, including those for industrial undertakings setting up in industrial areas.
- Make land available for the development of industrial clusters along the corridor and simplify process of obtaining developed land for potential industrialists.
- Develop IT-enabled systems to ensure (i) tracking of time taken by respective government departments in giving requisite clearances, (ii) updates to entrepreneurs on status of application for setting up business, and (iii) tracking of time taken to disburse incentives as per applicable policies/regulations.
- Ensure joint inspections based on pre-defined checklists, with provision for entrepreneurs to furnish the requisite information through IT-enabled systems.
- Delegate powers of providing urban services in Industrial Areas to respective developers through changes to requisite regulations.
- Set up institutional mechanisms to address grievances of investors.
- Closely examine the full range of regulations, central and state-level, that affect entry and exit decisions of firms, and recommending changes to these.
- Harmonize tax rates and policies providing goods and area based tax exemptions to ensure uniformity across participating states.
- Establish integrated check-posts involving multiple state government departments as against separate departmental check posts at the inter-state borders.
- Ensure joint personnel deployment and common inspection at the inter-state borders by officials from concerned state governments.
- Set up institutional mechanisms to address grievances of entrepreneurs.

c. Cluster management

39. The functions of cluster management entities would be to establish linkages between cluster components required to allow reliable delivery of goods and services. The gateway ports need to improve their container handling facilities but, more important, the flow of goods through the port needs to be more efficient and better integrated. The port should function not as an impediment to trade but rather as a part of the supply chains serving the international trade.

40. Activity in the production enclaves needs to be increased. This may involve expansion of industrial zones, simplification of regulation related to doing business, and improvements in the supporting services provided by the management of these zones. The urban center would need to support the production activity in a variety of ways especially providing housing, education and other services for the persons working in the industrial enclaves. The cluster management entity should also support delivery of the goods produced through development of urban freight distribution networks.

5. Stakeholders engagement

41. The domestic and foreign stakeholders can be broadly categorized as: government, private sector, civil society, nongovernment organizations, universities and think tanks, media, bilateral and multilateral agencies, financiers. A brief description of these stakeholders is given under different categories:

42. Government engagement of industrial corridors is through various ministries at both Central and State Governments, along with concerned departments and agencies. Some of key stakeholders include:

- **Central government.** Ministry of agriculture and food processing; civil aviation; coal; commerce and industry; communications and information technology; corporate affairs; environment and forests; finance; human resource development; labor and employment; micro, small and medium enterprises; mines; power; non-conventional energy; petroleum and natural gas; railways; road transport and highways; science and technology; urban development; water resources.
- **State government**. Ministry of agriculture, water supply, energy and petrochemicals, finance, food, civil supplies and consumer affairs, forest and environment, health, family welfare, higher and technical education, higher and technical education, labor and employment, mines and minerals, panchayat, rural housing and rural development, road and buildings, science and technology, tourism and civil aviation, transport, urban housing construction.
- **Local government**s. The third tier local governments have a critical role to play in providing basic services within their respective jurisdictions, which have significant impact on the ability of the industrial corridors to draw highly skilled managers and workers. These include basic service provision: health, education, sanitation, solid waste management, among others) and regulation of land use.

43. **Private sector**. An illustrative list of stakeholders from private sector includes providers of infrastructure, services, industrialists, bankers, among others.

- Infrastructure – special economic zone (SEZ) developers, transport connectivity providers, port operators, residential land developers
- Services – logistics providers, environmental services providers—sewerage, solid waste, communications providers, education, medical facilities, entertainment, cultural activities
- Industrialists – domestic and international industrial associations, industrialists
- Others – bankers, financial intermediaries, and capital market players.

44. **Others**. In addition to the government and private sector, the others include universities, think tanks, civil society representatives including nongovernment organizations, media, bilateral and multilateral agencies, associations representing business interests of foreign investors, among others.

a. Promotion

45. Given the varied number of stakeholders, it is important for government to engage in industrial corridor promotion activities. The objective of the promotion is to make it easy for

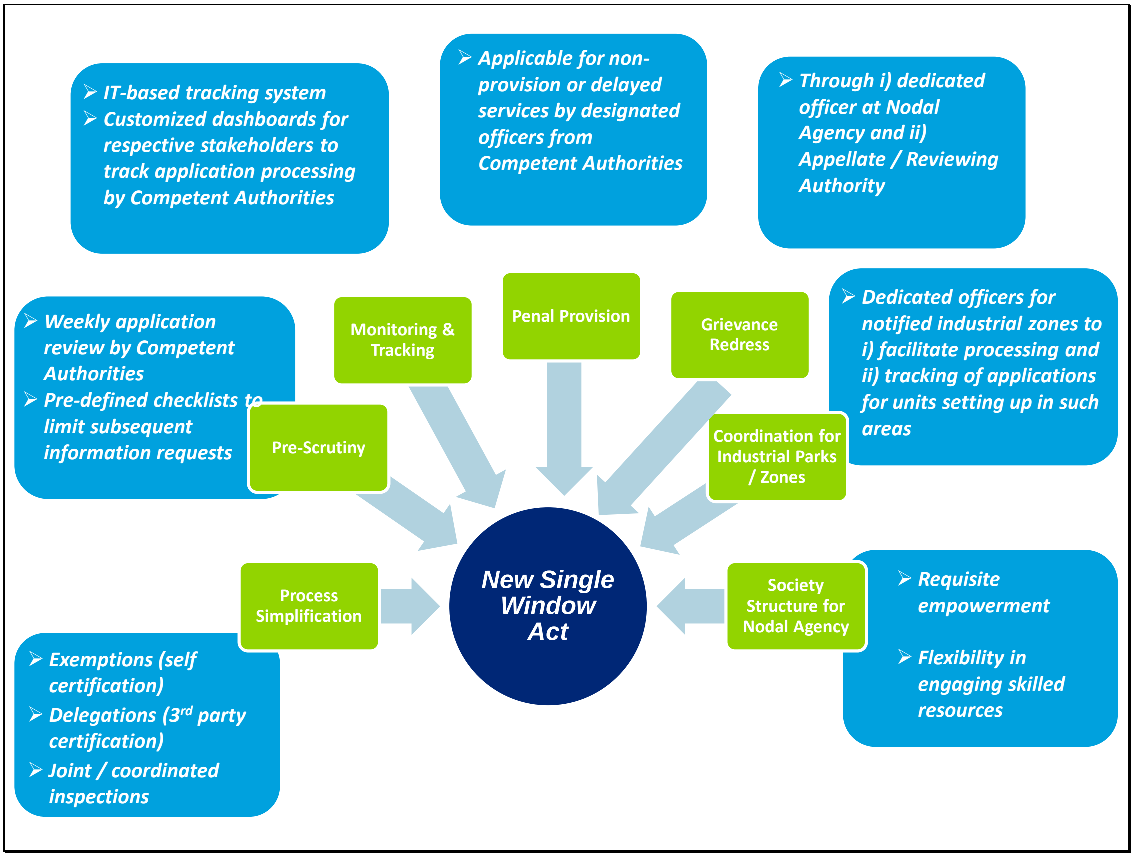
industrialists and entrepreneurs and other stakeholders to do business. Promotion could also include identification of international markets of common interest where co-located offices can be pursued; develop and participate in collaborative international trade and investment initiatives of common interest; develop common messaging when jointly targeting and engaging foreign governments and foreign industry; among others. The advocacy role of the corridor involves attracting new industry to the region and ensuring that each cluster has a reasonable level of access to the national transport network. Promotion could be done using many different options including:

- Use of dynamic websites to create synergies among the stakeholders through easy to access information;
- Use of other information, communication and technology.

b. Empowerment

46. In a globalized world where competition is intense and profit margins are thin, and where unrelated global events have significant impact on business and trade, the industrialists are compelled to constantly explore alternative locations that give them maximum sustainable advantage to compete locally and globally. An empowered industrialist and other stakeholders feel more attracted to remain and continue to operate in one location or expand across an industrial corridor. Empowerment of stakeholders is a cross-cutting theme that regulation, infrastructure, services, institutions need to take care of. At the least stakeholders should be engaged for feedback on policy and implementation, skill partnerships, among others.

