

F.No.10-29/2011-IA.III
Government of India
Ministry of Environment, Forest & Climate Change
(IA-III Section)

Indira Paryavaran Bhawan,
Jor Bagh Road,
New Delhi - 3

Dated: 28th October, 2015

To

The Director,
Directorate of Civil Aviation,
Govt. of Goa, Secretariat, Porvorim,
Goa - 403 521

Sub: 'Greenfield International Airport' at MOPA (Goa) by Directorate of Civil Aviation, Govt. of Goa - Environmental Clearance reg.

Sir,

This has reference to your application No. SAP/1/98/-Vol-VII (Part II) dated 20.05.2015 and subsequent letters dated 06.08.2015 and 08.10.2015, submitted in the above-mentioned proposal to this Ministry for grant of Environmental Clearance (EC) in term of the provisions of the Environment Impact Assessment (EIA) Notification, 2006 under the Environment (Protection), Act, 1986.

2. The proposal for 'Greenfield International Airport' at MOPA (Goa) by Directorate of Civil Aviation, Govt. of Goa was considered by the Expert Appraisal Committee (EAC) in the Ministry for Infrastructure Development, Coastal Regulation Zone, Building/ Construction and Miscellaneous projects, in its meetings held on 24th – 26th June, 2015, 7th – 9th September, 2015 & 20th October, 2015.

3. The details of the project, as per the documents submitted by the project proponents (PP), and also as informed during the above said EAC meetings, are reported to be as under:-

- (i) The project was accorded TOR vide letter No.10-29/2011-IA.III dated 01.06.2011 and extension of validity was granted on 29.05.2015.
- (ii) The proposal involves development of Greenfield International Airport at MOPA of Tehsil Pernem (Goa) by Directorate of Civil Aviation, Govt. of Goa. The project is located at N 15°44'30", E 73°52'00".
- (iii) The total area is 2271 acres. The land has been acquired based on approved compensation as per Govt. of Goa.
- (iv) The project will be implemented in four phases. The components in Phase I of proposed Mopa Airport shall include one runway, with half parallel taxiway, three runway exits and Phase II includes one runway with full parallel building, security area and control points, GSE storage, parking, technical area, cargo, maintenance, general and business aviation areas, road network, rail connectivity and airport city.
- (v) The airfield consists of one single runway with takeoff available distance of 3,750 meters and 60 meters of runway width to accommodate the super-jumbo A380 aircraft. The runway will be equipped with both elevated and inset lights for

at-all-time operations consisting of a CAT I approach system before both runway thresholds which comprises a row of lights along the extension of the runway axis, to a distance of 900 m. The area required for these activities including apron and hangars, is expected to be 15,300 m². The aircraft maintenance facilities are estimated to provide space for 1 hanger.

(vi) The water requirement in Phase I, Phase II, Phase III and Phase IV is 1 MLD, 1.8 MLD, 3 MLD and 6 MLD respectively. The source of water will be provided by Tillari Irrigation Canal of Irrigation Department, Dhargal Division.

(vii) The total solid waste generation will be 6.1 tonnes per day for Phase I and 18.2 tonnes per day for Phase IV. Solid waste collected will be disposed in disposal facility owned by Govt. of Goa. From airport, used oil, lubricants, electronic waste shall be generated and the same shall be disposed through SPCP authorized re-processor. Used batteries will be given to dealers as part of buy back arrangement.

(viii) The quantity of sewage generated in Phase I, Phase II, Phase III and Phase IV is 1 MLD, 1.5 MLD, 2.4 MLD & 5 MLD respectively and STP capacity is 1120 cum, 1500 cum, 2400 cum & 5000 cum respectively.

(ix) The sewage treatment plant will include tertiary treatment plant for re-using the treated effluent for irrigation of landscaping and garden areas. The aircraft waste will be chemically stabilized.

(x) The total power required for the proposed airport is 40 MW which will be sourced from 220/110 KV independent High Tension (HT) lines from Western Grid: Tivim/Colvale/ Mapusa substation and from Southern Grid of Karnataka/ Amona at Sesa Goa and Ponda Substation. Emergency/generator power supply shall be met from 5 numbers of Generators each having capacity of 2000 KW.

(xi) A Disaster Management Plan for various scenarios which includes the emergency control measures, plan of coordination and interaction with various agencies including administrative agencies, rescue and relief operations, training and awareness to minimize the severity of disasters has been prepared to plan for emergency response and to provide for resource mobilization.

(xii) The greenbelt development will be 33% of total area.

(xiii) Minimum 20% energy conservation measures will be adopted incorporating provisions for use of LED, star rated A.Cs. etc.

(xiv) **R&R issues:** 14 houses need to be displaced and R&R Policy of Govt. of Goa to be followed.

(xv) **Investment/Cost:** The total cost of the project is Rs. 3000 Crores.

(xvi) **Public Hearing** was conducted on 01.02.2015 at Simechen Adven, Mopa, Goa. The major issues raised during public hearing and responses sought from the project proponent related to employment opportunities.

(xvii) **Wildlife issues:** There are no National Parks, Wildlife Sanctuary, Biosphere Reserves found in the 10 km buffer zone.

(xviii) **Forest land:** No forest land is involved in the project.

(xix) There are no court cases/violations pending against the project.

