**REPORTABLE**

**IN THE SUPREME COURT OF INDIA**
**CIVIL APPELLATE JURISDICTION**

**M.A. No. 965 of 2019**

**IN**

**Civil Appeal No. 12251 of 2018**

**Hanuman Laxman Aroskar** **…Appellant**

**Versus**

**Union of India & Ors.** **...Respondents**

# J U D G M E N T

**Dr Dhananjaya Y Chandrachud, J**

## INDEX

## A. Introduction

1 The Union of India in the Ministry of Environment, Forests and Climate Change[1] moved these proceedings, seeking a direction that the Minutes of the fortieth meeting of the Expert Appraisal Committee[2] dated 23 April 2019 be taken on the record so that the embargo imposed by this Court on the Environmental Clearance[3] for a greenfield airport at Mopa Goa can be lifted. This follows upon the judgment dated 23 April 2019 which was rendered on a challenge addressed to this Court against a decision of the National Green Tribunal[4] upholding the EC, subject to compliance with certain conditions. By the judgment of this Court, reported as **Hanuman Laxman Aroskar** v **Union of India**[5], the process leading up to the grant of an EC on 28 October 2015 was held to be flawed. The directions that were imposed by the Court were formulated in the following terms:

> "175. …
>
> (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

[1] MoEF-CC
[2] EAC
[3] EC
[4] NGT
[5] (2019) SCCOnline SC 441

> 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;
>
> (vi) We grant liberty to the State of Goa as the project proponent and the MoEFCC, as the case may be, to file the report of the EAC before this Court in the form of a Miscellaneous Application so as to facilitate the passing of appropriate orders in the proceedings; and
>
> (vii) No other Court or Tribunal shall entertain any challenge to the report that is to be submitted before this Court by the EAC in compliance with the present order."

Pending the completion of the process mandated in the above terms, this Court suspended the EC which had been granted on 28 October 2015.

The directions issued by this Court required the EAC:

(i) To revisit its recommendations for the grant of the EC including the conditions which it had imposed; and

(ii) To impose, in the event that it allowed the construction of the airport to proceed additional conditions to adequately protect the concerns governing the terrestrial eco-systems noticed in the judgment, besides formulating conditions pertaining to air, water, noise, land, biological and socio-economic environment. While doing so, the EAC was under a mandate to take into consideration the specific concerns which were highlighted in the judgment.

2 The basis of the directions that were issued by this Court was formulated in the penultimate paragraph of the judgment which reads thus:

> "174.Bearing in view the necessity to maintain a balance between the need for an airport and environmental concerns, we are of the view that it would be appropriate if the EAC is directed to revisit the conditions subject to which it granted its EC on the basis of the specific concerns which have been highlighted in this judgment. Such an exercise primarily is for the EAC to carry out in its expert decision making capacity. The EAC is entrusted with that function as an expert body. The role of judicial review is to ensure that the rule of law is observed. Hence, we propose by the directions which we will issue under Article 142 of the Constitution, to direct the EAC to revisit the conditions for the grant of an EC. While doing so, it would be open to the EAC to have due regard to the conditions which were incorporated in the order of the NGT and to suitably modulate those conditions in pursuance of the liberty which we have preserved to it. To facilitate an expeditious decision, we propose to direct the EAC to carry out this exercise in a prescribed time schedule during which period, the EC shall remain suspended. We propose to direct that after the EAC has formulated its views, they shall be placed before this Court in a Miscellaneous Application in the present proceedings, so as to enable the Court to pass final orders. The Miscellaneous Application may be filed either by the State of Goa as the project proponent or by the MoEFCC. We clarify that no other Court or Tribunal shall entertain any challenge to the ultimate decision of the EAC and final orders thereon shall be passed by this Court in the present proceedings."

3 Essentially, the concerns which were highlighted in the judgment of this Court related to the need to preserve the biodiversity of the Western Ghats. These concerns have been the subject of a seminal exercise carried out in 2013 by a High Level Working Group[6] on the Western Ghats chaired by Dr K Kasturirangan[7]. The report of the HLWG has been dwelt upon in the earlier

[6] HLWG
[7] Kasturirangan Committee report

judgment and continues to be a focal point of the continuing debate in the present case. The HLWG was constituted under the auspices of the MoEF-CC. Its report dated 15 April 2013 is a valuable contribution to the preservation of biodiversity in the pristine environment of the Western Ghats.

4 The judgment of this Court emphasized the failure of the State of Goa, as the project proponent, to provide complete information on the existence of reserved forests including those which fall within a 15 km radial distance of the proposed airport at Mopa. Underlying the serious deficiency in the disclosure of information by the project proponent, this Court noted its concerns on certain specific aspects. These included primarily:

(i) Preservation of forests, including reserved forests;

(ii) Existence of Ecologically Sensitive Areas[8] with their attendant features such as flora, fauna and environmental quality in terms of water, soil, noise and climatic variations;

(iii) Impact of the proposed construction on the flow of water in natural water channels; and

(iv) Socio-economic and environmental concerns which were raised in the course of public consultations.

[8] ESA

## B. Appraisal by the EAC

5 Following the judgment of this Court, the project proponent furnished supplementary information to the EAC which revealed certain significant environmental features. The disclosure is extracted below:

> "a) There are seven reserved forests within 15 km. of the proposed Airport in the Goa region (under Section-20) and six proposed reserved forests (under section-4) of Indian Forest Act, 1927. (Survey of India Toposheet and Forest Working Plan of North Goa)
>
> b) There are twenty-nine proposed reserve forests within 15 km. of the proposed Airport in Maharashtra region under Section-4 of Indian Forest Act, 1927 (Survey of India Toposheet & Forest Department, Sawantwadi Division)
>
> c) There are four rivers in Goa viz. Terekhol river, Kalna river, Chapora river, Moide river and one river viz. Tilari river in Maharashtra (source: Survey of India Toposheet).
>
> d) There are few patches of mangroves observed near Moide river, Terekhol river, Chapora river.
>
> e) Western Ghat Mountain range falls within the study area.
>
> f) There are two wetlands, of which one i.e. Anjuna reservoir has been identified in National Wetland Atlas of Goa.
>
> g) There are no coastal areas and declared biospheres in the vicinity of the proposed airport site."

6 The EAC tabulated the details of forest areas which fell within a radial distance of 15 kms of the proposed airport and within the territories of the States of Goa and Maharashtra. The forested areas were found to be situated in three talukas in the State of Goa (Bicholim, Pernem and Bardez) and in three talukas in the State of Maharashtra (Sawantwadi, Dodamarg and Vengurla). In Pernem

taluka, the information set out in the minutes of the EAC dated 23 April 2019 demonstrate the existence of reserved forests *inter alia* in Mopa.

7 While reviewing the Environmental Impact Assessment[9], the EAC observed:

> "As per Forest Policy, 1988 of Government of India, required forest cover is 33%. Whereas, India average is 21.54%, Goa's forest cover as per India's state of forest report 2017 is 60.21%. There would be impact on forest due to felling of trees but eventually the forest cover will improve with a 1:10 compensatory afforestation program to be undertaken over a period of 5 years by the concessionaire, Goa State Biodiversity Board and Directorate of Civil Aviation. The enhanced forest cover would lead to healthy biodiversity. Further impacts on water, air, soil and noise environment will be minimal considering the felling of trees over a large area and compensatory afforestation plan as approved.
>
> It is noted that the airport site is not fragmenting the forest area thus not restricting and affecting the movement of fauna. The Airport plateau has villages on one side and forest cover on the other side. The plateau is just an extension of forest cover with trees, which had 15 houses, some grazing activity and some agricultural activity where the animals from the nearby forest may have been straying. The proposed airport will be protected from all sides with compound wall as per DGCA guidelines and thus animals will not able to enter the airport premises.
>
> The proposed 10 times compensatory plantation needs to be monitored by the Government of Goa so that the target of planting 5.5 lakhs 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 Biodiversity 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."

[9] EIA

8 On the existence of ESAs, the EAC noted that the EIA report had only indicated that Pernem taluka, where the project is to come up, has not been earmarked as an ESA in the Kasturirangan Committee report. The EAC, in its minutes dated 23 April 2019, took note of the fact that based on the Kasturirangan Committee report, the MoEF-CC published a draft notification on 3 October 2018 indicating proposed ESAs in the Western Ghats according to which, ten villages in Sawantwadi taluka of Sindhudurg district in Maharashtra are comprised in the ESAs of the Western Ghats. Apart from the ESAs within the State of Maharashtra, the EAC noted the existence of an additional eighteen species of mammals and fourteen bird species in the study area on the basis of data collected from the Zoological Survey of India[10]. Reviewing the EIA with reference to the existence of ten ESAs within a radial distance of 10 Kms in the State of Maharashtra, the EAC noted in its minutes dated 23 April 2019:

> "EAC noted that all the 10 ESA areas within 10 kms in the State of Maharashtra are beyond 4 kilometers from the project boundary, the nearest one being at a distance of 4.1 kms (Village Galel). As per Airport guidance manual maximum impact on the air and noise environment will be there till the aircraft gains a height of 1000 ft. Emissions from aircraft below 1,000 ft. above the ground will be there typically around 3 km from departure or, for arrivals, around 6 km from touchdown. The altitude of 1000 ft in landing and takeoff is achieved within the project site. Considering that all the ESAs are far away from the project, the impact on air and noise environment is expected to be minimal. With regard to soil environment, impact will be mostly on the airport site self. As regards water environment, as the water flow from the airport site will feed the water bodies in the State of Goa, no impact is envisaged on the ESA areas."