Figure 5: State level



47. **Investments for enabling the manufacturing sector:** The GoAP's industrial policy 2015-2020 has a vision to develop Andhra Pradesh as the most preferred destination for investors by providing favorable business climate, excellent infrastructure, good law and order and peaceful industrial relations. The policy targets fiscal benefits to underprivileged sections including women entrepreneurs. The GoAP has also launched a massive program for development of the special investment regions through capital investment and policy implementation. To increase the share of manufacturing GDP to 15% by 2020, attract an investment of Rs.2000 billion and generate additional employment of 1.0 million, GoAP is undertaking several initiatives:

(i) a blueprint for seven missions,[15] including industry sector mission with a six point agenda across skill, gender, technology, infrastructure, funding and improved business environment under its Vision 2050.

(ii) to enhance the "ease of doing business", the state government has also created a "single desk policy," which aims to provide all clearances within 21 days;

(iii) setting up of industrial corridors and large industrial complexes;

(iv) incentive framework for attracting industries; and

[15] Infrastructure mission, primary sector mission, social empowerment mission, urban development mission, industry sector mission, services sector mission, and knowledge and skill development mission.

(v) an online portal for industrial land availability

48. Opportunities based on development initiatives:

(i) an opportunity to leverage its existing industrial infrastructure base to attract large investments, e.g., investments by Isuzu and investment by Xiaomi-Foxconn in Sri City;
(ii) the industry and infrastructure missions will be supported by the existing sector policies to set out specific action points for achieving industrial development;
(iii) a multimodal transport hub to enhance cargo mobility in domestic and import-export trade such as multi-modal logistic parks by a joint venture of Visakhapatnam Port Trust and Balmer Lawrie & Co. Ltd.; and by Container Corporation of India;
(iv) expanding the base of registered firms by bringing the unorganized sector in the ambit of organized sector;
(v) initiatives such as special zones and clusters shall promote planned integrated development with several economic benefits; and
(vi) the new industrial and sector policies shall provide financial support to the MSME to help them scale up their operations.

49. **Manufacturing sector development–next steps:** In support of the government's vision of manufacturing-driven economic transformation, the road map for the sector development program aims to achieve the following targets:

(i) improve the existing industrial infrastructure within the industrial areas, thereby enhancing competitiveness in manufacturing;
(ii) implement the notified Industrial policies, along with other sector specific policies for attracting investments and strengthening employment potential in target sectors;[16]
(iii) enhance "ease of doing business" by initiating business process re-engineering of current systems, and processes linked to starting, operating and closing business in Andhra Pradesh;
(iv) create a project development mechanism for undertaking project development activities for large industrial infrastructure projects like Industrial corridors;
(v) establish centers of excellence for skill development with the support of private sector. Upgrade skill development infrastructure under the APSSDC and National Skill Qualification Framework;
(vi) improve support infrastructure such as testing and quality assurance, research and development, warehousing and logistics, shared support services, etc.;
(vii) prepare an idle land inventory for future manufacturing linked investments to promote optimum utilization of existing land bank;
(viii) develop urban infrastructure around the industrial cluster to create efficient ecosystem in order to enable the envisaged accelerated industrial growth;
(ix) develop and strengthen transport and logistics infrastructure to link the industrial areas to key consumption centers and gateways; and
(x) promote development of logistics services including cold storage and organized trucking facilities around large and mega industrial parks, etc.

[16] Auto and auto component, biotechnology, textile, aerospace & defense, food processing, leather, marine and aqua, and MSMEs.

50. **Enabling competitive manufacturing through infrastructure development.** The node-based industrialization strategy proposed for VCIC is targeted to achieve regional and global competitiveness. Infrastructure development is one of the most important levers needed to attain this core objective. The focus has been on assessing the current state of infrastructure, both in terms of quantity and quality across categories, and identifying critical capacity gaps and other issues. This assessment was then compared with a supply-side assessment of key initiatives at various stages of execution in the pipeline. The initiatives were assessed for their strategic importance for VCIC, as well as for their readiness for implementation. Using this sequential assessment, a near-term roadmap was developed and the approach adapted to the specific context of different infrastructure categories. Around 46 connectivity projects were identified for implementation using the above approach. The framework presented below focused on corridor and node specific infrastructure requirements.

51. **Strengthen existing spinal routes**. Existing spinal routes should be upgraded with state-of-the-art connectivity to enable ports and industries in the region to become integrated within the overall East Coast Economic Corridor network. Some of the projects that are considered for this purpose include the 6-laning of the entire stretch of NH5, a parallel expressway close to the coastline, and a dedicated freight corridor (DFC) on the Chennai–Kolkata route.

52. **Strengthen the grid network**. The grid network should provide cross-connectivity between important linearly aligned National Highway and trunk rail routes to reduce the overall time, cost, and distance of evacuation of cargo from gateways and nodes to the hinterlands. For this purpose, a select set of road and rail links are proposed to fill the existing gaps in cross-connectivity.

53. **Port-centric strategy.** The port-centric development strategy aims to align with large-scale, manufacturing-led economic development through the nodes and integrate India into global manufacturing supply chains. The port development strategy should target brownfield development of two or three mega container ports close to the nodes (primary candidates are the Visakhapatnam–Gangavaram and Krishnapatnam clusters), with the ability to handle large container vessels of 10,000+ twenty-foot equivalent units and the necessary supporting multi-modal connectivity and supply chain and logistics infrastructure. From a bulk cargo perspective, the state may enable port capacity creation across the coastline by prioritizing movement of energy cargo (thermal coal, liquid natural gas) that will be important for the development of the VCIC region.

54. **Airport strategy.** In the short- to medium-term, sufficient capacity exists to cater to the expected base demand. Therefore, the strategy should be focused on enhancing the base demand by incentivizing direct airline services to the existing airports through service upgrades and operational de-bottlenecking, and considering the short distance to the neighboring airport hubs (three of India's top six international airports), facilitating excellent road connectivity to these hubs from the cities and cargo-generating centers is likely to be more capital efficient in the short-term. In the long-term (beyond 10 years). Master-planning of the VCIC region should consider demand from business-induced scenarios resulting from political developments in the overall state, development of the coastal corridor, and additional economic investments.

55. **Energy and water strategy.** Power availability and reliability of supply are more critical challenges in the VCIC region, which is part of India's southern grid in the country. A set of projects for immediate-, medium-, and long-term execution were identified. Twenty-nine generation projects have been proposed in the region over the next 10 years with cumulative capacity of nearly 34 gigawatts to enhance availability. Fifty-one transmission projects have also been proposed over the same period with evacuation capacity of close to 22 gigawatts. The addition of generation capacity is expected to be dominated by independent power producers, whereas transmission capacity will come predominantly through public sector investments. In addition, the Government will enhance reliability at the consumer level through reviewing standards of performance in industrial clusters and benchmarking these to enhance competitiveness. In order to increase the reliability and availability of industrial water in the state of Andhra Pradesh, the following steps are required: (i) identify need for new reservoirs or desalination projects in areas with poor surface water availability; (ii) develop reservoirs at key industrial nodes; (iii) focus on water use efficiency to increase productivity in the shortlisted industry sectors; (iv) introduce water recycling in the shortlisted industries based on international standards; and (v) rationalize and/or remove differential.

56. Beyond investments in physical infrastructure, the study also recommended changes in the regulatory framework to improve the investment climate and provide ease of logistics. This can be done by implementing technology; providing single window; reduce burden of inspections for starting, operating and closing business in Andhra Pradesh; as well as the ease of logistics to provide to industries by providing integrated check posts and bringing in uniformity on entry taxes and documentation.

