EXECUTIVE SUMMARY

New Integrated Terminal Building, Reconstruction of Old Terminal Building, Modification of Existing Expanded Terminal Building, Associated City Side Facilities, Expansion of Apron and Link Taxiway Track, Multi -Level Car Park and Cargo Terminal at the Pune Civil Enclave
(Pune Airport)

Project Proponent

Airport Authority of India
Pune International Airport, Lohgaon,
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EXECUTIVE SUMMARY

for

EIA for Construction of New Integrated Terminal Building, Reconstruction of Old Terminal Building, Modification of existing expanded Terminal Building, Associated City Side facilities, Multi -Level Car Park and Cargo Terminal at Civil Enclave, Pune Airport (Maharashtra)

0.1 Introduction

Pune Airport (Aerodrome Code 4C) belongs to Ministry of Defense (IAF). The airfield was established in 1939 as RAF Poona to provide air security to the city of Bombay (now Mumbai). The base was home to World War II squadrons of de Havilland Mosquito and Vickers Wellington bombers and Super Marine Spitfire fighter aircraft. In May 1947, the Royal Indian Air Force took charge of the airfield. The Pune Airport was declared as a customs airport in January 1997 for the export of specified goods. With effect from 12 December 2005, Pune Airport was certified as an international airport for the clearance of passengers and baggage.

AAI is maintaining the Civil Air Terminal complex for facilitation of civil aircraft operation. Indian Air force is providing air traffic services. Pune Airport is a Custom Civil Enclave.

The existing old integrated passengers terminal building at Pune Airport is insufficient and congested for handling increasing numbers of passengers. The existing terminal building at Pune Airport has saturated. In view of the future traffic growth at Pune Airport, there is immediate requirement of new integrated terminal building, reconstruction of old terminal building, modification of existing expanded terminal building, associated city side facilities, multi -level car park and cargo terminal at the Pune Civil Enclave.

Airports Authority of India (AAI) has planned for construction of New Integrated Terminal Building, Reconstruction of Old Terminal Building Modification of

existing expanded Terminal Building, Associated City Side facilities, Multi -Level Car Park and Cargo Terminal at Civil Enclave, Pune Airport.

The EIA studies have been carried out as per TOR approved by MoEF&CC vide letter Dated 16 April, 2018.

0.2 Project Description

0.2.1 Justification of proposed Development at Pune Civil Enclave

The existing old terminal building at Pune has saturated. In view of the future traffic growth at Pune Airport, there is an urgent requirement of New Integrated Terminal Building, Reconstruction of Old Terminal Building Modification of existing expanded Terminal Building, Associated City Side facilities, Multi -Level Car Park and Cargo Terminal at the Pune airport premises on the land provided by Indian Airforce.

0.2.2 Key Scope of Proposed Development at Pune Civil Enclave

Under the proposed project, construction of new integrated terminal building, reconstruction of old terminal building (7000 sqm), modification of existing expanded terminal building, associated city side facilities, multi -level car park and cargo terminal at Civil Enclave are proposed. The scope of work for proposed development at Pune Civil Enclave is given below:

- New Integrated Terminal Building will be constructed on 35000 Sqm area adjacent to old terminal building.

- 7000 sqm area of existing old terminal building will be reconstructed.

- Construction of New Integrated Cargo Terminal having an area of 2750 sqm (approx.) along with truck docking area in the city side, palletization area in the air side and Track parking area as per BCAS Norms.

- The planning and design of multilevel car park with all amenities for at least 1000 cars with additional future provision for 500 cars and surface parking for

VIP cars & 10 buses, separate car / scooter park area for AAI and airlines staff at appropriate location. 2 floors of commercial space and other passenger facilities *i.e.* ground and first floor shall be provided in the multilevel car park.

- Expansion of existing Apron towards East side for 4 Nos. Code "C" (AB321/B737) type of aircrafts along with associated Link Taxi track having an apron and taxi track area of 20800 sqm (approx.) and shoulder area of 6050 sqm approx.) connecting the expanded apron to the parallel taxi and associated shoulders, GSE Area etc.