[10] ZSI

9 The EAC also deliberated on the likely impact of the construction and operation of an airport on the flora, fauna and hydrological systems in the ESAs as well as in regard to climatic variations. The EAC categorized them in the following terms:

> "**WATER ENVIRONMENT**:
>
> - Changes in the natural flow of storm water, stunted growth, delayed flowering and fruiting.
>
> - Fauna migration in search of water to other places.
>
> - Change their habitat and breeding capacity.
>
> - Due to eutrophication influence, certain toxic algae production some animals can suffer symptoms like skin irritation or health problems if drinking
>
> **SOIL ENVIRONMENT:**
>
> - Soil impact may lead in to non-germination of seeds & stunted growth, delayed flowering & fruiting, erosion and clearing of topsoil (loss of habitat & habitat fragmentation)
>
> - Affects the quality of the environment or habitat in which they live
>
> - Affects the availability and quality of the food supply
>
> - Soil erosion may increase the turbidity which could impact aquatic fauna's respiration capacity.
>
> - Loss of local aquatic biodiversity
>
> - Habitat loss
>
> - Erosion and clearing of topsoil (loss of micro-fauna).
>
> - Influence the abundance and health of dependent species
>
> **AIR ENVIRONMENT:**
>
> Air impact may lead reduced productivity, changes in water vapor levels.
>
> **SURROUNDING / NOISE ENVIRONMENT.**
>
> - Migration of birds
>
> - Breeding capacity reduction

- Affect life cycle Shy mammals may move away

- Bird Aircraft strike

- Wild life hazard management

**Climatic Variations:**

- habitats of many species will move pole ward

- experience increase in temperature regimes, rainfall

- decrease in the moisture regimes and increase in fire incidences."

Dealing with these features and the impact upon them of the proposed project, the EAC observed:

> "The EAC noted that a total of 385 species of plants, 36 medicinal plant, 86 species of birds, 33 butterfly species, 5 species of amphibians, 18 species of reptiles, 35 fish species, 28 number of mammal species were identified in the study area based on primary and secondary source of data. The proposed project has minimal intervention and impact on the surrounding ecosystem. There are mitigation measures already prescribed in EC conditions so as to minimize the impact on Biodiversity-Flora & Fauna, Hydrological Systems. This will help enabling the process for sustainable development that benefit both environment and local livelihoods. With regards to climatic variations, the EAC felt that additional initiatives such as Green Infrastructure Development program, adoption of low emission intensive technologies, renewable energy program, and Airport Carbon Accreditation need to be adopted to reduce the impact on Green House Gas (GHG) emissions and thereby climate change."

10 The next set of concerns that were dealt with by the EAC related to the impact of the proposed project on natural channels for the drainage of water. This Court had noted in its earlier judgment that the Mopa plateau is at a height of 155

metres above Mean Sea Level[11] and water from the plateau flows down to the rivers in the State of Goa. The laterite plateau is an important source of drainage by providing natural channels for water. The deficiency which was seen by this Court was that the impact of a greenfield airport on the closing of natural channels which feed water bodies had not been scientifically mapped or studied and adequately addressed.

11 In reviewing the EIA on this aspect, the EAC in its minutes dated 23 April 2019 observed:

> "If natural water channels that feed the local water bodies are not protected then there will be water deficiency in the villages for agriculture, fishing etc. Further, there will be impact on the ground water levels in the villages. EAC while granting EC for the project had detailed deliberation on this aspect so as to ensure that natural water channels feeding the water bodies are not blocked. The EAC reviewed the entire gamut of natural/artificial drainage and the storm water drainage pattern. As per the supplementary information provided now, the airport site, by virtue of being located on a plateau and the laterite soil surface, would naturally facilitate the flow of storm water and other artificial drainage. The proponent has designed for appropriate drainage channels in such a manner that the water flow from project site is channelized suitably into the natural water channels feeding the water bodies down slope. All due precautions, however, need to be exercised during the construction phase so as to ensure that construction material/debris does not, in any manner, block/obstruct the natural water channels or springs.
>
> The EAC deliberated on the current state of the project construction and noted that in the ensuing monsoon season the earth piled up at the project site due to excavation may drift to the natural water channels which may ultimately reach the water bodies in the villages. This is a matter of grave environmental concern which needs to be addressed by the project proponent immediately by development of embankment structures around the excavated earth so that piled up earth doesn't drift to the natural water channels and the run-off from the site does not pollute or contaminate the

[11] MSL

> water bodies. This shall be maintained during construction/operation phase of the project."

12 As regards the concerns which were raised in the course of public consultations, the EAC dealt with environmental concerns which included:

> "rain water harvesting, STP and solid waste management plan, impact on flora and fauna, soil quality and its impact, storm water management, impact on ground water, socio cultural impact, dust pollution during construction activity, employment opportunities to the local people, compensation to the affected land owners"

The EAC has opined that these have been adequately addressed.

13 Finally, after analyzing the responses submitted before it, the EAC summed up its analysis thus:

> "1. The EAC observed that 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.

2. 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.

3. 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 Ecosensitive zone will be taken up be taken by the project proponent.

4. 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.

5. 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.

6. 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 a 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.

7. 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 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.
>
> 8. 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."

14 Accordingly, the EAC has recommended the grant of an EC to the project with additional environmental safeguards and conditions, over and above those which were stipulated in (i) the EC dated 28 October 2015; and (ii) the order of the NGT dated 21 August 2018. The conditions which have been imposed by the EAC have been classified under the following heads:

(i) Statutory compliance;

(ii) Air quality monitoring and preservation;

(iii) Water quality monitoring and preservation;

(iv) Noise monitoring and prevention;

(v) Energy conservation/ climate change measures;

(vi) Waste management;

(vii) Green Belt; and

(viii) Public hearing and human health issues.

15 The EAC has also incorporated as a part of its recommendations additional conditions as mandated by the NGT in its order dated 21 August 2018 under the following heads:

(i) Air environment;

(ii) Water environment;

(iii) Land environment;

(iv) Noise environment;

(v) Land environment;

(vi) Biological environment; and

(vii) Socio-economic environment.

## B.1 Zero-Carbon programme

16 During the course of the hearing before this Court, a statement has been made on behalf of the concessionaire GMR Goa International Airport Limited, that in the event of this Court sustaining the EC for the project, it stands committed to fulfill the objective of making the proposed greenfield airport at Mopa Goa, a zero carbon airport operation. The purpose of a zero carbon airport operation is to eliminate anthropogenic carbon emissions reaching the atmosphere completely or to the minimum extent possible from airport activities

performed during its operation. The statement which has been tendered by the concessionaire before this Court is in the following terms:

> "**I. Zero carbon programme**
>
> 1. The objective of making "Zero Carbon" airport operation is to eliminate the anthropogenic carbon emissions reaching to atmosphere completely or to the minimum extent possible from the activates performed at Airport during its operation.
> 2. Climate Change and its mitigation in Aviation Industry is monitored by International Civil Aviation Organization (**ICAO**) and the emissions from domestic aviation are monitored by the respective countries under the United Nations Framework Convention on Climate Change (**UNFCCC**) frameworks.
> 3. Carbon emissions management is guided by Airports Council International (**ACI**), through its globally recognized Airport Carbon Accreditation (**ACA**) Program.
> 4. In airports, this is addressed by developing infrastructures/systems which will generate zero or minimum carbon emissions during its operations as per UNFCCC approved market mechanisms by:
>    a. Adopting green building concepts,
>    b. Generation and use of renewable energy,
>    c. Use of energy efficient systems,
>    d. Developing green landscapes,
>    e. Plantations as carbon sink to absorb carbon emission from the atmosphere
>    f. Adopting carbon offset measures for the residual emissions of airport operations
> 5. Level 3+ is the highest level of accreditation for carbon emission management of airports. As of July 30, 2019, there were 52 Level 3+ (Neutrality) accredited airports globally (out of 1,957 ACI member airports), including GMR Group's Delhi and Hyderabad Airports (Additional Affidavit of Respondent No. 5, pp.23-24).
> 6. Level 3+ Neutrality is achieved by fulfilling requirements of Level 1,2 and 3 accreditation program (R-5 Affidavit, Page 17) and offset of residual emissions under the airport's control. (Sources of emission and measures under the ACA Program – Page 18). The Zero Carbon Emission Implementation Framework provides for various measures such as:
>    a. Internal audit once in two year
>    b. External audit after every 5 years
>    c. Adopt Energy Management System – ISO 50001 and 3rd Party certification

d. Improve energy efficiency of buildings and equipment & lightings,
e. Improve ground water availability
f. Promote energy efficient and alternate fuel vehicles."

## C. Genesis of the proposed airport

17 Before we deal with the principle challenges addressed before the Court on behalf of the original appellant represented by Ms Anitha Shenoy, learned Senior Counsel, it would be worthwhile to set out briefly the genesis of the proposed airport at Mopa Goa. Mr K K Venugopal, learned Attorney General for India emphasized the following features of the project:

(i) The construction of an airport at Mopa Goa has been on the drawing board for nearly two decades;

(ii) The site at Mopa was chosen among three options after due examination by experts;

(iii) The existing airport at Dabolim is a defence establishment which is closed to area traffic between 8:30am to 1:30pm daily;

(iv) The existing airport at Dabolim was intended to serve four million passengers annually while the existing passenger traffic is about 7.5 million annually;

(v) The passenger traffic at Goa is expected to rise in the upcoming financial years to the following extent:

| FY 21 | FY 22 | FY 23 | FY 24 | FY 25 |
|---|---|---|---|---|
| 12.0 | 14.1 | 15.5 | 16.7 | 17.9 |

(million passengers)

(vi) Due to capacity constraints, international charter flights are not granted parking facilities at night at Dabolim; and

(vii) The proposed greenfield airport will have a capacity to handle 4.4 million passengers in Phase–I, 13 million passengers in Phase–II and 30 million passengers in Phase–III annually.