D. Investment Program

57. **State investment plans:** In line with the promulgation of policies which aims to meet the target of per capita income of US$16,500 by 2029-2030, infrastructure spending worth US$8.1 billion will be required. Of the total spending, US$2 billion has been identified for development as a part of the VCICDP. Funding for the infrastructure project would be sourced mainly from private investments, government, or multilateral agencies. Of the total fund required for investments in infrastructure as a part of VCICDP, ADB along with GoAP has committed to fund US$720 million (Table 2). Additional investments worth US$7.38 billion will be required to fund the already identified projects. At present, total infrastructure funding in the annual budget of GoAP 2015-2016 is US$1.3 billion. This gap in project funding is significant even after central government funding towards National Highways Authority of India (NHAI) roads, major ports and airports, and railways as they contribute 40-50% less on an average. Overall investment needs by priority sector for 2030 horizon is placed at $30.8 billion (Table 3).

Table 2: Investment Program for VCICDP
($ million)

			Amount [a]	
Item		**Project 1**	**Project 2**	**Total**
A.	**Base Cost**[b]			
	1. Internal infrastructure in industrial clusters	73.29	63.52	136.80
	2. Urban water supply and climate change resilience	61.51	49.23	110.74
	3. Roads and road safety measures	40.92	133.82	174.74
	4. Power transmission and distribution	126.90	57.17	184.07
	Subtotal (A)	**302.62**	**303.73**	**606.36**
B.	**Contingencies**[c]	**38.14**	**41.40**	**79.54**
C.	**Financing Charges During Implementation**[d]	**17.24**	**16.87**	**34.11**
	Total (A+B+C)	**358.00**	**362.00**	**720.00**

[a] In end-2015 prices; Exchange rate of US$ 1 = Rs66 is used.
[b] Includes taxes and duties of $48.4 million to be financed in cash from government resource. ADB may finance local transportation, insurance costs, and bank charges.
[c] Physical contingencies are 5% of project costs (computed at 7.0% for civil works and equipment). Price contingencies are computed at 1.4%-1.5% on foreign exchange costs and 5.5% on local currency costs; includes provision for potential exchange rate fluctuation under the assumption of a purchasing power parity exchange rate.
[d] Includes interest and commitment charges. Interest during construction for ADB loan has been computed at the 5-year forward London interbank offered rate plus a spread of 0.5% as of December 2015. Commitment charges for an ADB loan are 0.15% per year to be charged on the undisbursed loan amount.
Source: Asian Development Bank estimates.

Table 3: Summary of Investments Required in VCIC
($ million)

Investments by Sector	Short-term Investment (2015-2020)	Medium-term Investment (2021-2030)	Long-term Investment (2031-2045)	Total
Urban Infrastructure	**2,382.0**	**2,205.0**	**10,140.3**	**14,727.3**
Water Supply	592.3	478.0	2,339.8	**3,410.2**
Sewerage	891.7	275.0	1,355.8	**2,522.5**
Solid Waste Management	73.5	93.7	661.5	**828.7**
Storm Water Drainage	699.2	1,058.5	4,340.2	**6,097.8**
Urban Bus Transport	125.3	299.8	1,443.0	**1,868.2**
Transportation Infrastructure	**3,949.0**	**6,510.8**	**4,622.5**	**15,082.3**
Airports	338.3	86.3	20.3	**445.0**
Roads	3,538.5	1,970.8	1,896.3	**7,405.5**
Railways	72.2	4,453.7	2,705.8	**7,156.7**
Energy	**740.7**	**865.7**	**-**	**1,606.3**
Load Growth and System Improvement	740.7	865.7	-	**1,606.3**
Total	**7,071.7**	**9,581.5**	**14,762.8**	**31,416.0**

Source: VCIC's regional perspective plan.

E. Financing Plan

58. The government of India has requested an MFF of up to $500 million from ADB's OCR and a parallel grant cofinancing of $5 million from the UCCRTF, which it will make available to the GoAP under the same terms as the original loan and grant, to help finance the infrastructure investments under the VCICDP. The MFF is expected to be drawn in two tranches, subject to the government's submission of related periodic financing requests, execution of the related agreements for each tranche, and fulfillment of terms and conditions set forth in the framework financing agreement. Approval for the second tranche is scheduled in 2018. Project 1 of $358 million will be financed by a loan of $245 million from ADB's OCR, and will have a 25-year term, including a grace period of 5 years, a 20-year straight line repayment method, an annual interest rate determined in accordance with ADB's LIBOR-based lending facility, a commitment charge of 0.15% per year, and such other terms and conditions set forth in the draft loan and project agreements. The GoAP will contribute $215 million to the investment cost of the MFF to finance taxes and duties, resettlement costs, part of incremental cost, financing charges during implementation, and part of the civil works, equipment, and consulting services; and will provide

the loan proceeds and counterpart funds to the implementing agencies as a mix of loan and grant. The UCCRTF grant, fully administered by ADB, will finance innovative approaches to climate change resilient urban infrastructure.[17] The financing plan is in Table 4.

Table 4: Financing Plan

Source	**Project 1 Amount** ($ million)	**Project 2 Amount** ($ million)	**Total Amount** ($ million)	**Share of Total** (%)[b]
Asian Development Bank				
Ordinary capital resources (loan)	245.0	255.0	500.0	69.4
Urban Climate Change Resilience Trust Fund[a] under the Urban Financing Partnership Facility (grant)	5.0		5.0	0.6
Government	108.0	107.0	215.0	30.0
Total	**358.0**	**362.0**	**720.0**	**100.0**

[a] Financing partners: the Rockefeller Foundation and the governments of Switzerland, the United Kingdom and the United States.
[b.] The ADB financing of $500 million amounts to 70% of the total Project cost of $715 million.
Source: Asian Development Bank estimates.

[17] Grant under UCCRTF: Strengthening Urban Climate Change Resilience of Visakhapatnam.

Schedule 2: DESIGN AND MONITORING FRAMEWORK[1]			
Impacts the Program is aligned with: Contribution of the manufacturing sector to the GDP, trade and employment of GoAP increased (Government of India National Manufacturing Policy [2011];[a] the VCIC's conceptual development plan;[b] and Government of India Trade Policy [2015–2020][c]			
Results Chain	**Performance Indicators with Targets and Baselines**	**Data Sources and Reporting**	**Risks**
Outcome Growth and competitiveness of the VCIC enhanced	By 2025: a. Manufacturing sector output in Andhra Pradesh increased to Rs4.2 trillion ($64 billion) (2015 baseline: Rs1.1 trillion [$16 billion]) b. Gross value added per person engaged in the manufacturing sector increased to Rs1.0 million (2013 baseline: Rs0.483 million per person engaged)[d] c. Average daily employment of women in factories in Andhra Pradesh increased to 18% (2010 baseline for former Andhra Pradesh: 13.4%)[e] d. 24-hour power supply available for all manufacturing firms in the VCIC and interruption duration not to normally exceed 1 hour a month for feeders in at least 2 VCIC industrial clusters (2016 baseline: 24-hour power supply not available for all manufacturing firms in the VCIC and interruption duration exceeds 5 hours a month) e. 24-hour drinking water supply provided to 64,800 households and nonrevenue water reduced to less than 15% in project area in Visakhapatnam (2015 baseline: 0 for 24-hour supply and 50% for nonrevenue water) f. Traffic in VCIC increased to 21,000 PCU by 2020 (2015: baseline: 15,000 PCU)	a. Annual survey of industries by Directorate of Economics & Statistics, GoAP b. Annual survey of industries by Ministry of Statistics and Programme Implementation, Government of India c. Statistical Profile on Women Labour by Labour Bureau, Ministry of Labour and Employment, Government of India d–f. Annual reports of the GoAP, DOIC, and PIUs; QPRs of VCICDP	Inadequate investments by the government in critical projects (ports and shipping, national highways, telecommunications, railways) in the VCIC Lack of coordination among various government departments Increased competition from other states in attracting investors
Outputs 1. Corridor management strengthened and ease of doing	By 2024: 1a. Corridor management institutions established and operational (2015 baseline: not applicable)	1a. Annual reports of the GoAP and DOIC; QPRs of VCICDP	Lack of political will to continue reforms Delays in legal