- Other Associated facilities

0.2.3 Utilities and Other Features

- Existing Civil Enclave is located on 26.01 Acres land. For proposed development of existing Civil Enclave additional 15.84 Acres land free from all incumbrances is being handing over by Indian Airforce to Airports Authority of India.
- Total power requirement for the proposed development of Pune Civil Enclave will be 6775 kW. It is proposed to install 5 numbers of DG sets considering one additional standby DG set of 1500 kVA capacity.
- Central Airconditioning plant is proposed and total estimated air-conditioned load is 1700 TR after diversity. Microprocessor based control system (BMS) will also be installed at the Pune Civil Enclave.
- At the new integrated terminal building Energy Conservation will be as per Energy Conservation Building Code 2007 (ECBC). 150 kW solar PV power plant will be esteblished to generated solar power.
- Fresh water requirement will be 715 KLD for domestic, food courts, retail, offices, HVAC, etc. Water requirement will be extracted through bore wells at the Pune Civil Encalve after obtaning prmission from competent Authority.
- As per water balance diagram, 1125 kl/d sewage will be generated after the operation of integrated terminal building which will be treated in STP of capacity 1200 kl. Moving Bed Biofilm Reactor (MBBR) type STP will be installed for treatment of waste water at the proposed Civil Enclave.

- For storm water management at the site, rectangular sections for side drains will be provided. The drains have been kept sufficiently away from the taxiway / runway.

0.2.4 Project Cost

The estimated cost of new Integrated Terminal Building, Reconstruction of Old Terminal Building, Modification of existing expanded Terminal Building, Associated City Side facilities, Expansion of existing Apron and taxi track, Multi -Level Car Park and Cargo Terminal at Civil Enclave at Pune Civil Enclave is estimated as approx. Rs 700 Crores.

0.3 Description Of Environment

Topography and Physiography: The topography of the study area is almost plain. The average elevation at the site is 586 m amsl. Ground elevation in the study area is vary from 554 m to 732 m above mean sea level. Indrayani River is flowing at distance of 6.7 km in north-east direction while Mule River is flowing at distance of 4.2 km. There are few hillocks/rockout crops in North-North West direction.

Geology: The entire area of the district is underlain by the basaltic lava flows of upper Cretaceous to lower Eocene age. The shallow alluvial formation of Recent age also occurs as narrow stretch along the major rivers flowing in the area.

Soil Characteristics: Soil of the area are generally medium black to deep black clayey soil. In the study area, soil are loam, sandy clay loam and sandy loam in texture.

Surface Water Resources: Indrayani River is flowing at distance of 6.7 km in north-east direction while Mule River is flowing at distance of 4.2 km. Pauna River is confluence with Mule River within study area at distance of 8.3 km in west direction. The general slope of the area in lower part of study area is towards Mula River in the south. In upper part of the study area slope towards Indrayani River in north-east direction.

Ground Water Quality: Ground water quality of study area meets desirable limit. Ground water resources in the study area were found fit for drinking purpose.

Micro Meteorology: The maximum ambient temperature recorded near Pune Civil Enclave during the study period was 41.7˚C while minimum temperature was recorded as 14.3˚C. Maximum relative humidity recorded near Pune Civil Enclave was 66.5% while minimum humidity was recorded as 38.8%. Maximum wind speed recorded near Pune Civil Enclave was 11.3 kmph while minimum wind speed was recorded as 1.8 kmph. Mean wind speed was 8.6 kmph. During the study period, predominant wind directions were recorded towards E-SE to W-NW Sector.

Ambient Air Quality: Ambient air quality monitoring have been carried out at eight locations during pre-monsoon season for $PM_{2.5}$, PM_{10}, SO_2, NO_2, NH_3, O_3, C_6H_6, BaP, Pb, As, Ni and CO. National ambient air quality standards for industrial, residential, rural & other areas are met for all monitored parameters at all AAQM locations during the study period.

Noise Level: Nose measurements were carried out at 8 locations. Measured day and time Leq noise levels are within the limit stipulated noise standards.

Natural Hazards and Disaster Risk: The Pune Civil Enclave lies in seismic zone III according to zoning map of India. Structure of new terminal building has been designed in view of seismic factor and other natural hazards.

Landuse & Land Cover in the Study Area – As per satellite image interpretation, built up area/ssettlement (39.76%), waste & fellow land water (20.18 %), agriculture land (18.39%), vegetation/plantation (17.25 %) and rivers/water body (4.42 %).

Terrestrial Ecology: Within 10 km radius area, no species of flora and fauna have been categorized as rare, endangered and threatened (RET) species. There is no wildlife sanctuary, national park or other protected area within 10 km distance from the Pune Civil Enclave.

Socio-Economic Environment of Study Area: Total population of 3303148 in the study area comprises 1696628 male and 1606520 female from 25379 households. Scheduled caste population and scheduled tribe population is 13.4% and 1.14%, respectively. Sex ratio of the study area is 947. The literacy rate in the study area is 79.8%.