18 The project area of the proposed Mopa airport is spread over 2,131 acres. Terms of Reference[12] were issued on 1 June 2011 and were extended on 19 June 2013 and 29 May 2015. The process for land acquisition was initiated around 2008. The Request for Qualification[13] for the Mopa airport was issued on 3 October 2014. The EC was granted on 28 October 2015. The concession agreement was executed on 8 November 2016. The airport is required by the terms of the agreement to be operational within thirty-six months from 4 September 2017. According to the concessionaire, as on 18 January 2019, approximately 14.06 per cent of the project work had been completed. Pursuant to the orders for the removal of trees, 54,176 trees were felled and 500 trees were earmarked for transplantation. Ten trees of local species are to be replanted for every tree which has been felled. 20,000 saplings have been re-planted. The concessionaire has placed on record the following financial features of the project:

> "a. The indicative capital cost of the Mopa Airport, Phase I, was estimated at INR 1,900 Cr. Total Project Cost was estimated at INR 3,000 crores (70% debt and 30% equity).

[12] ToR
[13] RFQ

b. Total debt commitment incurred by Respondent No.5 for the Mopa Airport is approximately INR 1,330 Crs.

c. The annual debt servicing incurred by Respondent No.5 based on current disbursement is approximately INR 17 Crs.

d. Respondent No.5 has also entered into contractual commitments for following amounts – INR 1,377 Crs. Towards Engineering Contracts, Project Consultant INR 38 Crs. Independent Engineer INR 11 Crs. totaling – INR 1,426 Crs.

e. Prior to the order dated 18.01.2019 passed by Hon'ble Supreme Court directing *status quo* be maintained, approximately 1,500 workforce were gainfully engaged at the Project site along with requisite plant and machinery.

f. The estimated traffic at Goa is (passengers in Million Passengers per Annum – MPPA):

| FY 21 | FY 22 | FY 23 | FY 24 | FY 25 |
|---|---|---|---|---|
| 12.0 | 14.1 | 15.5 | 16.7 | 17.9 |

g. The Scheduled Commencement Date was contemplated as 3 years from Appointed Date (04.09.2017) – 03.09.2020.

h. The Concession Period is for 40 years from Appointed Date with a right of first refusal to Respondent No.5 for an extension of 20 years.

i. GoG's share of revenue – 36.99% on Gross Revenue from 6$^{th}$ year of Commencement of Appointed Date."

According to the concessionaire, the following work was in progress at the project site when the implementation of the EC was suspended:

"i. Airside Earthworks – these include excavation and filling of runways, taxiways, aprons, parking bays, etc.

ii. PTB – foundations and column works in progress,

iii. ATC Building – excavation for foundations are in progress,

iv. Administration Building – foundation and column works in progress,

v. Precast Compound Wall works – casting of panels and columns in progress,

vi. City Side Development Master plan works is in progress."

## D. The present challenge

19 The essence of the controversy in the present case is whether the concerns which were highlighted in the earlier judgment of this Court dated 29 March 2019, have been adequately addressed and remedied.

20 Ms Anitha Shenoy, learned Senior Counsel appeared on behalf of the appellant submitted that by the judgment of this Court dated 29 March 2019, the EAC was directed to revisit the EC granted to the project and to decide whether or not the project should be approved. Ms Shenoy prefaced her submissions with two preliminary points:

(i) The composition of the EAC (Infrastructure-2) which has thirteen members does not qualify it as an expert body. None of the members had expertise on ornithology or on terrestrial eco-system. The EAC is chaired by a former Director of the Council for Social Development with retired officers of the State and Central Pollution Control Boards. One of the members has an architectural background, another in chemical engineering while one of the

members is a Professor of Law. The minutes do not disclose whether the EAC sought the opinion of a subject specialist or specialized institution; and

(ii) There is a conflict of interest on the part of the EIA consultant who had prepared the EIA report. As on the date of EAC meeting, Engineers India Limited[14] was the EIA consultant as well as an independent engineer on the project. The EAC minutes recorded that the project proponent and EIL made a detailed presentation on the observations of this Court with comments and responses. EIL was defending its actions as an EIA consultant while at the same time being an independent engineer for the construction of the airport. This involves a conflict of interest.

Apart from addressing the above preliminary points, Ms Shenoy has urged submissions focusing upon the following specific areas:

(i) Forests;

(ii) Western Ghats;

(iii) Ecologically Sensitive Areas; and

(iv) Absence of avi-faunal study.

21 Based on the submissions on the above four facets, Ms Shenoy has dwelt upon mitigation measures suggested by the EAC and the need to factor in the objections which were addressed during the process of public consultation. Ms Shenoy urged that the EAC minutes are virtually a facsimile of the presentation submitted by the concessionaire and that the EAC has failed to fulfill its remit of

[14] EIL

revisiting the EC as mandated by the order of this Court. The submissions which were addressed under each of the four heads noted above are catalogued below:

**(i) Forests**

In the supplementary information contained in updated Form 1, the project proponent had disclosed a list of thirty-five proposed reserved forests around the project site. However, there has been no collection of primary data through remote sensing or ground truthing as required by the Airport Guidance Manual. No impact study was carried out of the proposed project on the newly disclosed forests. The EAC has merely recorded the fact that the Western Ghats fall within the study area without undertaking a study of the likely impact of the construction of the airport. The MoEF-CC, in its affidavit before this Court, however sought to contend that the Western Ghats are far away from the project and the impact due to the operation of the airport would be minimal. Though there are ten villages in the taluka of Sawantwadi in Sindhudurg district of Maharashtra located in the ESAs of the Western Ghats, no study has been conducted of their vulnerability. The HLWG recorded that Tiger and Elephant corridors mostly fall in the ESAs of the Western Ghats. Thus, the EAC has arrived at a conclusion that there will be no impact on the ESAs without knowing why an ESA is proposed to be notified and without carrying out an impact assessment. The EAC has equated the issue of tree felling at the project site with the issue of the impact on the 42 forests surrounding the site. However, in its summing up, the EAC has acknowledged that compensatory forestation can never replace a natural forest.

**(ii) Impact on Western Ghats**

The EAC has only adverted to the fact that the Western Ghats fall within the study area. While accepting the presence of this critical ecological biodiversity hotspot, the EAC has not directed any study on the impact nor has it adverted to the likely impact of the activity. The critical significance of the Western Ghats has been emphasized in the HLWG report. Absent a study by the EAC, the recommendations are flawed.

**(iii) Ecologically Sensitive Areas**

The EAC has noted that ten villages in the taluka of Sawantwadi in Sindhudurg district are located in the ESA of the Western Ghats. The EAC ought to have determined what makes each ESA ecologically sensitive and to study the reasons for their vulnerabilities. The EAC has not endeavored to find the specific vulnerability of each ESA and has recorded its satisfaction with a generic explanation.

**(iv) Flora and Fauna**

The collection of primary and secondary data of flora and fauna in the EIA report was perfunctory. Areas which are used by protected, important or sensitive species of flora or fauna for breeding, foraging, nesting, resting, over-wintering or migration were not considered by the project proponent. The EAC merely included a number of additional species, citing a publication of the ZSI as the source, as supplied by the project proponent. Species found near the Maharashtra – Goa border as well as those found throughout India in forested areas show at least 1172 species. On the other hand, the list of species submitted by the project proponent does not

have a single Scheduled I species despite the fact that there are 42 dense forests around the project area. Important species such as the Indian elephant, royal Bengal tiger and leopard have been excluded. The EAC did not direct the carrying out of an avi-faunal study, in violation of the directions of this Court, the only reference being to bird strikes.

22 As regards the mitigation measures proposed by the EAC, Ms Shenoy submitted that the Airport Guidance Manual requires a rigorous study of the impacts of a proposed airport project on the biological environment and the measures required to address these impacts. Information relating to the state of the environment in the 15 km. radius was submitted before the EAC without there being any primary or secondary data collection. The EAC however came to the conclusion that the impact would be minimal. The additional environmental safeguards proposed by the EAC have no bearing on the peculiar conditions of the proposed airport at Mopa. Ms Shenoy ultimately urged that no effective mitigating measures can be implemented unless:

(i) Authentic information about flora, fauna and natural features in the study area exists;

(ii) A scientific objective and independent assessment of the likely impact of the proposed project is made; and

(iii) A specific finding is arrived at by the EAC on whether the damage and impact can be mitigated.