[1] Output 1 under the DMF describes the policy-based loan (PBL). Outputs 2 and 3 are relevant to the MFF.

business improved	1b. State's rating remains in top five on Ease of Doing Business (2015 baseline: ranked 2 according to Ease of Doing Business report commissioned by Government of India) 1c. New e-portal and single-desk system operational for issuing business-related licenses to more than 90% of the applicants (2015 baseline: 0) 1d. New industrial and sector policies notified and implemented with fiscal incentives and special packages for women entrepreneurs (2015 baseline: not applicable)	1b. Reports of Department of Industrial Policy and Promotion, Government of India on ease of doing business 1c–1d. Annual reports of the GoAP and DOIC; QPRs of VCICDP	processes for enforcement of contracts
2. Visakhapatnam–Chennai Industrial Corridor infrastructure strengthened and more resilient	By 2024: 2a. 45 km of internal roads improved, with gender-responsive design features[f] and 47 km of storm water drains constructed in industrial clusters (2015 baseline: 0) 2b. Four MLD common effluent treatment plants constructed in industrial clusters (2015 baseline: 0) 2c. 123 km of pipelines, 27 MLD water treatment plants, and 9,100 million liters of storage tanks constructed in industrial clusters (2015 baseline: 0) 2d. 93.6 km of state highways widened, with gender-responsive design features[f] (2015 baseline: 0) 2e. One 400 by 220 kV, five 220 by 132 kV and four 132 by 33 kV new substations with a capacity of about 3,170 MVA and related transmission network comprising about 240 km of overhead and 41 km of underground transmission and distribution lines of 400, 220, and 132 kV installed for industrial clusters (2015 baseline: 0) 2f. 365 km of new drinking water pipelines constructed or rehabilitated and 64,800 water meters installed in Visakhapatnam (2015 baseline: 0)	2a–2g. Annual reports of the DOIC and PIUs; QPRs of VCICDP	Inadequate allocation of power and water to meet industrial and urban demand Delays in land acquisition Low project development and readiness Severe and extreme weather and climate events

	2g. Climate change resilience plan for Visakhapatnam prepared and adopted for integrated water management solution (2015 baseline: not applicable)		
3. Institutional capacities, human resources, and program management strengthened	By 2024: 3a. Project development mechanism with time-bound action plan established 3b. Skill enhancement programs conducted for at least 25,000 persons (at least 20% women), including workers, entrepreneurs, and students 3c. Capacity development programs, including training on gender and monitoring of gender-disaggregated data, conducted for more than 500 staff of executing and/or implementing agencies (100% women staff participate) 3d. Investor promotion plan developed and implemented on time 3e. Satisfactory QPRs and audit reports submitted on time (gender-disaggregated data collected) 3f. Gender equality and social inclusion plan and consultation and participation plan implemented on time	3a–3f. Annual reports of the DOIC and PIUs; QPRs of VCICDP	High turnover of DOIC and PIU staff

Key Activities with Milestones

1. Corridor management strengthened and ease of doing business improved

1.1 Comply with tranche 1 policy-based loan conditions (December 2016)
1.2 Comply with tranche 2 policy-based loan conditions (December 2017)

2. Visakhapatnam–Chennai Industrial Corridor infrastructure strengthened and more resilient

2.1 Award first civil works contracts (March 2017)
2.2 Award all civil works contracts of Project 1 (March 2018)
2.3 Acquire land and implement resettlement plan for Project 1 (December 2018)
2.4 Award all civil works contracts of Project 2 (December 2020)
2.5 Complete all construction and commission all facilities of Project 1 (December 2021)
2.6 Complete all construction and commission all facilities of Project 2 (December 2024)

3. Institutional capacities, human resources, and program management strengthened

3.1 Support APSSDC in preparation and implementation of action plan for training of workers, entrepreneurs and students (January 2017)
3.2 Initiate capacity-building activities of executing and/or implementing agency staff (January 2017)

Program Management Activities

Establish project management unit with full staff (September 2016)
Mobilize project management consultant and design and supervision consultant (March 2017)

Inputs **ADB**: $625 million (MFF of $500 million, policy-based loan of $125 million) Urban Climate Change Resilience Trust Fund under the Urban Financing Partnership Facility: $5 million **Government:** $215 million **Technical Assistance Grant** (TASF-Others): $1 million
Assumptions for Partner Financing: Not applicable

ADB = Asian Development Bank, APSSDC = Andhra Pradesh State Skill Development Corporation, DOIC = Department of Industries and Commerce, GoAP = Government of Andhra Pradesh, km = kilometer, kV = kilo volt, MLD = million liters per day, MTPA = million tons per annum, MFF = multitranche financing facility, , PIU = project implementing unit, QPR = quarterly progress report, TEU = twenty-foot equivalent unit, VCIC = Visakhapatnam–Chennai Industrial Corridor.

[a] Government of India, Ministry of Commerce and Industry, Department of Industrial Policy and Promotion. 2011. *National Manufacturing Policy.* New Delhi.

[b] ADB. 2015. *India's First Coastal Corridor: Vizag-Chennai Industrial Corridor Conceptual Development Plan.* https://www.apindustries.gov.in/APIndus/Data/Vizag-Chennai Industrial Corridor_Full Report.pdf

[c] Government of India, Ministry of Commerce and Industry, Department of Commerce. 2015. *Foreign Trade Policy, 2015–2020.* New Delhi.

[d] Gender-responsive design features for roads include walking paths, separate toilets for women, telephone helplines, adequate lighting, signage, demarcated road crossings, and safe public spaces.

Source: Asian Development Bank.

SCHEDULE 3

IMPLEMENTATION FRAMEWORK

1. Unless otherwise stipulated in loan or project agreements under the Facility, the Facility shall be implemented as follows:

Implementation Arrangements

2. India will cause the State and through the State, the executing and implementing agencies to implement the projects under the Facility in conformity with the requirements of this FFA, the FAM as applicable and stipulated in the relevant loan and project agreement for each project under the Facility.

3. The executing agency for the Facility under the Investment Program will be the State acting through its Department of Industries and Commerce (DOIC). A program management unit (PMU) as established under the DOIC which will be responsible for overall implementation and management of the Investment Program and Facility.

(a) A state-level Steering Committee (SC) as established will provide policy guidance and overall coordination across all implementing agencies, and take decisions on matters related to the Investments and related policies. The SC is chaired by the Chief Secretary of the State and members include secretaries and/or representatives of relevant government departments/agencies.[20] Members at agency levels may be coopted as required.

(b) the PMU shall be responsible for reviewing the subproject appraisal reports for final approval of the subprojects in accordance with the procedures set forth under Schedule 4 to this FFA.

4. The PMU will also be the project management unit under each tranche as applicable,

[20]

Sl.No	Name of the Member	Position
	Chief Secretary to government	Chairperson
	Special Chief Secretary to Govt., TR& B Dept.	Member
	Principal Secretary to Government, MA&UD Dept.	Member
	Principal Secretary to Government, Finance Dept.	Member
	Principal Secretary to Government, Revenue Dept.	Member
	Secretary to Government, Energy, Inf. & Invt. Dept.	Member
	Secretary to Government, Skill Development. Dept.	Member
	Secretary to Government, CIP, Ind. & Com. Dept.	Member Convener

Andhra Pradesh Industrial Infrastructure Corporation (APIIC), Greater Visakhapatnam Municipal Corporation (GVMC), Andhra Pradesh Road Development Corporation (APRDC) and Transmission Corporation of Andhra Pradesh (APTransco) will be the implementing agencies for the investments. Andhra Pradesh State Skills Development Corporation (APSSDC) will be responsible for skill and training components. The PMU will be staffed by expert staff from within the government as well as specialist from the market in the event of non-availability of skills within. The PMU will comprise of staff seconded from the line agencies/market. The PMU will be headed by a project director (PD). He will be responsible for overall management of the program and coordination with and reporting to the Steering Committee, GoAP and ADB on the program.