4. The EAC in its meeting held on 20th October, 2015 has recommended the project for grant of Environmental Clearance. As per the recommendation of EAC, the Ministry of Environment, Forest & Climate Change hereby accords Environmental Clearance for the above-mentioned project - '**Greenfield International Airport' at MOPA (Goa) by Directorate of Civil Aviation, Govt. of Goa**' under the provisions of the EIA Notification, 2006 and amendments thereto and circulars issued thereon and subject to the compliance of the following specific and general conditions mentioned below:-

A. SPECIFIC CONDITIONS:

- (i) 'Consent to Establish' shall be obtained from State Pollution Control Board under the Air (Prevention and Control of Pollution) Act, 1981 and the Water (Prevention and Control of Pollution) Act, 1974.
- (ii) The Project Proponent shall ensure availability of adequate land at the junction of the Mopa Airport road and Mumbai/Goa NH-17 for traffic circulation/management and to provide for all the traffic interchanges and proposed clover.
- (iii) The approach and exit roads to the Airport shall be got approved from the NHAI and should be according to IRC norms.
- (iv) A perusal of the Topo sheet superimposed on the runway area indicates that the extreme end of the runway is covering the drainage area partly. The drainage area which is under the runway shall be channelized. The area between the parallel taxiway and runway shall be handled carefully to drain the water from the area in the outfall 2.
- (v) The PP shall submit the site clearance certificate from Directorate General of Civil Aviation (DGCA), before commencement of work at the project site.
- (vi) Sewage and other liquid effluent generated from the airport including from the existing terminal should be treated according to the norms laid down by the State Pollution Control Board. The treated sewage shall be recycled for flushing/ gardening. Proper Dual plumbing shall be provided.
- (vii) The solid waste generated shall be properly collected, segregated and disposed according to the provisions of Solid Waste (Management and Handling) Rules, 2000. The project proponent shall make provisions for drinking water at convenient places for passengers and also at the cafeterias as to reduce generation of solid wastes including PET bottles.
- (viii) Installation and operation of DG sets shall comply with the guidelines of CPCB.
- (ix) Parking provision shall be provided according to the National Building Code of India, 2005.
- (x) Water conservation fixtures shall be provided and water balance shall be maintained through verifiable metering for fresh raw water, recycled as well as rain water harvesting.
- (xi) Necessary permission shall be obtained for drawing of ground water from competent authority prior to construction / operation of the project.
- (xii) The landuse around the Airport complex shall be regulated through a plan to control unauthorized development which may create problems in the operation of Airport.
- (xiii) The wastewater from hangers shall be tested for presence of heavy metals, if any, and shall be treated in STP. The treated waste water shall be used for gardening/ flushing.
- (xiv) Rain water harvesting shall be provided to recharge the ground water.

(xv) Energy conservation to the extent of at least 20% shall be incorporated including water conservation (reuse/recycle, rain water harvesting and water efficient fixtures) and other green building practices for various buildings proposed within the airport complex. The PP shall consider ECBC Guidelines 2009 to achieve energy-efficiency. The energy conservation measures shall be subject to periodic verification by the competent Energy Conservation/ Efficiency authority in the State.

(xvi) The project proponent shall prepare a detailed traffic management plan to take care of increased vehicular traffic which should also cover/ clearly delineate widening/ increasing the existing roads and associated road infrastructure approving/ installation of road safety features/ pedestrian facility/FOB/under passes etc (that can be done by carrying out road safety audits). Measures shall be taken to prevent encroachment along/ within the ROWs on connecting/ main arterial roads.

(xvii) All the recommendations of the EMP shall be complied with in letter and spirit. All the mitigation measures submitted in the EIA report shall be prepared in a matrix format and the compliance for each mitigation plan shall be submitted to RO, MoEF&CC along with half yearly compliance report.

(xviii) The responses/commitments made during public hearing shall be complied with in letter and spirit.

(xix) Project Proponent shall install noise level display system. Noise level shall be monitored regularly in all seasons (different meteorological conditions) within the compound as well as nearby habitations and it shall be ensured that the noise level is within the prescribed limits. During night time the noise levels measured at the boundary shall be restricted to the permissible levels to comply with the prevalent regulations.

(xx) The location of monitoring stations and monitoring of noise level during day and night shall be in accordance with the CPCB guidance document "Requirement and procedure for monitoring Ambient Noise Level due to aircraft" published on 25th June, 2008.

(xxi) Construction spoils, including bituminous material and other hazardous materials, must not be allowed to contaminate watercourses and the dump sites for such material must be secured so that they should not leach into the ground water.

(xxii) Any hazardous waste generated during construction phase, should be disposed off as per applicable rules and norms with necessary approval of the SPCB.

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(xxiii) Under the provisions of Environment (Protection) Act, 1986, legal action shall be initiated against the project proponent if it was found that construction of the project has been started without obtaining environmental clearance.

(xxiv) The project proponent will set up separate environmental management cell for effective implementation of the stipulated environmental safeguards under the supervision of a Senior Executive.

(xxv) Corporate Environment Responsibility:

- a) The Company shall have a well laid down Environment Policy approved by the Board of Directors.
- b) The Environment Policy shall prescribe for standard operating process/procedures to bring into focus any infringements/ deviation/violation of the environmental or forest norms/ conditions.
- c) The hierarchical system or Administrative Order of the company to deal with environmental issues and for ensuring compliance with the environmental clearance conditions shall be furnished.
- d) To have proper checks and balances, the company shall have a well laid down system of reporting of non-compliances/ violations of environmental norms to the Board of Directors of the company and/or shareholders or stakeholders at large.