## D.1 Domain Expertise of the EAC

23 The first aspect which merits scrutiny is the criticism leveled by Ms Anitha Shenoy, learned Senior Counsel against the domain expertise of the EAC. At the outset, it is necessary to note that the EAC (Infrastructure–2 Sector) was constituted under an order dated 7 January 2019 of the MoEF-CC. The composition of the Committee was as follows:

(i) Prof. T Haque, Retd. Director & CEO, Council for Social Development;
(ii) Dr N P Shukla, Ex. Chairman, MPPCB, Bhopal;
(iii) Dr H C Sharatchandra, Ex. Chairman, Karnataka, SPCB;
(iv) Sh. V Suresh, Former CMD, HUDCO;
(v) Dr V S Naidu, Member;
(vi) Sh. B C Nigam, Member;
(vii) Dr Manoranian Hota, Member;
(viii) Dr Dipankar Saha, Member;
(ix) Dr Jayesh Ruparelia, Member;
(x) Dr (Mrs.) Mayuri H Pandya, Member;
(xi) Dr M V Ramana Murthy, Member;
(xii) Representative of School of Architecture and Planning, New Delhi, Member (to be nominated);
(xiii) Addl. Director/Director/Advisor of MoEF& CC, Member Secretary.

24 The EAC has a vital role in conducting the appraisal of proposed projects in terms of their environmental impact and consequences. The EAC is intended to be an expert body. The members of the EAC are expected to bring to the deliberations of the body their knowledge and domain expertise. The composition of the EAC as noted above indicates that it comprises of experts with a scientific background as well as persons having domain knowledge on matters pertaining to the environment. Among the members of the EAC were persons who had a background of service in the State and Central Pollution Control Boards, the

Indian Forest Service, MoEF-CC and the National Institute of Ocean Technology. The constitution of the Committee cannot be faulted on the ground that as a body, the EAC lacked domain expertise. As a Committee which deals with infrastructure projects, the body as constituted also comprises of persons with relevant background and experience. Ultimately, the legitimacy of the decision which has been arrived at by the EAC will be assessed during the course of the judgment. At this stage, we are not inclined to accept a generalized challenge on the ground that the members of the EAC lacked domain expertise.

25 It is necessary to emphasis two facets: *First*, under clause 4(vii) of the order dated 7 January 2019 constituting the EAC, the chairperson is empowered to co-opt an expert as a member for a particular meeting of the Committee. Infrastructure projects which the EAC is called upon to assess and appraise do not fall into one specific mould. Hence, the EAC should engage with the enabling provision which has been made in clause 4(vii) to co-opt experts. The exercise of this enabling discretion will facilitate the work of the EAC by allowing for the benefit of the knowledge and expertise of an expert in a particular subject area being made available to it. The failure to co-opt an expert does not, as a consequence, lead to the invalidation of the exercise conducted by the EAC. But the desirability of co-opting experts needs to be underscored so as to bring a diversity of experience in the work of the EAC. *Second*, the composition of the EAC is dominated in a large measure by retired officials drawn from the Pollution Control Boards in the Centre and State and from former officials of the MoEF-CC. In the composition of the EAC, the Union Government should travel beyond former officials of the Pollution Control Boards and Ministries. Without

disparaging their credentials or their experience, it is nonetheless desirable that the members of the EAC should comprise of a cross section of persons drawn from different specialties having a bearing on environmental protection. Where the EAC has to deal with infrastructure projects, it is of course necessary to include persons who are familiar with the need for a balanced growth of infrastructure consistent with environmental protection.

26 We strongly commend to the Union Government the need to ensure in the composition of the EAC the inclusion of persons with specialized knowledge of diverse disciplines in relation to environmental protection. Having commended such an exercise to the Union government, we would leave the matter there. As we have observed earlier, the challenge to the minutes of the 23 April 2019 must be addressed on merits, there being no reasonable basis for this Court to conclude that the EAC lacked the expertise to make its recommendations.

**D.2 Conflict of interest**

27 The second preliminary point that was urged by Ms Shenoy was of a conflict of interest in the role and position of EIL as an EIA consultant as well as an independent engineer for the project. The Attorney General for India in his written note of submissions on behalf of the State of Goa has submitted that EIL was appointed as a consultant for preparing the EIA report in 2012. The assignment of EIL concluded upon the issuance of an EC by MoEF-CC on 28 October 2015. Thereafter, the Government of Goa floated a tender for the appointment of an independent engineer to supervise the work of construction in 2017. EIL secured the bid and came on board as an independent engineer in

December 2017. After the judgment of this Court dated 29 March 2019 by which the EAC was directed to revisit the EC conditions, the Government of Goa sought the assistance of EIL which was the author of the EIA report in presenting its case before the EAC. Hence, from the facts which have been set-forth before the Court by the learned Attorney General, it becomes clear that EIL was appointed as an independent engineer for the project only after the EC had been granted on 28 October 2015 and in a competitive tendering process. The role of the independent engineer is to supervise the construction of the airport in accordance with the ICAO standards. Certification and licensing of the airport is in the domain of the Director General of Civil Aviation[15] of the Government of India. Compliance with environmental conditions contained in the EC is monitored by the regional office of the MoEF-CC at Bengaluru. Moreover, there is merit in the submission which was urged by Ms ANS Nadkarni, learned Additional Solicitor General appearing for the MoEF-CC that the decision in regard to the grant of an EC rests with MoEF-CC. The fact that EIL whose services were engaged as an EIA consultant was subsequently appointed as an independent engineer after the initial grant of an EC will not result in the invalidation of the EC.

### D.3 Western Ghats and ESAs

28 Addressing the concerns of Ms Anitha Shenoy in relation to the Western Ghats and the ESAs, Mr Nadkarni urged that the scope of the Kasturirangan Committee report was to suggest an all-round and holistic approach for sustainable and equitable development while keeping in focus measures to

[15] DGCA

conserve, protect and rejuvenate the ecology in the Western Ghats. The HLWG, with the aid of the National Remote Sensing Centre[16] developed a scientific and objective methodology for identifying ESAs in the Western Ghats. In doing so, the HLWG bore in mind diverse parameters including forest and vegetation types, natural and cultural landscapes, forest fragmentation, biological richness, village boundaries, population density, protected areas, wildlife corridors and world heritage sites among other considerations. Ten ESAs falling within the study area have been disclosed in the report along with mitigation measures. It was urged that upon detailed discussion, it was found that the impact on these ESAs, as a result of the project, would be minimal. The area where the project site is located, it was urged, has not been identified as an ESA. The nearest village identified in the State of Maharashtra – Galel – is at an aerial distance of 4.1 km from the boundary of the project site. Mr Nadkarni rebutted the contention that the project would impinge upon wildlife corridors. The nearest identified corridor, it was submitted, is on the boundary of the States of Goa, Karnataka and Maharashtra which is far away from the project site.

29 Volume-I of the report of the Kasturirangan Committee on the Western Ghats dated 15 April 2013 contains a summary of the recommendations. The report notes that the Western Ghats region straddles six states of which 60,000 square kms representing 37 per cent of the geographical coverage of the Western Ghats has been identified as an ESA. In that context, the report notes:

> "About 60,000 $km^2$ of natural landscape (approximately 37% of the total geographical area of Western Ghats Region) has been identified as Ecologically Sensitive Area (ESA) by

[16] NRSC

> HLWG, which represents more or less a contiguous band of vegetation extending over a distance of 1500 km across 6 States of Western Ghats region and includes Protected Areas and World Heritage Sites. The demarcation unit of ESA is the village. IRS LISS III derived spatial layers on vegetation type and landscape level indices (with a fine spatial resolution of 24 m) were used as the basis for identification of ecologically sensitive areas (ESAs).
>
> To facilitate sustainable development in the WG region, which is inhabited by about 50 million people, the non ESA comprising mostly cultural landscape is also demarcated. HLWG recommends that the Central government should immediately notify the ESA area, demarcated by HLWG in public interest. The need for urgent action is evident. In this notified area, development restrictions as recommended in this report will apply."

In its recommendations dealing with restrictions on development in the proposed ESAs, the report notes:

> "HLWG is recommending a prohibitory and regulatory regime in ESA for those activities with maximum interventionist and destructive impact on the ecosystem. All other infrastructure development activities, necessary for the region, will be carefully scrutinized and assessed for cumulative impact and development needs, before clearance."

Among the recommendations of the HLWG are the following:

> "All other infrastructure and development projects/schemes should be subject to environment clearance under Category 'A' projects under EIA Notification 2006.
>
> All development projects, located within 10 km of the Western Ghats ESA and requiring Environment Clearance (EC), shall be regulated as per the provisions of the EIA Notification 2006."

30 Chapter IV of the Kasturirangan Committee report explained the procedure adopted to define and demarcate the boundaries of the Western Ghats for identifying ESAs, in the absence of an accepted definition of Western Ghats. Chapter V dealt with the need for a scientific, objective and practical strategy for delineating ESAs within the natural landscape with the village as a unit. In that context, the report notes:

> "The results obtained based on the methodology adopted by HLWG are analyzed for 188 talukas in terms of the area covered under ESAs and number of villages falling under ESA. Maps of Western Ghats showing vegetation and land cover classes, natural and cultural landscapes, biodiversity richness, fragmentation and human population density and ESA, and Maps of each of Six States showing natural and cultural landscapes and ESAs are also provided."

Chapter III of the report analyses the impact of climate change on the ecology of the Western Ghats. Explaining the criteria which it had adopted in demarcating the Western Ghats, the report of the Kasturirangan Committee report notes :

> "HLWG, in the absence of geologically and gemorphologically sound criteria in demarcating WG, decided to adopt the criteria followed by the Western Ghats Development Programme of Planning Commission which defined WG in terms of geology conceptually, but has taken altitude as the criterion for identification of talukas/blocks under Western Ghats Development Programme of Planning Commission as recommended by High Level Committee, because the Ghats are usually 760-915 m high. All those talukas/blocks at 600 m and above elevation and those talukas having more than 20% of the area at 600 m and above elevation that are contiguous to higher altitudes and formed part of the administrative boundaries of Western Ghats Development Programme are listed under Western Ghats Development Programme. This criterion has geological connotation – that at 600 m on the east the WG springs from Deccan Plateau, on an average the mean elevation of WG all along its length from north to south

> is greater than 600 m, and most of the Ghats have height of over 600 m."