5. Under the PMU, four project implementation units (PIUs) which will be established in each of the agencies. The PIUs will carry out daily implementation activities. The PMU will be supported by project management and supervision consultants (PMSC) in project management and will assure technical quality of investments and also support policy initiatives of GoAP.

6. The PMSC will be responsible for (i) overall project management, (ii) provide support in managing tendering of contracts and (iii) in supervising the construction works.

Subproject Selection and Implementation

7. (a) The State will ensure that agencies and subprojects are selected and processed for approval, the criteria and procedures included under Schedule 4, as agreeable to ADB, India and the State.

(b) The State will post the procurement documents, and the criteria for subproject selection and details of sanctioned contracts/subprojects on the State's bulletin boards and website.

(c) The State, through the executing agency, will ensure that civil works for all subprojects will be synchronized with other agency/ agencies works.

Subproject Review and Approval Procedure

8. With assistance from the PMU, supported by PMSC, the SC will approve projects based on technical, financial, economic and safeguards compliance as agreed on by GoAP and ADB. . Following ADB's approval, and subject to any modifications and measures required by ADB, the PMU will prepare periodic financing requests (PFRs) for ADB's financing. PFRs will be formally submitted to ADB for further processing through the Government of India.

Conditions for Award of Contracts and Commencement of Works

9. The Government of India will ensure or cause GoAP and the executing agency to ensure that no works contract is awarded for a subproject which involves:

(a) environmental impacts, until the relevant implementing agency has incorporated the relevant provisions from the respective environmental management plan (EMP) into the works contract;

(b) involuntary resettlement impacts, until the relevant implementing agency has prepared and submitted to ADB the respective final resettlement plan for such subproject based on the subproject's detailed design, and obtained ADB's clearance of such resettlement plan; and

(c) impacts on indigenous peoples, until the relevant implementing agency has prepared and submitted to ADB the respective final indigenous people plan (IPP) and obtained ADB's clearance of such IPP.

10. India will ensure or cause GoAP and the executing agency to ensure that no commencement of works is allowed under any works contract under any subproject which involves environmental and resettlement impacts until the relevant implementing agency has (i) obtained the final approval of the respective initial environmental examination (IEE)/Environment Impact Assessment (EIA) from ADB; (ii) if it requires any statutory environmental clearances, then it has obtained the environmental clearance including approval of the environmental assessment report, from the relevant state or national authority; and (iii) compensations and assistance has been paid to the affected persons in the section concerned by works.

11. The State will ensure that sufficient counterpart funds are made available from its budget for each fiscal year, in a timely manner, for the efficient implementation of the projects under the Facility.

12. The State and PIUs will ensure adequate funds towards operations and maintenance of the facilities created under the Facility through budgetary allocations or other means, to be provided to the line agencies during and after subproject completions.

Other Subproject specific requirements

13. The State will ensure that poverty and social assessments are carried out for the subprojects under the Facility in accordance with relevant policies and guidelines of ADB.

14. The State will ensure that civil Works contracts under the Facility will follow all applicable labor laws of the Government of India and GoAP and that these further include provisions to the effect that contractors; (i) carry out HIV/AIDS awareness programs for labor; and disseminate information at worksites on risks of sexually transmitted diseases and HIV/AIDS as part of health and safety measures for those employed during construction; and (ii) follow and implement all statutory provisions on labor (including not employing or using children as labor, equal pay for equal work), health, safety, welfare, sanitation, and working conditions. Such contracts shall also include clauses for termination by the executing agency in case of any breach of the stated provisions by the contractors.

15. The State will ensure compliance with safeguard requirements included in Schedule 5 of the FFA, as applicable to each project; including the specific provisions therein.

Performance Monitoring and Evaluation

16. The PMU will ensure that a program performance monitoring system (PPMS) satisfactory to ADB is established within 3 months of the effectiveness of the first loan under the Facility. The PPMS will monitor and evaluate the performance of the program, as well as of subprojects and projects under each loan, including key impact and outcome indicators and associated assumptions with corresponding target dates.

Review

17. Based on a review of quarterly progress reports, ADB and GoAP representatives will meet as required to discuss the progress of the Investment Program under each loan, any changes to implementation arrangements, or remedial measures required to be undertaken to achieve the overall objectives of specific subprojects and components and of the overall Investment Program. In addition to regular reviews, including a midterm review for each loan, a detailed midterm review of the Facility will be undertaken within a certain period of the effective date as agreed under the first loan agreement by ADB and India and the State. The midterm review will include a detailed evaluation of the scope of the Facility, implementation arrangements, any outstanding issues, environment, resettlement and other safeguard issues, achievement of scheduled targets, contract management progress, and other issues, as appropriate.

Accounts, Auditing, and Reporting

18. The PMU and PIUs will maintain, or cause to be maintained, separate books and records by funding source for all expenditures incurred on the project following relevant standards. The PMU will prepare consolidated project financial statements in accordance with the government's accounting laws and regulations which are consistent with international accounting principles and practices. The PMU and PIUs will maintain separate project accounts and records by funding source for all expenditures incurred under the project. Each project's financial statements will adhere to generally accepted accounting principles followed in India and the cash basis cash basis accounting standards followed by the Government of India. While the PIUs follow accrual accounting for preparing entity accounts, for the purpose of project accounting, the PIUs would prepare project accounts on cash basis for consolidation of project accounts by the PMU.

19. The PMU and PIUs will cause the detailed consolidated project financial statements to be audited in accordance with the government's audit regulations, as supplemented by the terms of reference agreed between ADB, DEA, and CAG India in September 2013, by an independent auditor acceptable to ADB. The audited project financial statements together with the auditor's opinion will be presented in the English language to ADB within 6 months from the end of the fiscal year by the executing agency.

20. The audited entity financial statements of GVMC, APIIC and APRDC, together with the auditor's report and management letter, will be submitted in English to ADB within 1 month after their approval by the relevant authority. GVMC, APIIC and APRDC will submit to ADB the audited entity financial statements, together with the auditor's report and management letter, in the English language within 1 month after their approval by the relevant authority.

21. The audit report for the project financial statements will include a management letter and auditor's opinions, which cover (i) whether the project financial statements present an accurate and fair view or are presented fairly, in all material respects, in accordance with the applicable financial reporting standards; (ii) whether the proceeds of the loan and grant were used only for the purpose(s) of the project; and (iii) whether the borrower or executing agency was in compliance with the financial covenants contained in the legal agreements (where applicable).

22. Compliance with financial reporting and auditing requirements will be monitored by review missions and during normal program supervision, and followed up regularly with all concerned, including the external auditor.

23. The government, executing and implementing agencies have been made aware of ADB's approach to delayed submission, and the requirements for satisfactory and acceptable quality of the audited project financial statements. ADB reserves the right to require a change in the auditor (in a manner consistent with the constitution of the borrower), or for additional support to be provided to the auditor, if the audits required are not conducted in a manner satisfactory to ADB, or if the audits are substantially delayed. ADB reserves the right to verify the project's financial accounts to confirm that the share of ADB's financing is used in accordance with ADB's policies and procedures.

24. Public disclosure of the audited project financial statements, including the auditor's opinion on the project financial statements, will be guided by ADB's Public Communications Policy 2011. After the review, ADB will disclose the audited project financial statements and the opinion of the auditors on the project financial statements no later than 14 days of ADB's confirmation of their acceptability by posting them on ADB's website. The management letter, additional auditor's opinions, and audited entity financial statements will not be disclosed.