B. GENERAL CONDITIONS:-

- (i) Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.
- (ii) A First Aid Room will be provided in the project both during construction and operation of the project.
- (iii) All the topsoil excavated during construction activities should be stored for use in horticulture/landscape development within the project site.
- (iv) Disposal of muck during construction phase should not create any adverse effect on the neighbouring communities and be disposed taking the necessary precautions for general safety and health aspects of people, only in approved sites with the approval of competent authority.
- (v) The diesel generator sets to be used during construction phase should be low sulphur diesel type and should conform to Environment (Protection) Rules prescribed for air and noise emission standards. The diesel required for operating DG sets shall be stored in underground tanks and if required clearance from Chief Controller of Explosives shall be taken.
- (vi) Vehicles hired for bringing construction material to the site should be in good condition and should have a pollution check certificate and should conform to applicable air and noise emission standards and should be operated only during non-peak hours.
- (vii) Fly ash usage shall be explored as building material in the construction as per the provisions of Fly Ash Notification of September, 1999 and amended as on 27th August, 2003.
- (viii) Ready mixed concrete must be used in building construction.
- (ix) Storm water control and its re-use as per CGWB and BIS standards for various applications.
- (x) Water demand during construction should be reduced by use of pre-mixed concrete, curing agents and other best practices referred.

(xi) Separation of grey and black water should be done by the use of dual plumbing line for separation of grey and black water.

(xii) Use of glass may be reduced by upto 40% to reduce the electricity consumption and load on air-conditioning. If necessary, use high quality double glass with special reflective coating in windows.

(xiii) Roof should meet prescriptive requirement as per Energy Conservation Building Code by using appropriate thermal insulation material to fulfil requirement.

(xiv) Opaque wall should meet prescriptive requirement as per Energy Conservation Building Code which is proposed to be mandatory for all air-conditioned spaces while it is aspirational for non-air-conditioned spaces by use of appropriate thermal insulation material to fulfil requirement.

(xv) The green belt of the adequate width and density preferably with local species along the periphery of the plot shall be raised so as to provide protection against particulates and noise.

(xvi) Traffic congestion near the entry and exit points from the roads adjoining the proposed project site must be avoided. Parking should be fully internalized and no public space should be utilized.

(xvii) The construction of the structures shall be undertaken as per the plans approved by the concerned local authorities/local administration, meticulously conforming to the existing local and central rules and regulations.

(xviii) The construction material shall be obtained only from approved quarries. In case new quarries are to be opened, specific approvals from the competent authority shall be obtained in this regard.

(xix) Adequate precautions shall be taken during transportation of the construction material so that it does not affect the environment adversely.

(xx) Full support shall be extended to the officers of this Ministry/ Regional Office by the project proponent during inspection of the project for monitoring purposes by furnishing full details and action plan including action taken reports in respect of mitigation measures and other environmental protection activities.

(xxi) A six-Monthly monitoring report shall need to be submitted by the project proponents to the Regional Office of this Ministry regarding the implementation of the stipulated conditions.

(xxii) Ministry of Environment, Forest & Climate Change or any other competent authority may stipulate any additional conditions or modify the existing ones, if necessary in the interest of environment and the same shall be complied with.

(xxiii) The Ministry reserves the right to revoke this clearance if any of the conditions stipulated are not complied with the satisfaction of the Ministry.

- (xxiv) In the event of a change in project profile or change in the implementation agency, a fresh reference shall be made to the Ministry of Environment, Forest & Climate Change.
- (xxv) The project proponents shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of start of land development work.
- (xxvi) A copy of the clearance letter shall be marked to concerned Panchayat/local NGO, if any, from whom any suggestion/ representation has been made received while processing the proposal.
- (xxvii) A copy of the environmental clearance letter shall also be displayed on the website of the concerned State Pollution Control Board. The EC letter shall also be displayed at the Regional Office, District Industries centre and Collector's Office/ Tehsildar's office for 30 days.
- (xxviii) The funds earmarked for environmental protection measures shall be kept in separate account and shall not be diverted for other purpose. Year-wise expenditure shall be reported to this Ministry and its concerned Regional Office.

5. These stipulations would be enforced among others under the provisions of Water (Prevention and Control of Pollution) Act 1974, the Air (Prevention and Control of Pollution) Act 1981, the Environment (Protection) Act, 1986, the Public Liability (Insurance) Act, 1991 and EIA Notification 2006, including the amendments and rules made thereafter.

6. All other statutory clearances such as the approvals for storage of diesel from Chief Controller of Explosives, Fire Department, Civil Aviation Department, Forest Conservation Act, 1980 and Wildlife (Protection) Act, 1972 etc. shall be obtained, as applicable by project proponents from the respective competent authorities.

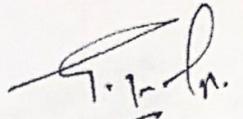
7. The project proponent shall advertise in at least two local Newspapers widely circulated in the region, one of which shall be in the vernacular language informing that the project has been accorded Environmental Clearance and copies of clearance letters are available with the State Pollution Control Board and may also be seen on the website of the Ministry of Environment, Forest & Climate Change at <http://www.envfor.nic.in>. The advertisement should be made within Seven days from the date of receipt of the Clearance letter and a copy of the same should be forwarded to the Regional Office of this Ministry.

8. This Clearance is subject to final order of the Hon'ble Supreme Court of India in the matter of Goa Foundation Vs. Union of India in Writ Petition (Civil) No.460 of 2004 as may be applicable to this project.

9. Status of compliance to the various stipulated environmental conditions and environmental safeguards will be uploaded by the project proponent in its website.