0.4 Anticipated Environmental Impacts & Mitigation Measures

Topography & Physiography : Topography of the area is plain. For construction of new integrated terminal building and associated facilities, for construction of the proposed facilities at the Pune Civil Enclave, tentatively 60000 cum filling will be required. Approx 50000 cum earth excavated from construction of 11986 sqm size basement will be used filling at the site.

Mitigation Measures

- Land clearing at the site will be kept to the absolute minimum practicable; and
- Construction site would be designed to minimize filling of the earths.
- Borrowing of earth will be ensured only from approved borrow area having valid environmental from District Level Environmental Impact Assessment Authority (DEIAA).

Land Use Pattern: Existing Civil Enclave is located on 26.01 Acres land. For proposed development of existing Civil Enclave additional 15.84 Acres land free from all incumbrances is being handing over by Indian Airforce to Airports Authority of India. The land use pattern of the land to be used for construction of new integrated terminal building and associated works, will be changed permanently, however this impact will be localized.

Mitigation Measures

- Land clearing for construction site will be kept to the absolutely minimum practicable;
- The filling and cutting of soil would be kept minimum; and
- Construction debris and waste generated during construction activities will be collected and disposed in environmental sound manner as per applicable rules depending upon type of wastes.

Water Resources and Water Quality: During the construction phase of the construction of new integrated terminal building and other associated work at Pune Civil Enclave , approx.. 150 kl/day water will be required depending upon the type of construction activities. The water requirement will be met through existing deep bore well. Total water requirement at Pune Civil Enclave after proposed new integrated terminal building is estimated as 715 kld, which includes water for HVAC, CFT, green belt purposes. 1125 kld waste water generated from Pune Civil Enclave will be treated in MBBR technology based Sewage Treatment Plant (STP) and reused for HVAC, flushing, greenery development.

Mitigation Measures

- Continuous efforts will be made to reduce water consumption using less water required cisterns ;
- Water efficient urinal and toilets will be provided in new integrated terminal building.
- Efforts will be made to stop wastage and leakage of water;
- Sewage and domestic waste water will be treated in MBBR based Sewage Treatment Plant
- Reused treated waste water in HVAC, flushing, greenery and landscaping

Soils: Approx 2600 kg per day solid waste will be generated during operation of the new terminal building at Pune Civil Enclave, which is collected, segregated and managed by external agency for disposal as per Solid Waste Management

Rules, 2016. Hence, the impact on the soil will be insignificant as an organized solid waste collection and disposal practices exist at the Pune Civil Enclave.

Mitigation Measures

- Agency will be hired for disposal of solid wastes as per the provisions of the Solid Waste Management Rules, 2016;
- Solid waste generated from the Pune Civil Enclave is transported in close containers;
- Used lubricating waste oil and oil contaminated clothes etc is collected separately in containers and is sold to authorized recyclers as per CPCB/ Maharashtra Pollution Control Board guidelines.

Ambient Air Quality: During the operational phase of the new terminal building at Pune Civil Enclave, the intermittent air emissions are generated from aircraft engines during approach, landing, taxiing, take-off and initial climb, which is termed as reference Landing and Take-off Cycle (LTO cycle). For power back up, there will be 5 DG sets of 1250 KVA capacity each will be available, which will be sufficient for new terminal building and associated facilities. Vehicular emissions will also be generated from the operation of vehicular traffic at the new integrated terminal building as ground support vehicles, passengers' pickup and dropping vehicles. Exhaust emissions comprising NO_2, SO_2, PM, CO, HC, etc will be generated from aircraft, DG sets and vehicular emissions.

Mitigation Measures

- Compliance of all standards prescribed by the ICAO during operation of aircrafts by preventive maintenance and monitoring;
- 30 m high chimney for DG sets will be provided as per the CPCB guidelines;
- Proper traffic management plan will be prepared to ensue that there is no traffic congestion at in front of new terminal building. It will help in reduction of vehicular emissions from the airport.
- Ground vehicles at the airport will be maintained and have a "Pollution Under Control" certificate;
- Development of greenery and landscaping at the airport for improving ambient air quality.

Noise Levels: The new integrated terminal building at Pune Civil Enclave will be sound proof. DG sets room will be acoustically treated to control noise levels.

Mitigation Measures

- The compliance of all standards prescribed by the ICAO during operation of aircrafts by preventive maintenance and monitoring,
- Proper traffic management will be prepared to ensue that there is no traffic congestion at the airport. It helps in reduction of vehicular noise emissions from the airport,
- DG sets will be provided with acoustic enclosure as per CPCB guidelines,
- Green belt, landscaping and boundary at the airport act as barrier for noise;
- Monitoring of ambient air quality/source emission will be carried out as per monitoring plan.