31 Adverting to the biodiversity of the Western Ghats, the report notes:

> "The Western Ghats has unique taxonomic hierarchies, remnant ecosystems and strong endemic associations. The sholas, mangroves, kans, dry evergreen forests, swamps, reeds and riverine belts represent the unique ecosystems. The forests of WG are some of the best representatives of non-equatorial evergreen forests in the world. The resource value of this mega diversity centre spans from timber-non timber category through wilderness–ecotourism to gene pools of plants of medicinal-aromatic-food-industrial value…
>
> Floristically the Western Ghats is one of the richest areas in the country and harbours as many as 4000-4600 species of flowering plants of which 56 generic and 2100 species are endemic."

32 The HLWG has catalogued three talukas of Goa as ESAs. These are tabulated as follows:

| **State** | **District** | **Taluka** | **Taluka Area ($km^2$ )** | **ESA** | **No. of Villages with ESA** |
|---|---|---|---|---|---|
| **Goa** | **North Goa**<br>**South Goa** | Satari<br>Kankon<br>Sanguem | 515<br>362<br>872 | 406<br>284<br>771 | 56<br>5<br>38 |
| **Goa Total** | | | **1,749** | **1,461** | **99** |

In the district of Sindhudurg in Maharashtra, five talukas namely: Devgad, Kankavli, Kudal, Sawantwadi and Vaibhavvadi have been demarcated as ESAs.

33 Figure 18 in the report of the HLWG which demarcates Elephant and Tiger corridors which is reproduced below:

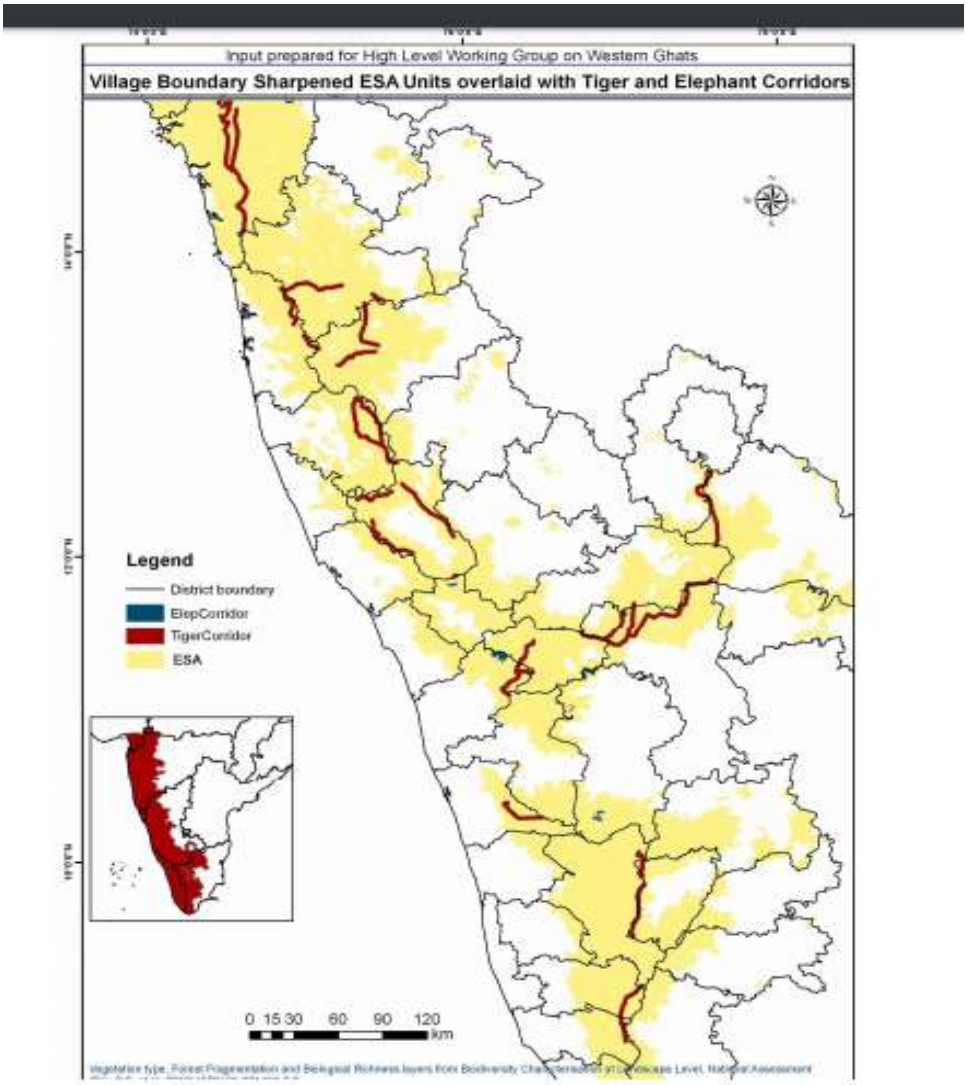



Figure 18: Wildlife corridors (Tiger and Elephant) in ESA of Western Ghats region (Datasets of Tiger Corridor from WII and dataset of Elephant Corridor from WTI were used).

34 Figure 21 delineates the natural and cultural landscapes in the Western Ghats region of Goa and is reproduced below:

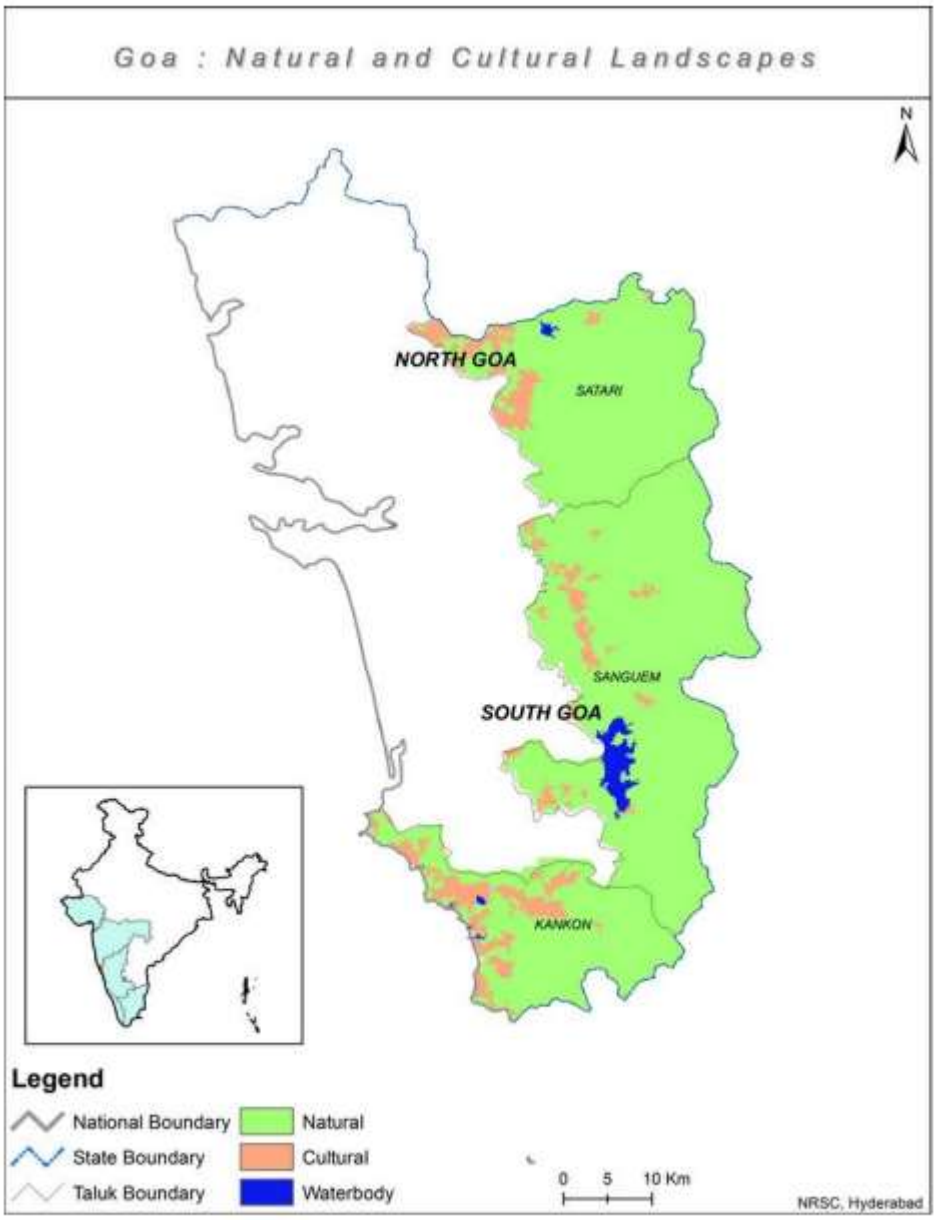



Figure 21: Natural and cultural landscape in Western Ghats region of Goa.