10. Any appeal against this environmental clearance shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.

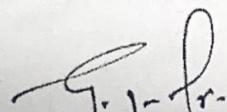
11. The environmental statement for each financial year ending 31st March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of EC conditions and shall also be sent to the respective Regional Offices of MoEF&CC by e-mail.



(Y. P. Singh)
Scientist 'D'

Copy to: -

1. The Secretary (Environment), Department of Science, Technology & Environment, Government of Goa, Panjim, Goa
2. The Chairman, CPCB, Parivesh Bhawan, CBD-cum-Office Complex, East Arjun Nagar, Delhi - 32
3. The Member Secretary, Goa State Pollution Control Board, Dempo Towers, EDC Plaza, Patta, Panaji - 01
4. Additional Principal Chief Conservator of Forests (C), Ministry of Environment, Forests and Climate Change, Regional Office (SZ), Kendriya Sadan, 4th Floor, E&F Wing, 17th Main Road, Koramangala II Block, Bangalore - 34
5. Guard File
6. Monitoring Cell



(Y. P. Singh)
Scientist 'D'

F.No. 10-29/2011-IA-III
Government of India
Ministry of Environment, Forest and Climate Change
(IA.III Section)

Indira Paryavaran Bhawan,
Jor Bagh Road, New Delhi - 3

Date: 13th March, 2020

To,

**Shri R.V. Sheshan, Chief Executive Officer,
M/s GMR Goa International Airport Limited,
Survey No. 381/3, Mathura One, 1st Floor, NH 17,
Porvorim, Goa - 403521**

**Subject: Development of Greenfield International Airport at Mopa, Goa by M/s GMR
Goa International Airport Limited - Addendum to the Environmental
Clearance - reg.**

Sir,

This has reference to the Environmental Clearance (EC) accorded to the project 'Development of Greenfield International Airport at Mopa', Goa in favour of M/s Directorate of Civil Aviation vide letter F.No. 10-29/2011-IA.III dated 28th October, 2015. The Amendment to the Environmental Clearance was granted to the project vide letter F.No. 10-29/2011-IA.III dated 22nd February, 2018, and the EC was transferred in the name of M/s GMR Goa International Airport Limited (GGIL).

2. The Hon'ble Supreme Court vide its judgment dated 29th March, 2019, in Civil Appeal No. 12251 of 2018 in the matter of Hanuman Laxman Aroskar Vs Union of India & Ors. and Civil Appeal No. 1053 of 2019 in the matter of Federation of Rainbow Warriors Vs Union of India & Ors. has inter-alia directed that:

- (i) The EAC shall revisit the recommendations made by it for the grant of an EC, including the conditions which it has formulated, having regard to the specific concerns which have been highlighted in this judgment;
- (ii) The EAC shall carry out the exercise under (i) above within a period of one month of the receipt of a certified copy of this order;
- (iii) Until the EAC carries out the fresh exercise as directed above, the EC granted by the MoEFCC on 28 October, 2015 shall remain suspended;
- (iv) Upon reconsidering the matter in terms of the present directions, the EAC, if it allows the construction to proceed will impose such additional conditions which in its expert view will adequately protect the concerns about the terrestrial eco-systems noticed in this judgment. The EAC would be at liberty to lay down appropriate conditions concerning air, water, noise, land, biological and socio economic environment;
- (v) The EAC shall have due regard to the assurance furnished by the concessionaire to this Court that it is willing to adopt and implement necessary safeguards bearing in mind international best practices governing greenfield airports;

3. In compliance of the judgment of Hon'ble Supreme Court, the proposal was placed before the Expert Appraisal Committee (Infra-2) in its 40th meeting held on 23rd April, 2019, for appraisal/deliberation in the light of observations of Hon'ble Supreme Court.

4. During deliberations the EAC was informed that, M/s Directorate of Civil Aviation, Government of Goa, submitted application the Ministry on 8th March, 2011, for grant of Terms of Reference (ToR). The ToR was finalized by the Expert Appraisal Committee in its meeting held during 11th-12th May, 2011. ToR letter was issued to the project proponent on

1st June, 2011, for the preparation of the Environmental Impact Assessment Report. The ToR issued was valid for a period of two years until 31st May, 2013. On 22nd November, 2012, the Government of Goa revised the project boundary by decreasing the project area from 4,500 acres to 2,271 acres and requested Ministry for amendment in ToR. The proposal was considered by the EAC in its meetings held during 28-29 January, 2013, and recommended an amendment to the ToR as requested by the state government and also granted an extension to the validity of the ToR until 31st May, 2014. The amendment in ToR was issued on 19th June, 2013. On 20th October, 2014, the Directorate of Civil Aviation, Government of Goa submitted a draft EIA report to the Goa State Pollution Control Board, requesting it to initiate steps to conduct a public hearing. Public hearing was conducted at the project site on 1st February, 2015. The Government of Goa again requested Ministry for further extension of validity of ToR. The proposal was considered by the EAC in its meetings held during 9th-11th March, 2015, and recommended an extension of the validity of the ToR for another year ending on 31st May, 2015. On 29th May, 2015, the MoEFCC communicated its approval for extending the validity of the ToR until 31st May, 2015. Meanwhile, the State of Goa submitted final EIA report to the MoEFCC on 20th May, 2015, seeking the grant of EC for the project.