SCHEDULE 4

Subproject Selection Criteria and Approval Procedure

1. Government of Andhra Pradesh (GoAP) has selected four agencies for implementing the Investment Program, communicated to Government of India duly confirmed by Department of Economic Affairs (DEA), Government of India. Each implementing agency shall prepare feasibility studies and detailed project reports, identifying the gaps between current and target levels of urban, road and power infrastructure improvement, estimating the interventions required to fill the gaps, and propose subprojects in components A,B,C,D or E as listed below, for funding under the MFF. The implementing agencies shall approve the reports and sent them through DOIC to Government of Andhra Pradesh for acceptance. ADB shall then review the reports. All the subprojects proposed for funding should meet the subproject selection criteria outlined below.

General

2. The GoAP based on a conceptual development plan (CDP) has identified policy and investment measures to enhance manufacturing in the State. In this regard, GoAP has identified and selected implementing agencies, components, and subprojects that should be supported under the Investment Program to achieve the desired impact. GoAP through a Steering Committee would identify the infrastructure requirements in the investment region after conducting consultative meetings with all the implementing agencies to know the demand from the concerned stake holders. Further the demands would then be prioritized and sent to DOIC and GoAP. GoAP in consultation with DOIC will finalize the list of subprojects to be included in the project. Subproject formulation shall be guided by well laid out instructions and shall be after duly understanding responsibilities of repayment of loan; after analyzing the gaps in services prioritizing and marking on a map. The tentative costs also shall be worked out.

Subproject Locations

3. The subprojects should be implemented in the Visakhapatnam–Chennai Industrial Corridor and should form part of any of the identified nodes: Visakhapatnam, Kakinada, Amaravati region, and Yerpedu-Sri Kalaahsti.

Selection of Implementing Agencies

4. The selection of implementing agencies should be based on their potential to support engines of growth in the investment region. The nodal agencies working in the region responsible for providing urban services, power, developing industrial nodes/clusters and constructing roads shall be primarily considered for inclusion for support under the Investment Program. The operational selection criteria used for selection shall be the implementing agencies contributes no less than 30% of the related costs of the subproject; the implementing agencies internally agree to be part of the investment program and shall agree for taking over the assets on completion and to allocate necessary budget for its operation and maintenance (O&M). In case the created assets are proposed to be operated by a line agency, its willingness shall also be obtained; the implementing agencies must not have been supported by any previous ADB/multilaterally-funded projects for investment for the same purpose; the investment shall be in the identified nodes/clusters; the investment is for/in an industrial park/special economic zone (SEZ) or in a urban local body (ULB) that is important for industrial development and has been identified as such by the state’s industrial policy.

5. Based on the foregoing criteria, 4 implementing agencies have been selected for support in Andhra Pradesh. Other implementing agencies that meet the foregoing selection criteria may subsequently be included in the Investment Program if additional financial resources become available through budget savings or initially selected implementing agencies drop out because they fail to meet the criteria for continued support.

Selection of Components

6. Based on discussions and consultations at both the state and implementing agency levels, it was concluded by the ADB and the Government, that the Investment Program should support implementing agencies in developing five basic infrastructure services and a skill development program that are essential in creating an investor friendly industrial environment, namely: (i) water supply systems within industrial areas; (ii) improving water supply in adjoining urban nodes; (iii) effluent collection and treatment in industrial parks and SEZs; (iv) roads – both internal roads in industrial parks/SEZs and connectivity improvement projects between manufacturing zones, logistics hub and ports/terminal; road safety aspects; (v) projects aiming improvement of power supply to the industrial nodes/clusters; (vi) skill development projects; and (vii) facility for project development in DOIC.

Selection of Subprojects

7. Each implementing agency prepares a feasibility report/detailed project report (DPR), which may include all or any of the above services components. This shall be based on the current level of services, the needs and preference of stakeholders, the financial and institutional capacity of the implementing agencies, and the norms and standards prescribed by GoAP. In selecting subprojects in each implementing agencies, GoAP should check and ensure the following:

(i) All subprojects for water supply, roads and power should demonstrate an effective economic internal rate of return of at least 12% and should demonstrate cost-effectiveness in comparison with alternative schemes.
(ii) The implementing agencies shall make available hindrance free land for the executing agency for implementing the works.
(iii) All subprojects will have prepared resettlement plans, if required, in accordance with the Investment Program's resettlement framework.
(iv) All subprojects will meet environmental subproject selection criteria and will have prepared initial environmental examinations, including environmental monitoring plans, in accordance with the Investment Program's environmental assessment and review procedures.
(v) All subprojects will have prepared indigenous peoples development plans, if required, in accordance with the Investment Program's indigenous people's development framework.

8. In addition to the above the sub projects shall have to be in line with the finance-plus criteria set forth by DEA, Government of India.

9. Water supply subprojects shall ensure source sustainability, a minimum per capita supply level of 135 liters per capita per day (lpcd), have an agreement for fixation of an appropriate volume based water tariff, show willingness to pay by consumers, ensure 100% metering, ensure coverage of urban poor and establish a ring-fenced accounting system.

10. Storm water management system shall be limited to be within industrial areas including transferring the collected effluent to the nearby public drainage system.

11. Effluent treatment subprojects shall ensure treatment to the standards of its reuse in industrial sectors using latest technologies, consider treated effluent and byproducts as sources of revenue, comply to disposal standards and have capacities decided on a modular approach ensuring no unutilized capacities.

12. Road subprojects shall demonstrate the debottlenecking requirements, establish connectivity between industrial zones and gateway and have complete design as per the project standards. The sections shall not pass through wildlife reserve or eco-sensitive zones. The detailed design shall address all the issues related to improving the road geometrics and enhancing the road safety based on the proper analysis of the both primary and secondary data

13. Subproject for improving quality of power Supply shall provide reliable power supply, ensure capacity to cope up with future and availability of alternate power supply in case of any outage, shall result in improvement of the voltage profiles and reduction in losses, should be based on system and load studies.

Approval Procedures for Subprojects

14. All the subprojects will be prepared and processed as follows:

(i) With the assistance of DOIC each implementing agency prepares a FR/DPR meeting the subproject selection criteria.
(ii) The ULBs send their DPRs via the DOIC to GoAP for approval and to ADB for review to ensure their compliance with provisions in the framework financing agreement.
(iii) The implementing agencies with the support of DOIC and the PPTAC/PMSC prepares detailed engineering reports (DERs) along with detailed cost estimates for the subprojects.
(iv) The DOIC undertakes detailed appraisal of the subprojects with the assistance of the project management and design supervision consultants, and prepares a summary subproject appraisal report in an ADB compliant format.
(v) Power subprojects shall generate a financial rate of return which is higher than weighted average cost of capital; whereas in case of water subprojects this shall not be insisted upon. In case of industrial infrastructure subprojects in industrial clusters, the cost of such subprojects (including appropriate overheads) should be recovered from industrial units either as capital recovery or a revenue charge. In case of nonrevenue generating subprojects like road subprojects, cash-flow analysis should confirm that, with reasonable government subsidy, the implementing agency has the financial capacity to meet O&M and debt costs to sustain infrastructure and service delivery.
(vi) Economic internal rate of return (EIRR), for the subprojects shall be above the economic opportunity cost of capital (EOCC) estimated at 12%.
(vii) The subproject was prepared in compliance with the FFA (including ADB's Social Dimensions and Safeguard Requirements set forth in Schedule 5 to the FFA);

a. The implementing agencies will follow the ADB procedures as outlined in the environmental assessment and review framework (EARF) and resettlement framework (RF). The implementing agencies will submit the environmental, social and indigenous peoples due diligence reports, environment and social safeguard checklists, and categorization forms, along with detailed subproject files, to ADB. Each respective tranche loan documentation will specify whether, for non-category A subprojects, this submission is for review and approval, or for information.

b. As outlined in the EARF, for a subproject likely to be classified as category A for any environment, involuntary resettlement, or indigenous peoples impacts under tranche 2, the implementing agencies will refer the subproject to ADB and provide relevant environmental and social information to ADB early in its due diligence process, and submit the draft environmental impact assessment (EIA), resettlement plan and/or indigenous people plan (IPP) to ADB for review and clearance before the subproject is approved for use of funds from the ADB facility. The draft EIA report will be made publicly available at least 120 days before the approval of the subproject, and the draft resettlement plan and draft IPP will be made publicly available before the approval of the subproject.