35 The ESAs in the Western Ghats region of Goa are depicted in Figure 22 of the Kasturirangan Committee report which is as follows:

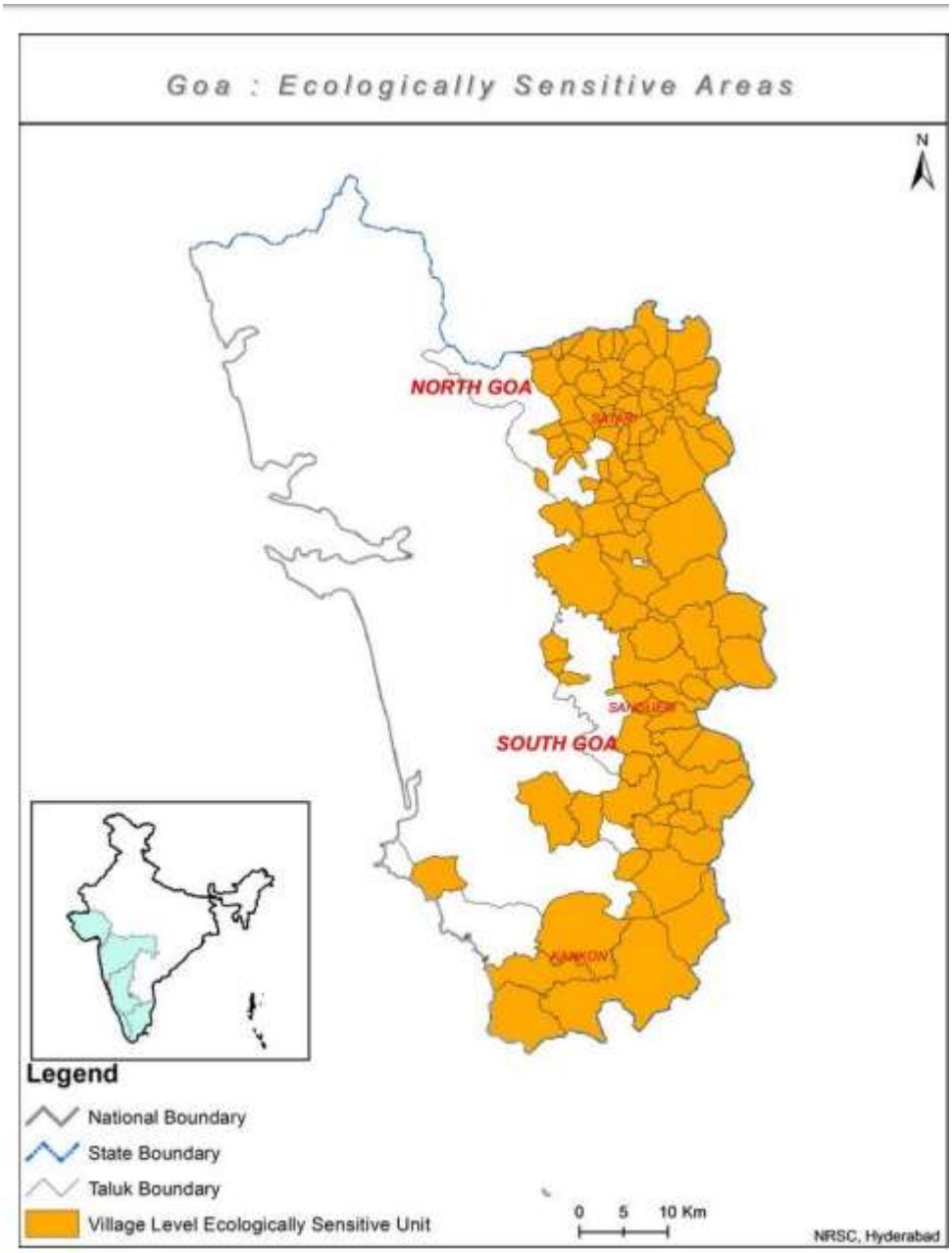



Figure 22: ESA in Western Ghats region of Goa.

36 Figure 23 provides a depiction of the natural and cultural landscapes in the Western Ghats region of Maharashtra, which is as follows:

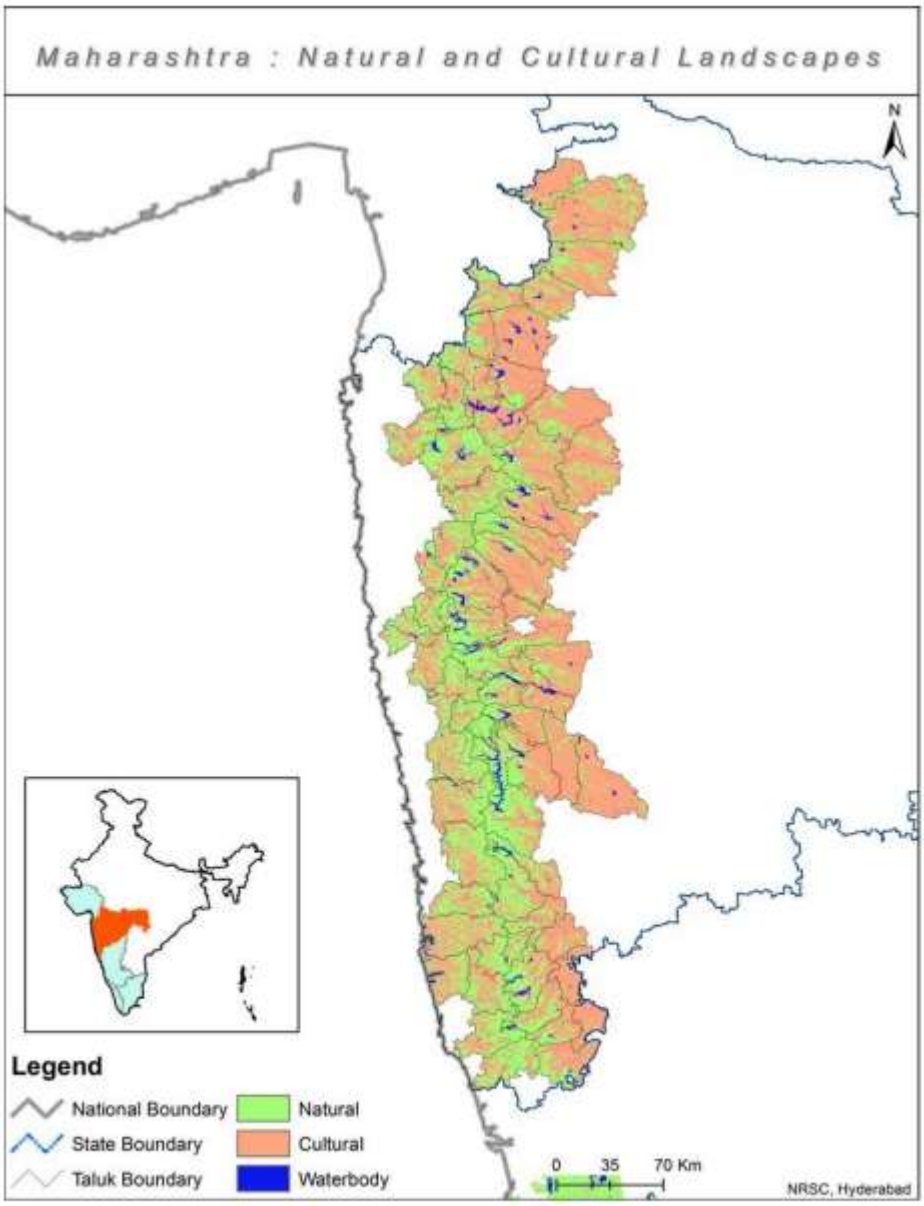



Figure 23: Natural and Cultural landscapes in Western Ghats region of Maharashtra.

## D.4 Forestland and flora and fauna

37 The criticism leveled against the recommendations of the EAC in its appraisal of the impact of the project on forested areas has been dealt with in the submissions as follows:

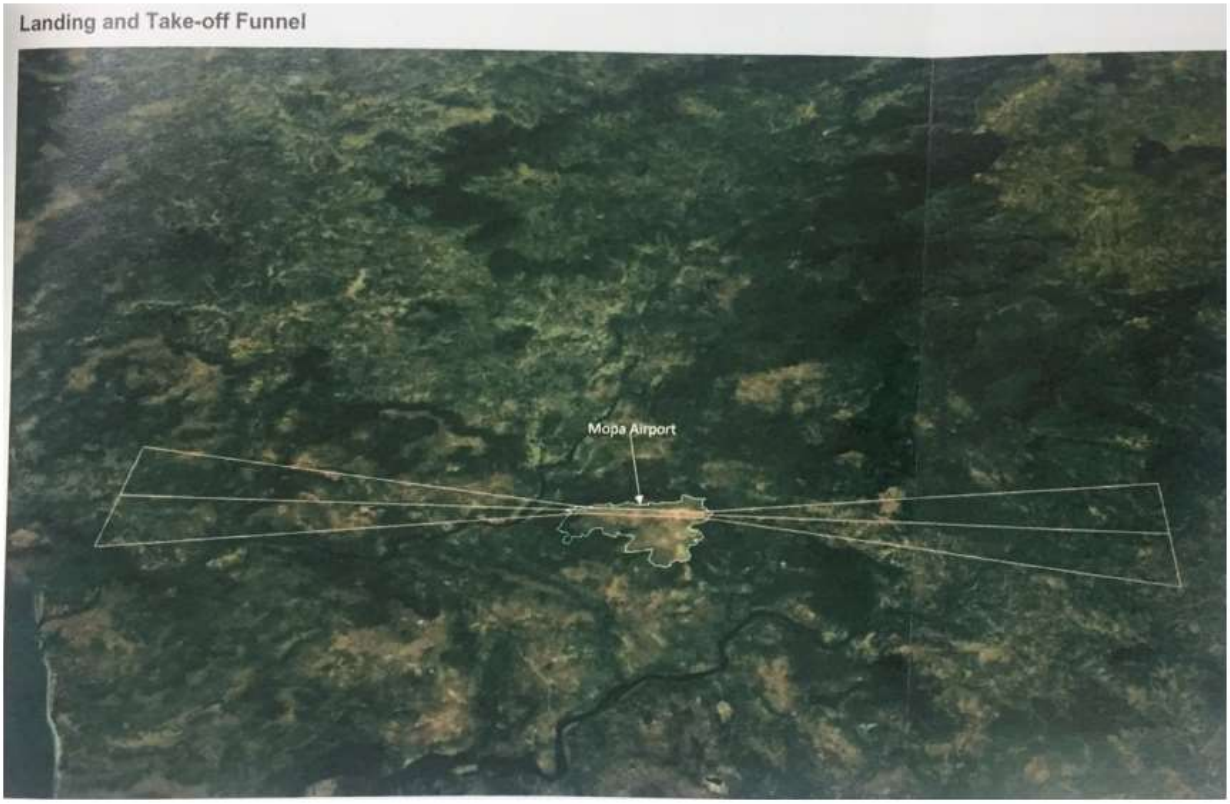
(i) Details of forested land as marked in working plans were obtained by the project proponent from the Governments of Goa and Maharashtra, details of which have been recorded by the EAC in its minutes of 23 April 2019, within a 15 km. radial distance from the project site;

(ii) Concerns about non-disclosure were addressed by the project proponent by giving details of forests with impacts and mitigation measures;

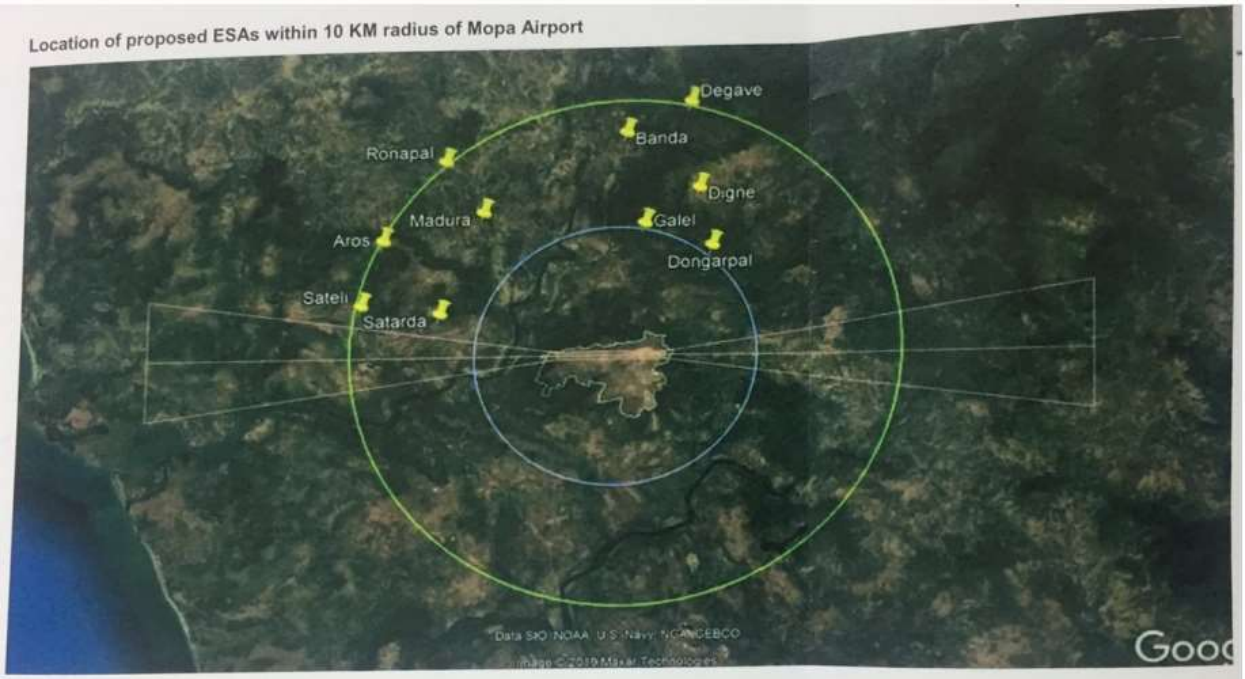
(iii) Remote sensing has been done by the project proponent as mentioned in Annexure IX of the EIA report. Ground truthing is usually done on site, performing surface observations and measurements of various properties and features of the ground on the remotely sensed digital image. In this case, the airport operation is within the boundaries of the project site and details of forest, springs, wetlands etc. were also given and discussed in the EAC; and

(iv) Impact of the airport operations on the air and noise environment will generally extend until an aircraft gains a height of 1000 feet. According to the Airport Guidance Manual, emissions from aircraft at a height upto a 1000 feet above ground will extend typically around 3 km from departure or, in the case of arrivals 6 km from touchdown. Since the airport site is at a height of 155 metres above MSL, the aircraft will gain a height of 1000

feet during departure within the project site. Aircraft operations follow a dedicated path called the funnel, which in this case has an east-west orientation for landing and takeoff. The impact on forests which are primarily on the northern and southern sides of the airport site in Goa and Maharashtra and their ecological features will be minimal. The project proponent has relied on a Google image of the Mopa region indicating a super imposed flight path for landing and takeoff at the airport which is extracted below:




Similarly, an image indicating the location of all ESAs within 10 km. radius of Mopa airport has been relied upon by the project proponent:




- Blue circle is for 5 km and yellow circle is for 10 km
- None of the area (project area and study area) falls in the notified Eco Sensitive Zones (ESZs).
- As per the High Level Working Group Report on Western Ghats (Dr. Kasturirangan Report), there are 10villages proposed as Ecological Sensitive Areas (ESAs) in the Taluka of Sawantwadi, District of Sindhudurg in Maharashtra.
- There is no proposed ESA in Goa, all 10 proposed ESAs are in the State of Maharashtra and located in North/North West side within the study area
- The nearest ESA is Village Galel at a distance of about 4.1 kms.
- The impact of aircraft operation on ESAs will be minimal in any circumstance since the ESAs are far away from the Airport

38 The criticism that the EAC has conflated the issue of the felling of trees with the environmental impact on 42 forests has been addressed in the submissions placed before this Court by Mr ANS Nadkarni, learned Additional Solicitor General appearing for MoEF-CC. It has been submitted that:

(i) The forest eco-system comprises mainly of flora and fauna in the environmental settings of air, water and land. The impacts of all these elements have been assessed and mitigation measures have been proposed;

(ii) The EAC took due cognizance of the presence of forest land and also observed that though a significant number of trees were required to be felled, this was a requirement in the wake of an identified project site. In

that context, it made a reference to the compensatory afforestation programme required in the ratio of 1:10;

(iii) The EAC has noted that the airport site does not fragment the forest areas and does not restrict the movement of fauna. The airport site is predominantly a plateau and the forest cover is not contiguous to it. With a boundary wall surrounding the airport, there is no possibility of animals being endangered by entry into the project site;

(iv) The impact of airport operations on the soil and water environment has also been assessed and necessary measures put into place by the EAC for protection and conservation; and

(v) Nearly 3 lakh trees are to be planted: 50,000 at the site and 2,50,000 in nearby villages within 15 km duly supervised by the Biodiversity board. Besides this, another 2,50,000 trees are to be planted and monitored by the DGCA. The EAC has mandated the plantation of native species and fruit bearing saplings to enable residents depending on agriculture to derive economic benefits while at the same time preserving the biological environment to birds.

39 MoEF-CC has also responded to the criticism against the approach adopted by the EAC in regard to avi-faunal studies and data. According to the submission, the project proponent presented data drawn from the ZSI and other sources. It has been submitted that the appellant while referring to the fauna species from ZSI data has referred to “external distribution” in most cases. However, ZSI data categorically mentions the “sighting area/localities” where specific species have been actually sighted; all these locations are notably far

away from the project site. Moreover, as an example, it has been submitted that the appellant in adverting to the sighting of leopards in Goa and Maharashtra did not limit the submissions to the study area but to the entire territory of the States of Maharashtra and Goa. ZSI studies on the fauna of Maharashtra records leopard sightings in places like the Melghat Tiger Reserve, Tadoba-Andhari Tiger Reserve, Pench National Park, Sanjay Gandhi National Park, Bhimashankar Wildlife Sanctuary, and the Phansad Wildlife Sanctuary among others. None of these sites fall within the study area. Similarly, the ZSI publication on fauna of Goa records sightings of leopards in places like Molem National Park, Cotigao Wildlife Sanctuary and Bondla Wildlife Sanctuary, not of which fall within the study area. Moreover, in the Wildlife Institute of India[17] report (2010), the presence of tigers has been recorded in Molem Wildlife Sanctuary and in the forests of Ponda and Sanguen Tehsil which are not within a 10 km radius of proposed Mopa airport. Relevant data drawn from the WII and the Wildlife Trust of India (2017) on the presence of tigers and elephants has been relied upon.