The proposal was considered by the EAC, in its meetings 149th meeting held during 24th-26th June, 2015, 151st meeting held during 7th-9th September, 2015 and 152nd meeting held on 20th October, 2015. The EAC in its meeting held on 20th October, 2015, had recommended the project for grant of Environmental Clearance. As per the recommendation of EAC, the Ministry of Environment, Forest and Climate Change accorded EC for the above-mentioned project on 28th October, 2015, under the provisions of the EIA Notification, 2006 and amendments thereto and circulars issued thereon and subject to the compliance of the certain specific and general conditions as stipulated in the EC letter. Further, amendment to the EC was granted to the project vide letter F.No. 10-29/2011-IA.III dated 22nd February, 2018, and the EC was transferred in the name of M/s GMR Goa International Airport Limited (GGIL).

The grant of the EC was challenged before the Western Zonal Bench of the Hon'ble National Green Tribunal (NGT) by the Federation of Rainbow Warriors. Hanuman Laxman Aroskar also filed an appeal before the Western Zonal Bench of the NGT. On 7th November, 2017, the NGT issued an ad-interim order restraining the cutting or felling of trees in the area designated as the site of the proposed airport. On 22nd November, 2017, the order of restraint was modified on the statement of the Advocate General of Goa that the state shall not cut or fell any trees, nor allows it to take place without valid permission from the lawful authority for a fortnight thereafter in order to enable the appellants to pursue their remedies. On 6th February, 2018, the Deputy Conservator of Forests granted permission for felling 21,703 trees at the airport site. The appellate authority under the Goa, Daman and Diu Preservation of Trees Act 1984 dismissed the appeal on 7th March, 2018.

On 8th March, 2018, the High Court of Judicature at Bombay at its seat at Goa set aside the order of the Deputy Conservator of Forests and remanded the matter to be heard by the Principal Chief Conservator of Forests. On 2nd April 2018, the Principal Chief Conservator of Forests stipulated several conditions for the cutting and the felling of trees at the site of the airport including: (i) enumeration of trees; and (ii) the plantation of ten times the number of trees felled. Upon being moved in a Public Interest Litigation, the High Court by its order dated 25th April, 2018, allowed the exercise of enumeration to be carried out. As a result, 54,676 trees were enumerated, including the 1,548 trees which had been felled earlier in terms of the order dated 6th February, 2018, of the Deputy Conservator of Forests. On 13th January, 2018, the High Court issued final directions in the PIL directing the State of Goa to approach the NGT seeking permission for felling and cutting trees. The state was directed to carry out the cutting and felling of trees only after prior permission was granted by the NGT.

A Miscellaneous Application was filed by the State of Goa before the NGT on 2nd July, 2018, seeking permission for the felling of trees. By its judgment dated 21st August,

2018, the NGT disposed of both the appeals and the Miscellaneous Application filed by the State of Goa, upholding the EC and imposing additional conditions to safeguard the environment.

During the EAC deliberation held on 23rd April, 2019, the project proponent submitted additional information and plans related to various concerns of the judgment of the Hon'ble Supreme Court dated 29th March, 2019. The additional information included updated Form-1 especially environmental sensitivity information that had been missed out inadvertently in the earlier Form-1. The project proponent and the accredited Consultant M/s Engineers India Limited gave a detailed presentation on the observations raised by the Hon'ble Supreme Court and comments/response in respect of each.

5. The EAC observed the following:

- (i) The earlier Form-1 did not give proper disclosure in respect of the details of forests on the land and nearby wet land as well as on the water bodies. The EAC took into account the supplementary report that has been submitted which takes into account the deficiency of disclosure and the same thing has been complied with in the supplementary report. In addition, it is also noticed that the mitigation measures in respect of the depletion of forest cover on the project land and water bodies have been taken into account. As against 54,176 trees, which have been felled on the project site based on earlier approvals given by competent authority, the project proponent is proposing to plant 5,50,000 trees (50,000 trees at the project site, 2,50,000 trees in the nearby villages supervised by the Biodiversity Board and 2,50,000 trees under the supervision of DGCA. This is 1:10 times the number of trees affected as against the standard requirement of 1:3 times number of trees to be planted. The overall supervision of this compliance within the time frame of 5 years would be vested with DGCA. DGCA, however, needs to constitute a local monitoring committee for periodic monitoring of this vital exercise.
- (ii) The EAC noted that neither the project site nor the villages in area under study (primary data source) falls in any Eco-Sensitive Zone (ESZ). The 10 villages in Maharashtra side fall in ESA not ESZ and where the impacts of the project would be minimal. The EAC also observed that the villages in vicinity of the project in the Goa and Maharashtra region are not located in very close proximity. The nearest village is about 4.1 km from the boundary of the project. The EAC also observed that beyond the runway of 3.75 km, the flight operation generally found at an altitude of about 1000 feet and thus there would not be any adverse impact on flora and fauna in the surrounding area of the airport.
- (iii) The EAC observed that a certificate from Chief Wildlife Warden (CWLW) of State through State Government be obtained confirming that none of the area of the project falls in the notified Eco-sensitive Zone (ESZ) in the State of Goa and no activity prohibited in the Eco-sensitive zone will be taken up be taken by the project proponent.
- (iv) The EAC further observed that as per the supplementary report and the proposal of the water bodies with respect to observation regarding plateau effect of the land and also laterite surface and the springs, streams and water courses in the project land have been taken into account and appropriate drainage channels have been designed to take care of the water flows into the nearest water courses/rivers, etc.
- (v) Appropriate storm water drainage channeling has been taken into account not only for the pre-monsoon season but also for monsoon and heavy rainfall. The drainage plan should have ratification by the concerned water resources department of Goa. It should be ensured that sustainable water flow in the various channels of watershed in the plateau is maintained. For the present, base level data on flow of water should be collected and used for future monitoring.
- (vi) The EAC observed that in respect of the fauna, the primary data has been collected from one of the nearest village and the secondary data has been collected from ZSI.