Terrestrial Ecology: Greenery and landscaping will be developed at the new integrated terminal building. For irrigation of green belt, treated waste water from STP and accumulated rainwater will be available and used. This will have positive and long term beneficial impact on terrestrial ecology of the area.

Socio-Economic Environment: During construction and operation phase new integrated terminal building at Pune Civil Enclave will open additional direct and indirect job opportunities in the area and region. Further, it will attract more and more tourist, commercial and developmental activities in the area. Therefore, positive impacts are anticipated on socio-economic environment during new integrated terminal building at Pune Civil Enclave.

Employment and Economic Growth - The construction of new integrated terminal building at Pune Civil Enclave will result in a boost in tourism, commercial activities in the region. This will improve direct and indirect employment opportunities, revenue generation, commercial and industrial activities; therefore, resulting in positive impact on the employment and economic growth of the region.

0.5 Analysis of Alternatives

During design, construction and operation of new integrated terminal building at Pune Civil Enclave necessary measures will be taken for conservation of energy in line with "Energy Conservation Building Code–2017" and "National Building Code 2016". The important energy conservation measures proposed for new terminal building are described below:

- New Integrated Terminal building will be designed and constructed for GRIHA Rating 4 star,
- Use of Energy Efficient building material & glass,
- Use of LED lamps instead of GLS lamps,
- Use of Solar Backed up Light Emitting Diode Lamps instead of par lamps,
- Energy efficient HVAC system,
- Solar passive techniques for terminal building,
- Use of 5 star BEE energy efficiency rating electrical equipments,
- Microprocessor-based Building Management System (BMS) will be installed for minimization of energy consumption,
- Automatic lighting on/ off control system will be provided in the airport area for optimum utilization of energy.

It is proposed that 150 KW solar power generation plant will be established at the Pune airport to produce clean energy. By adopting above measures more than 30% energy will be saved.

0.6 Environmental Monitoring Plan

To ensure the effective implementation of the mitigation measures and environmental management plan during construction and operation phases of the new integrated terminal building at Pune Civil Enclave, environmental monitoring plan have been prepared for ambient air quality, water quality, soil characteristics and noise monitoring. Suitable mitigation measures will be taken in case of monitored parameters are exceeding the stipulated limits.

0.7 Additional Studies - Risk Assessment & Disaster Management Plan

Hazard occurrence at the new integrated terminal building at Pune Civil Enclave may result in on-site implications, like, fire at the storage of HSD for DG sets followed by fire, bomb threat at terminal building, cargo terminal & aircraft and natural calamities like, earthquake, flood, etc. Other incidents, which can also result in a disaster at the Pune Civil Enclave are agitation/forced entry by external group of people, sabotage, air raids; and aircraft crash while landing or take-off.

Disaster management plan has been prepared comprising key functions of Airport operator, other supporting organizations/agencies/services for response during emergency at the new integrated terminal building at Pune Civil Enclave .

0.8 Project Benefits

The direct and indirect benefits of the construction of new integrated terminal building at Pune Civil Enclave are as follows:

- Batter infrastructure facilities passenger at new terminal building,
- Decongestion at terminal building with more space and comfort,
- More parking faculties for Aircrafts and safe taxiing,
- Increase in regional economy as it will boost tourism and commercial activities in the region.
- Generation of more revenue to the state, hence more development of the region.
- Boost in tourism and more people to travel in the state
- Employment opportunity to people.
- More business and industrial opportunities

0.9 Environmental Management Plan

The Airports Authority of India will be responsible for the implementation of mitigation measures identified in Environmental Management Plan (EMP) for construction and operation phases of the new integrated terminal building at Pune Civil Enclave. There will be Environmental Management Cell (EMC) at new

integrated terminal building at Pune Civil Enclave to look after day to day basis implementation of mitigation measures for construction and operation phases.

Budget for Environmental Management and Monitoring Plan

Total budget of **Rs 3.1 Crores** has been kept for implementation of environmental management plan during construction and operation phases of new integrated terminal building and associated facilities. Total budget of **Rs 0.12 Crore** has been kept for environmental monitoring during construction and operation phases.

0.10 Conclusions

Anticipated adverse environmental impacts from the construction of new integrated terminal building and associated work at Pune Civil Enclave will be localised, short term and low/moderate in nature, and visible only during construction phase. Adverse environmental impacts identified in EIA study due to the proposed project will be mitigated by implementation of mitigation measures/environmental management plan (EMP) described in EIA report and compliance of applicable environmental regulations. The proposed project will have long term and regional beneficial/positive direct and indirect impacts on employment, socioeconomic conditions, state economy, tourism and development of the area and region.