(viii) The DOIC sends all the sub project appraisal reports based on the DERs to ADB for review and approval in a format agreed between GoAP and ADB. ADB may advise DOIC to modify the reports if necessary.

(ix) Based on ADB's approval, and subject to any modifications and measures required by ADB, the DOIC and GoAP prepare periodic financing requests for ADB financing.

(x) Periodic financing requests are formally submitted to ADB through the Government for further processing.

Monitoring during Implementation

15. The GoAP, acting through the DOIC, is responsible for monitoring of implementation of all subprojects.

SCHEDULE 5

SOCIAL DIMENSIONS AND SAFEGUARD REQUIREMENTS

1. India will cause the State to ensure that all the requirements prescribed in this Schedule, and the following social and safeguard frameworks and plans that have been prepared with respect to the Facility and the first tranche and of which Asian Development Bank (ADB) has been provided full copies, and which are deemed incorporated herein by reference, are complied with during the processing and implementation of the subprojects under the Facility.

(i) Environmental assessment and review framework,
(ii) Resettlement framework,
(iii) Initial environment examination, environmental management plan, and resettlement plans for all subprojects for the first tranche, and
(iv) Gender equity and social inclusion action plan.

2. The frameworks cover the Facility-specific information and requirements in accordance with ADB's safeguard policies: (i) the general anticipated impacts of the components or projects likely to be financed under the multitranche financing facility on the environment, and involuntary resettlement; (ii) the safeguard criteria that are to be used in selecting components, projects; (iii) the requirements and procedure that will be followed for screening and categorization, impact assessments, development of management plans, public consultation and information disclosure (including the 120-day disclosure rule, if required), and monitoring and reporting; and (iv) the institutional arrangements (including budget and capacity requirements) and the client's and ADB's responsibilities and authorities for the preparation, review and clearance of safeguard documents.

3. Prior to the preparation of each periodic financing request, the applicability and relevance of each safeguard framework for environmental assessment, and involuntary resettlement will be reviewed by the executing agency and updated to ensure relevance and consistency with applicable country legal frameworks and ADB's safeguard policies, as amended from time to time.

4. In all cases, for each new periodic financing request preparation, the India will cause the executing agency to review ongoing projects to check on the status of compliance with the social and safeguard plans and frameworks, and submit the review reports to ADB, together with other required safeguard documents relevant to the subprojects included in the tranche being processes. In any case, if major noncompliance is discovered in the course of the review of ongoing projects, a corrective action plan will be prepared and submitted to ADB.

SCHEDULE 6

UNDERTAKINGS

Definitions of the terms used in this FFA are those as included in the relevant Loan Agreement. India shall ensure, and shall cause the State, the executing and all implementing agencies to ensure the following:

1. The State and/or executing and implementing agencies shall remain committed to the implementation of the Investment Program over the period [2016-2024] as envisaged in the State's Industrial Road Map detailed out in VCIC's Conceptual Development Plan and Regional Perspective Plan.

2. In the event of any change in the Road Map, policy framework, Investment Program, or financing plan, India, the State and ADB will assess the potential impact on the Investment Program and evaluate any change in scope, amendment, or continuation, as appropriate.

3. The implementation of the Facility and projects under the Investment Program shall conform to ADB's mandatory policies on safeguards, anticorruption, procurement, consulting services, and disbursement, and following undertakings.

4. The State, executing and implementing agencies will ensure that the implementation of the Subprojects under the Investment Program and Facility is in compliance with the undertakings and assurances concerning, Environmental Safeguards, Indigenous Peoples Safeguards, Involuntary Resettlement Safeguards, gender policy, labor standards, and prohibited investments as set out in Schedule 5 of this FFA and the loan agreement for each tranche under the Investment Program.

5. The State shall make available the ADB loan proceeds to the executing and implementing agencies under appropriate arrangements acceptable to ADB, and ensure:

(a) sufficient counterpart funds from its budget for each fiscal year, in a timely manner, for the efficient implementation of the project;

(b) adequate funds towards operations and maintenance of project facilities through budgetary allocations or other means, to be provided to the executing or implementing agencies, during and after the subprojects completion; and

(c) The State through the executing agency shall make available all necessary budgetary and human resources to fully implement the social safeguard documents including the IEE/EIA, EMP, the resettlement plan and the IPP as required.

(d) The State through executing agency will designate at least one expert each to supervise implementation of the EMP, and resettlement plan if any.

6. The State, through the executing and implementing agencies, shall employ sufficient staff for the duration of the Investment Program with adequate and relevant expertise in the field of project management, financial management, engineering, construction supervision, procurement, equipment inspection and testing, and environmental and social safeguards implementation; the State, executing and implementing agencies shall ensure that all projects are implemented in accordance with the detailed arrangements set forth in the FAM, and if applicable, any PAM that may be prepared for any

portion of the Investment Program and Facility. Any subsequent change to the FAM (or PAM) shall become effective only after approval of such change by India and ADB.

7. The State shall set up a Steering Committee to ensure coordinated and integrated development of the Industrial Corridors that supports the State's investments road map and the VCIC Master Plan to be developed for the four nodes (Visakhapatnam, Kakinada, Amaravati region, and Yerepdu–Kalahasti).

8. India and the State shall remain committed to, and monitor and enforce, the implementation of the VCIC Master Plan.

9. (a) The State, executing and implementing agencies will ensure that the projects are implemented in accordance with the detailed arrangements set forth in the FAM/PAM. Any change to the FAM/PAM will be subject to prior agreement and in the event of any discrepancy between the FAM/PAM and Loan Agreement the provisions of the Loan Agreement will prevail.

10. (b) Towards smooth implementation of the projects under the Facility, the State, through EA and IAs, shall ensure that grievance(s) if any from stakeholders relating to Project implementation or use of funds are addressed effectively and efficiently.

11. The State through the executing and implementing agencies will ensure that Works contracts will (i) follow all applicable labor laws of India and the State and that these further include provisions to the effect that contractors (a) carry out HIV/AIDS awareness programs and disseminate information at worksites on risks of sexually transmitted diseases and HIV/AIDS as part of health and safety measures for those employed during construction; (b) follow and implement all statutory provisions on labor (including not employing or using children as labor, equal pay for equal work), health, safety, welfare, sanitation, and working conditions. Such contracts shall include clauses for termination in case of any breach of the stated provisions by the contractors.

12. The State through the executing and implementing agencies shall announce the projects and business opportunities associated with the Facility on their websites. The websites shall disclose the following information in relation to goods and services procured for the projects and Subprojects: (i) the list of participating bidders, (ii) the name of the winning bidder, (iii) the amount of the contracts awarded, and (iv) the goods and services procured. In accordance with the ADB Procurement Guidelines, the published information for contracts shall also include the bid prices as read out at bid opening, the reasons for rejection of unsuccessful bidders, and the duration of the awarded contract.

13. India, the State, executing and implementing agencies shall comply with ADB's Anticorruption Policy (1998, as amended to date) and (i) will ensure that the anticorruption provisions acceptable to ADB, India, the State are included in all bidding documents and contracts financed by ADB in connection with the projects, including provisions specifying the right of ADB to review and examine the records and accounts of the executing and implementing agencies, and all contractors, suppliers, consultants, and other service providers as they relate to the Subprojects and the projects, and as included in the FAM/PAM, (ii) will allow and assist ADB's representatives to carry out random spot checks on the work in progress and utilization of funds for the projects; (iii) acknowledge that ADB reserves the right to investigate directly or through its agents any alleged corrupt, fraudulent, collusive or coercive practice relating to the projects; and (iv) cooperate with any such investigation and extend all necessary assistance for satisfactory completion of such investigation, and as included in the FAM/PAM.