In respect of the observation of sighting leopard by villager, the authorities have indicated that they do not have any definitive information on the same and this need to be verified/authenticated.

(vii) It is a well-established fact of silvicultural science and practice that no plantation can replace the natural forest. The kind of biodiversity in any natural forest is almost impossible to be replaced by any kind of plantation activity which at the best can be a mix of various monocultures. We are still far away in our knowledge of replicating the creation of natural forest. Therefore, to this extent, the EAC does not agree with the assessment of project proponent that after cutting of trees and planting of 1:10 trees, richer biodiversity the forest would be created. However, 1:10 plantation activity under expert guidance can to some extent compensate the loss of natural forest.

(viii) With respect to the various points raised in the public hearing, the EAC observed that the supplementary report has made available point-wise clarifications on the various concerns on the public hearing. However, Hon'ble court shortlisted 14 items of concern in the public hearing. Solution/management plan to all these need to be clearly spelt out in the EMP and implemented in letter and spirit.

6. The EAC in its 40th meeting held on 23rd April, 2019, after detailed deliberations/discussion on the submissions and additional information submitted by the project proponent recommends additional environmental safeguards/conditions, over and above the specific and general conditions already included in the EC letter dated 28th October, 2015, besides additional conditions imposed by Hon'ble NGT vide its order dated 21st August, 2018 in Appeal No. 05 of 2018 and Appeal No. 06 of 2018 in the matter of Federation of Rainbow Warriors, Margao Vs. Union of India & Ors. and Hanuman Laxman Aroskar & Anr. Vs Union of India & Ors. As per recommendations of the EAC, the Ministry of Environment, Forest and Climate Change stipulates additional environmental safeguards/conditions, over and above the specific and general conditions already included in the EC letter dated 28th October, 2015, besides additional conditions imposed by Hon'ble NGT vide its order dated 21st August, 2018 in Appeal No. 05 of 2018 and Appeal No. 06 of 2018 in the matter of Federation of Rainbow Warriors, Margao Vs. Union of India & Ors. and Hanuman Laxman Aroskar & Anr. Vs Union of India & Ors, as under:-

I. Statutory compliance:

- (i) The project proponent shall obtain certificate from Chief Wildlife Warden (CWLW) of State through State Government that none of the area of the project falls in the notified Eco-sensitive Zone (ESZ) and no activity prohibited in the Eco-sensitive zone will be taken up.
- (ii) The project proponent shall obtain Consent to Establish / Operate under the provisions of Air (Prevention & Control of Pollution) Act, 1981 and the Water (Prevention & Control of Pollution) Act, 1974 from the concerned State Pollution Control Board/ Committee.
- (iii) The project proponent shall obtain necessary permission from the competent authority for drawal of water from Tillari Irrigation Canal.

II. Air quality monitoring and preservation:

- (i) The project proponent shall install system to carryout Ambient Air Quality monitoring for common/criterion parameters relevant to the main pollutants released (e.g. PM₁₀ and PM_{2.5} in reference to PM emission, and SO₂ and NO_x in reference to SO₂ and NO_x emissions) within and outside the airport area covering upwind and downwind directions.
- (ii) Notification GSR 94(E) dated 25.01.2018 of MoEF&CC regarding Mandatory Implementation of Dust Mitigation Measures for Construction and Demolition Activities shall be complied with.

- (iii) Soil and other construction materials should be sprayed with water prior to any loading, unloading or transfer operation so as to maintain the dusty material wet
- (iv) The excavation working area should be sprayed with water after operation so as to maintain the entire surface wet.
- (v) Excavated materials shall be handled and transported in a manner that they do not cause any air pollution.
- (vi) The soil/construction materials carried by the vehicle should be covered by impervious sheeting to avoid leaking of the dusty materials.

III. Water quality monitoring and preservation:

- (i) Appropriate drainage channels need to be designed to take care of the water flow into the nearest water courses/rivers, etc.
- (ii) It should be ensured that sustainable water flow in the various channels of watershed in the plateau is maintained.
- (iii) Storm water drains are to be built for discharging storm water from the air-field to avoid flooding/water logging in project area. Domestic and industrial waste water shall not be allowed to be discharged into the storm water drains and directed to STP for treatment.
- (iv) Proper drainage systems, emergency containment in the event of a major spill during monsoon season etc. shall be provided.
- (v) The runoff from paved structures like Aprons can be routed through drains to oil separation tanks and sedimentation basins before being discharged into rainwater harvesting structures.
- (vi) Run off from chemicals and other contaminants from aircraft maintenance and other areas within the airport shall be suitably contained and treated before disposal. A spillage and contaminant containment plan shall be drawn up and implemented to the satisfaction of the State Pollution Control Board.
- (vii) The project activity shall conform to the General Standards for Discharge of Environmental Pollutants notified in the Environment (Protection) Rules, 1986, and amended from time to time.
- (viii) Rain water harvesting for roof run-off and surface run-off, as plan submitted should be implemented. Rain water harvesting structures shall conform to CGWA guidelines. Before recharging the surface run off, pre-treatment must be done to remove suspended matter, oil and grease.

IV. Noise monitoring and prevention:

- (i) Notification G.S.R. 568(E) dated 18.06.2018 of MoEF&CC regarding Ambient Air Quality Standards with respect to Noise in Airport Noise Zone shall be complied with.
- (ii) Noise level survey shall be carried as per the prescribed guidelines and report in this regard shall be submitted to Regional Officer of the Ministry as a part of six-monthly compliance report.
- (iii) Noise from vehicles, power machinery and equipment on-site should not exceed the prescribed limit. Equipment should be regularly serviced. Attention should also be given to muffler maintenance and enclosure of noisy equipments.
- (iv) Acoustic enclosures for DG sets, noise barriers for ground-run bays, ear plugs for operating personnel shall be implemented as mitigation measures for noise impact due to ground sources.
- (v) During airport operation period, noise should be controlled to ensure that it does not exceed the prescribed standards. During night time the noise levels measured at the

boundary of the building shall be restricted to the permissible levels to comply with the prevalent regulations.

(vi) Where construction activity is likely to cause noise nuisance to nearby residents, restrict it to only during day time i.e. between 7 am to 6 pm.

V. Energy Conservation/climate change measures:

- (i) Energy conservation measures like installation of LED should be integral part of the project design and should be in place before project commissioning.
- (ii) Initiatives such as Green Infrastructure Development program, adoption of less emission intensive technologies, renewable energy program, electrical vehicles and Airport Carbon Accreditation need to be adopted to reduce its impact on climate change and Green House Gas (GHG) emissions as per environmental best practices governing greenfield airports.

VI. Waste management:

- (i) Soil stockpile shall be managed in such a manner that dust emission and sediment runoff are minimized. Ensure that soil stockpiles are designed with no slope greater than 2:1 (horizontal/vertical).
- (ii) The project activity shall conform to the Fly Ash notification issued under the E.P. Act of 1986.
- (iii) The solid wastes shall be segregated as per the norms of the Solid Waste Management Rules, 2016. Recycling of wastes such as paper, glass (produced from terminals and aircraft caterers), metal (at aircraft maintenance site), plastics (from aircrafts, terminals and offices), wood, waste oil and solvents (from maintenance and engineering operations), kitchen wastes and vegetable oils (from caterers) shall be carried out.
- (iv) Solid inert waste found on construction sites consists of building rubble, demolition material, concrete; bricks, timber, plastic, glass, metals, bitumen etc shall be reused/recycled or managed so as to strictly conform to the Solid Waste Management Rules, 2016, and Construction and Demolition Waste Management Rules, 2016.
- (v) The project proponents shall implement a management plan duly approved by the State Pollution Control Board and obtain its permissions for the safe handling and disposal of:
 - a. Trash collected in flight and disposed at the airport including segregation, collection and disposed.
 - b. Toilet wastes and sewage collected from aircrafts and disposed at the Airport.
 - c. Wastes arising out of maintenance and workshops
 - d. Wastes arising out of eateries and shops situated inside the airport complex.
 - e. Hazardous and other wastes

VII. Green Belt:

- (i) Green belt shall be developed in area as provided in project details, with native tree species in accordance with Forest Department. The greenbelt shall inter-alia cover the entire periphery of the Air Port.
- (ii) The plantation species in and around Airport site should be carefully chosen to avoid bird nesting and to improve pollution control and noise control measures. Water intensive and/or invasive species should not be used for landscaping.
- (iii) Plantation activity should be taken up under the expert guidance for forest department of Goa, care should be taken that soil erosion measures should be taken up on priority so that the rich mineralized soil of forest is not washed away. The

plantation activity should also have an approach of soil conservation where planting is done along the contours avoiding gully formation. As far as possible monocultural plantation should be avoided.

- (iv) The proposed 10 times compensatory plantation need to be monitored by the Government of Goa so that the target of planting 5.5 lakh saplings is achieved in a time bound manner, their survival rate is monitored and mortality is replenished. As major chunk of 2.5 lakh of saplings is proposed to be done by the village level Bio Diversity Committees, it is necessary to ensure that people are largely given native species and/or fruit bearing saplings so that they will be able to derive economic benefits from such fruit crops and also such trees will provide better biological environment to birds.
- (v) Top soil shall be separately stored and used in the development of green belt.

VIII. Public hearing and Human health issues:

- (i) Solution/management plan regarding redressal of all the concerns raised in the public hearing must be clearly spelt out in the EMP and shall be implemented in letter and spirit. Compliance for each mitigation plan shall be submitted to Regional Office, MoEF&CC along with half yearly compliance report.
- (ii) Provision of Electro-mechanical doors for toilets meant for disabled passengers shall be ensured. Children nursing/feeding room shall be located conveniently near arrival and departure gates.
- (iii) Emergency preparedness plan based on the Hazard identification and Risk Assessment (HIRA) and Disaster Management Plan shall be implemented.
- (iv) Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.
- (v) Occupational health surveillance of the workers shall be done on a regular basis.

IX. Additional Conditions to be incorporated as per Hon'ble NGT's order dated 21st August, 2018:

A. Air Environment

1. Total Suspended Particulate Matter (SPM), Respirable Particulate Matter (RPM) during construction phase and un-burnt and Hydro Carbons (HC), Lead (Pb), CO₂, SO₂, CO₂, SOOT and Oxides of Nitrogen (NOx) during operation phase are going to be major pollutants in this kind of project. Besides, fugitive emissions of Volatile Organic Compounds (VOC) during fuel handling can be another issue for ambient air environment. The provision of only 6 (six) Air Quality Monitoring Stations is inadequate as sampling duration has been given as 'twice a week, 4 week in a season as per CPCB standards for NAAQM, 1994. It would be appropriate if the Project Proponent establishes real time online continuous Air Quality Monitoring Station also which is connected to CPCB server and capable of monitoring all relevant and critical parameters and mitigation measures taken.
2. Although all parameters w.r.t ambient air parameters have been found to be within limits for all 6 (six) locations monitored, we feel for the purpose of giving/depicting holistic picture with regard to ambient air in the area, at least 3 (three) more locations falling in the State of Maharashtra be also monitored and documented.