14. The State shall provide all counterpart funds, land and facilities required for timely and effective implementation of projects under the Investment Program, including, without limitation, any funds required (i) to meet any shortfall between cost and revenues for the operation and maintenance of the facilities created or rehabilitated under the projects; (ii) to mitigate unforeseen environmental and social impacts; and (iii) to meet additional costs arising from design changes, price escalation in construction costs and/or unforeseen circumstances.

15. (a) The State through the executing and implementing agencies will ensure that all land and all rights-of-way required for the projects and subprojects, and all projects' facilities are made available to the Works contractor in accordance with the schedule agreed under the related Works contract and all land acquisition and resettlement activities are implemented in compliance with (i) all applicable laws and regulations of India and the State relating to land acquisition and involuntary resettlement; (ii) the ADB's Involuntary Resettlement Safeguards; and (c) all measures and requirements set forth in the respective resettlement plan, and any corrective or preventative actions set forth in a Safeguards Monitoring Report.

(b) The State through the executing and implementing agencies will ensure that the preparation, design, construction, implementation, operation and decommissioning of the projects facilities comply with (i) all applicable laws and regulations of India and the State relating to environment, health, and safety; (ii) the ADB's Environmental Safeguards; and (iii) all measures and requirements set forth in the Initial Environment Examination (IEE)/Environment Impact Assessment (EIA) and the respective Environment Management Plan (EMP), and any corrective or preventative actions set forth in a Safeguards Monitoring Report.

16. The State through executing agency shall ensure that all subprojects are selected and approved in accordance with the selection criteria and approval process set out in Schedule 4 to this FFA and all documents forming the basis for screening, selection and processing of subprojects are made available to ADB upon request and are kept available for such purposes for a minimum period of five years from the date of the relevant project completion report.

17. The State shall cause executing and implementing agencies to establish a project monitoring system in line with the targets and indicators set out in the DMF for the Investment Program.

18. The State shall pass on to executing and implementing agencies the proceeds of the loans from ADB on the terms and conditions acceptable to India, the State, and ADB.

19. The executing agency shall ensure timely identification of land to be acquired and initiation of land acquisition proceedings following requirements of safeguard compliances under ADB's SPS and related resettlement framework and resettlement plans to facilitate timely tendering of Works contracts.

20. In the event of indigenous peoples impact during any project implementation, India will ensure or cause the State through the executing to ensure that the preparation, design, construction, implementation and operation of the project, and all project facilities comply with (a) all applicable laws and regulations of India and the State relating to indigenous peoples; (b) the ADB's Indigenous Peoples Safeguards; and any corrective or preventative actions set forth in a Safeguards Monitoring Report.

21. India will cause the State through the executing and implementing agencies to do the following:

(a) submit semi-annual safeguards monitoring reports to ADB and disclose relevant information from such reports to affected persons promptly upon submission;

(b) if any unanticipated environmental and/or social risks and impacts arise during construction, implementation or operation of the project that were not considered in the IEE/EIA, the respective EMP and the respective resettlement plan, promptly inform ADB of the occurrence of such risks or impacts, with detailed description of the event and proposed corrective action plan;

(c) no later than award of related Works contract, engage qualified and experienced external expert(s) under a selection process and terms of reference acceptable to ADB, to verify information produced through the Project monitoring process, and facilitate the carrying out of any verification activities by such external experts and

(d) report any breach of compliance with the measures and requirements set forth in the respective EMP and the respective resettlement plan, promptly after becoming aware of the breach.

22. The State through the executing and implementing agencies will ensure that no proceeds of the loan under the projects are used to finance any activity included in the list of prohibited investment activities provided in Appendix 5 of ADB's Safeguard Policy Statement (2009).

23. The State through the executing agency will ensure that the projects are undertaken in conformity with the Communication Strategy and gender equity and social inclusion (GESI) activities as agreed between ADB, Indian and the State and as referred in the PAM.

24. In accordance with ADB's Public Communications Policy, ADB will disclose the annual audited financial statements for the projects and the opinion of the auditors on the financial statements within 30 days of the date of their receipt from the State through the executing or implementing agencies by posting them on ADB's website.

25. The State will provide timely and adequate funds to the executing and implementing agencies for maintenance of the facilities created under the projects under proper and defined plans to be developed by the executing agency, during implementation of the projects, as also after their completion.

26 The State through the executing agency will ensure that no Works contract is awarded for a Subproject which involves:

(a) environmental impacts, until relevant implementing agency has incorporated the relevant provisions from the respective EMP into the Works contract;

(b) involuntary resettlement impacts, until relevant implementing agency has prepared and submitted to ADB the respective final resettlement plan for such Subproject based on the Subproject's detailed design, and obtained ADB's clearance of such resettlement plan; and

(c) impacts on indigenous peoples, until relevant implementing agency has prepared and submitted to ADB the respective final IPP and obtained ADB's clearance of such IPP.

27 As condition for award/commencement of Works under subprojects, India will or will cause through the State that the executing or implementing agencies ensure that no commencement of Works is allowed under any Works contract under any Subproject which involves environmental and resettlement impacts until the implementing agency has (i) obtained the final approval of the IEE/EIA from ADB; (ii) if it requires any statutory environmental clearances, then it has obtained the

environmental clearance including approval of the environmental assessment report, from the relevant state or national authority; (iii) compensations and assistance has been paid to the affected persons in the section concerned by civil Works.

28. In addition to the standard assurances, India, the State, executing or implementing agencies have given the following assurances, which will be incorporated in the individual loan agreements as applicable, subject to any amendments to be mutually agreed among the parties:

Counterpart Funding	Sufficient counterpart funds (including contingency funds to mitigate unforeseen cost increases) will be made available from the Government, State budgets each fiscal year and will be allocated and disbursed in a manner that ensures timely and effective implementation of subprojects.
Project implementation (water supply)	Concerned implementing agency will give highest priority to water loss management for the duration of the Facility; will undertake condition assessment survey of existing pipelines in deciding replacement and repairs of water supply pipelines, and for this the implementing agency will ensure that the contractors have full access to maps, technical data, past technical reports and premises necessary for efficient operations of water loss detection. Following timelines will be complied with: (i) Volumetric tariff in the north-west zone of Vishakhapatnam municipal area to cover costs of 100% O&M in a phased manner by Dec 2024; (ii) Nonrevenue water reduction by DMA approach and active leakage control units by Dec 2019; (iii) Water quality monitoring facility by GVMC by Dec 2017; and (iv) Individual water supply connections to households in slums and to below poverty line (BPL) families provided by GVMC in a phased manner by Dec 2024.
Power sector	India and the State will ensure that : (a) APTransco continues to seek and receive investment approvals and file its aggregate revenue requirement in a timely manner to the Andhra Pradesh Electricity Regulatory Commission (APERC); (b) APTransco will provide an equity contribution of 25% of the capital cost to be incurred as committed to the APERC in the tariff order for 2014-2019 and will also arrange for the remaining counterpart funds required for investments.
Road Sector	Develop and implement road safety action plan in at least two of the four nodes of VCIC (by APRDC).

29. **Actions to be completed as condition precedent to second PFR.** The following activities would require to be complied by the State through executing agency before ADB can consider a second periodic financing request under the Facility:

(i) The State and GVMC shall have completed the public consultations and undertaken the relevant land acquisition and resettlement for the Raiwada Canal subproject by no later than March 2017; and in the alternative undertaken necessary due diligence and project preparation for the alternate subprojects in Bhimli and Anakapalle.