B. Water Environment

1. Only two number of Rain Water Harvesting pits have been provided which we feel are not adequate and there is a need to place other pits at such locations so as to capture all the excess drainage for water re-charge.

2. More frequent Water Quality Monitoring i.e. once every month may be carried out by Project Proponent at bore wells and STP discharge plants instead of 4 (four) times in a year as proposed.

C. Noise Environment

1. It has been proposed that ambient noise levels shall be monitored around the premises of airport, near DG sets and at main entrance/boundary of airport once a week at 7 (seven) locations which we feel are inadequate. Besides these, continuous monitoring of occupational noise exposure limits in such industrial environments would be appropriate with audible or visual alarm output capability.
2. Integrated Noise Model (INM) be more frequently used and mitigation undertaken during the operational phase of project at regular intervals.
3. Although ambient noise levels have been found to be within limits at 9 (nine) locations monitored, we feel for the purpose of giving/depicting holistic picture with regard to ambient noise levels in the area, at least 3 (three) more locations falling in the State of Maharashtra be also monitored and documented.

D. Land Environment

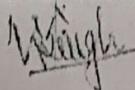
1. There is a potential for impact on soil quality due to project related spills and leaks of fuel and chemicals and uncontrolled disposal of wastes and waste water. Adequate care be taken to avoid spills and leaks of hazardous substances and all project related wastes. Littering on sites and beyond the sites needs to be adequately prevented and controlled.
2. Debris and Muck Management Plan to be prepared and implemented so as to avoid spillage of muck and debris on the slopes.
3. Soil conservation and stabilization measures needs to be undertaken by deploying both mechanical and bio-engineering methods.
4. Remediation, restoration and compensation needs to be integral part of policy so as to provide adequate relief for any environmental or project related disasters.

E. Biological Environment

1. Efforts be made to transplant the trees to other locations in the same vicinity by using appropriate mechanical devices which are available these days.
2. Efforts be made to plant indigenous species which are tall in size rather than small saplings.
3. Concerns have been raised by appellants with regard to plant species 'Dipcadi concanense' which has been claimed to be a threatened plant. This claim of the appellants have been negated by the respondent by producing a documentation of Botanical Survey of India, Western Regional Centre, Pune, Maharashtra titled as "A Note on Occurrence and Distribution of Dipcadi concanense". By invoking Precautionary Principle, we direct the Project Proponent to draw up a Conservancy by Plan/Scheme for 'Dipcadi concanense' in collaboration with Forest Department, State of Goa and Botanical Survey of India and ensure its implementation.

F. Socio-economic Environment

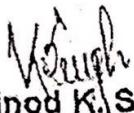
1. Adequate drills with respect to implementation of Disaster Management plan needs to be carried out at regular intervals so as to ensure preparedness and rapid response to any disasters both man made or natural.
2. Although 'Disaster Management Plan' as Annexure-II is part of EIA Report under the Sub head 1.2.1- National Disasters needs further elaboration especially in terms of Emergency Response Measures, Rules and Responsibility, Mitigation, etc.



7. All other terms and conditions mentioned in this Ministry's EC letter F.No. 10-29/2011-IA.III dated 28th October, 2015 and subsequent amendment in EC dated 22nd February, 2018 shall remain the same besides additional conditions imposed by Hon'ble NGT vide its order dated 21st August, 2018 in Appeal No. 05 of 2018 and Appeal No. 06 of 2018 in the matter of Federation of Rainbow Warriors, Margao Vs. Union of India & Ors. and Hanuman Laxman Aroskar & Anr. Vs. Union of India &Ors.

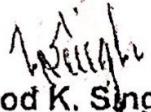
8. The project proponent shall also comply with the direction(s) given by the Hon'ble Supreme Court in its judgment dated 16th January, 2020 in M.A. No. 965 of 2019 in Civil Appeal No. 12251 of 2018 in the matter of Hanuman Laxman Aroskar Vs Union of India & Ors.

9. This issues with the approval of the Competent Authority.


(Dr. Vinod K. Singh)
Scientist E

Copy to:

1. The Principal Secretary, Department of Science, Technology & Environment, 1st Floor, Pandit Deendayal Upadhyay Bhavan, Behind Pundalik Devasthan, Near Sanjay School, Porvorim, Bardez - 403 521, Goa.
2. The Addl. Principal Chief Conservator of Forests (Central), Ministry of Environment, Forests and Climate Change, Regional Office (SZ), Kendriya Sadan, 4th Floor, E&F Wing, II Block Koramangala, Bengaluru - 560034, Karnataka.
3. The Chairman, Central Pollution Control Board Parivesh Bhavan, CBD-cum-Office Complex, East Arjun Nagar, New Delhi - 110 032.
4. The Member Secretary, Goa State Pollution Control Board, Dempo Towers, 1st Floor, EDC Patto Plaza, Panaji - 403001, Goa.
5. Monitoring Cell, MoEF&CC, Indira Paryavaran Bhavan, New Delhi.
6. Guard File/ Record File/ Notice Board.
7. MoEF&CC website.


(Dr. Vinod K. Singh)
Scientist E