40 The submission which has been urged on behalf of MoEF-CC is that the distance of the ESA/ESZ is a prime factor in determining the likely impact of the project activities on the environment. On examination by the EAC, it has been found that neither the project site nor the villages under the study area fall in any ESZ. Moreover, of the 10 ESA villages in Maharashtra falling within a 10 km. radius of the project site, the nearest village (Galel) is about 4.1 kms from the boundary of the project and is located in the northern direction. The runway of the proposed airport has an east-west orientation. Beyond the runway of 3.75 km.,

[17] WII

flight operations at an altitude of about 1000 feet would have a minimally adverse impact on the flora and fauna surrounding the airport. Moreover, the common faunal species would primarily be restricted to the forest areas. The proposed airport site is not home to any of these species. It was, in this context that the EAC has observed that the project site does not fragment any forest area. The mitigation measures proposed in the EC conditions as well as the NGT directions stipulate measures for minimizing the impact on biodiversity. The project proponent would be bound to follow DGCA and ICAO aircraft strike hazard management guidelines including the setting up of an Airfield Environment Management Committee. Moreover, it has been submitted that EIL had stated the migration status of various species of birds in the EIA report. This information was updated with regard to the migratory status of additional fauna found in the study area in supplementary Form 1. However, no set routes of flyways were observed near the airport site. DGCA has published the National Aviation Safety Plan 2018-2020 emphasizing avi-faunal and wildlife management in airports. MoEF-CC has annexed to its submissions, DGCA circulars/directions on the following aspects which would have to be implemented by the concessionaire:

a) Climate Change Initiatives and Local Air Quality Monitoring in Civil Aviation, 2015;

b) Noise Management of Aircraft Operations at Airports, 2014;

c) Carbon Off-setting and reduction scheme for International Aviation;

d) Guidance on Wildlife Hazard Management;

e) National Aviation Safety Plan, 2018-2020, 2019.

41 In regard to the concerns which emerged during the course of the public consultation, it has been submitted by MoEF-CC that the updated report submitted by the project proponent took into account these concerns which primarily are comprised within two categories (environment and livelihood). The project proponent made a detailed presentation before the EAC on these concerns and the action plans were discussed in the EAC meeting. The EAC has stipulated the implementation of the environment management plan for addressing the concerns which were raised during the course of the public hearing. According to the Airport Guidance Manual, the concerns of the public which were expressed during public consultation must be addressed by the applicant either through an updated EIA and EMP or through a supplementary report. The project proponent has done so through updated information.

42 During the course of the judgment which was rendered by this Court on 29 March 2019, certain flaws were noticed in the process leading up to the grant of an EC on 28 October 2015. The project proponent had not complied with its obligation to make a full disclosure of information on material aspects of the environment in Form 1 as an intrinsic part of the EIA process. This Court specifically recorded its concerns on vital aspects which had not been adequately addressed by the EAC. Having noticed the flaws in the process and the deficiencies in the decision making process of the EAC, the Court directed the EAC to revisit the recommendations made by it for the grant of an EC including the conditions which it had formulated, having regard to the specific concerns which were highlighted in the judgment. Thereafter if the EAC were to allow the construction to proceed, it was directed to impose additional conditions to protect

the terrestrial eco-systems. The EAC was under a specific mandate to lay down conditions pertaining to air, water, noise, land and the biological and socio-economic environment. During the course of this judgment, we have traced the process as it evolved before the EAC following the earlier directions of this Court. The net result of the process is that the concessionaire has been subjected to a slew of mitigatory conditions: 53 in the original EC, 16 at the behest of NGT and 40 imposed by the EAC in the second round. On a reading of the process leading upto the present proceeding, it cannot be said that the EAC has, in its appraisal process, ignored the concerns which were highlighted by this Court. Ms Anitha Shenoy, learned Senior Counsel, as we have noted earlier, focursed her submissions on four areas namely (i) Forests; (ii) ESAs; (iii) Western Ghats; and (iv) Flora and Fauna. The EAC has adequately addressed these concerns and laid down additional conditions to ensure the adequate protection of the environment.

43 The Airport Guidance Manual published by MoEF in February 2010 contains significant points for guidance having a bearing on the controversy which has been raised in the present case. In relation to the study area, the Manual states:

> "Primary data through measurements and field surveys; and secondary data from secondary sources are to be collected in the study area within 10 km radius from Aerodrome Reference Point (ARP). Primary data should cover one season other than monsoon and secondary data is to cover one full year. The basis for selection of these criteria is that the aircraft gains a height of 1000ft in this area below which noise and air pollution are generated maximum during its take off stage. Secondary data should be collected within 15 km aerial distance for the parameters as specifically mentioned at column 9 (III) of Form I of EIA Notification, 2006. Details of

> secondary data, the method of collection of secondary data, should be furnished. Similarly the proposed locations of monitoring stations of water, air, soil and noise etc should be shown on the study area map."

The study area in other words, comprises of a radial distance of 10 kms. from the Aerodrome Reference Point. The Manual indicates that the basis for selection of the criteria is that an aircraft gains a height of 1000 feet in this area and the maximum impact of noise and air pollution is generated during the takeoff stage. The Aircraft Guidance Manual also states that:

> "Aircraft engines produce emissions that are similar to other emissions resulting from any oil based fuel combustion. These, like any exhaust emissions, can affect local air quality at ground level. It is emissions from aircraft below 1,000ft, above the ground (typically around 3km from departure or, for arrivals, around 6km from touchdown) that are chiefly involved in influencing local air quality."

This is again emphasized in the following extract:

> "Ambient Air Quality (AAQ) is important for the airport projects. The significance of aviation's impact on air quality will vary depending on many other factors such as, background pollution levels, other sources of pollution, weather and proximity of residential areas.
>
> Aircraft engines produce emissions that are similar to other emissions resulting from any oil based fuel combustion. These, like any exhaust emissions, can affect local air quality at ground level. It is emissions from aircraft below 1,000ft, above the ground (typically around 3km from departure or, for arrivals, around 6km from touchdown that are chiefly involved in influencing local air quality. These emissions disperse with the wind and blend with emissions from other sources such as domestic heating emissions, factory emissions and transport pollution.

> The local air quality relevant emissions attributed to aircraft operations at airports are oxides of nitrogen (NOx), carbon monoxide (CO), Unburnt hydrocarbons (NMHC and VOCs), sulphur dioxide(SO2), particulate matter (PM10 and PM2.5).
>
> Aircraft engines, auxiliary power units, apron vehicles, de-icing, and apron spillages of fuel and chemicals emit these pollutants. Local factors influence the significance of individual emissions for each airport, but often NOx is by far the most abundant and is considered the most significant pollutant from an air quality stand point.
>
> Baseline data of these parameters extending over an area of 10km radial distance from ARP of the project by observation at a number of locations, predominantly in the windward direction duly taking into account changes in predominant wind direction in the monsoon period and changes in humidity in atmosphere. Specific importance is to be attached to areas in close proximity of project up to 3km is essential, considering the mobile source of emission such as aircraft."

44 A comprehensive process has been followed by the EAC bearing in mind the requirements of the Airport Guidance Manual. The EAC took note of the presence of reserved forests and of ESAs in the Western Ghats and deliberated on the impact of the construction and operation of the proposed airport on flora or fauna, hydrological systems and climatic variations. The process which has been adopted by the EAC and its ultimate conclusions must be scrutinized, in the course of judicial review, in the context of the limitations which are attached to the court conducting a merits based review. In **Lafarge Umiam Mining Private Limited** v **Union of India**,[18] an application was made under the 1994 EIA notification for the grant of an EC to a proposed limestone mining project at

[18] (2011) 7 SCC 338

Nongtrai Village, East Khasi Hills District Meghalaya. EC was granted for the project in 2001. A three judge Bench of this Court rejected the challenge and upheld the grant of the EC for the proposed project. Chief Justice S H Kapadia, speaking for the Court, formulated the standard of judicial review which must be applied in cases relating to the environment in the following terms:

> "In the circumstances, barring exceptions, decisions relating to utilisation of natural resources have to be tested on the anvil of the well-recognised principles of judicial review. Have all the relevant factors been taken into account? Have any extraneous factors influenced the decision? Is the decision strictly in accordance with the legislative policy underlying the law (if any) that governs the field? Is the decision consistent with the principles of sustainable development in the sense that has the decision-maker taken into account the said principle and, on the basis of relevant considerations, arrived at a balanced decision? Thus, the Court should review the decision-making process to ensure that the decision of MoEF is fair and fully informed, based on the correct principles, and free from any bias or restraint."

The EAC has accounted for the relevant factors outlined by this Court in its previous judgment in the assessment leading to the grant of the EC.

45 The evaluation of merits is a matter which primarily rests with an expert authority. The court can certainly supervise procedural compliance and ensure that all necessary inputs which are required to be factored into the decision-making process have been duly borne in mind. Once this has been done, the court must be circumspect in micro-managing the decision-making process by the EAC by substituting its own opinion for that of the EAC. Undoubtedly, no process can be perfect or free from studied criticism. Ms Anitha Shenoy, learned Senior Counsel has attempted to perform such an exercise when she submitted that the collection of primary faunal data from a nearby village and secondary

data from ZSI sources was not an adequate means of dealing with the concerns expressed by this Court. In assessing these criticisms, we must equally be cognizant of the fact that by the judgment of this Court dated 29 March 2019, the EAC was required to carry out the exercise within a period of one month from the receipt of the order of this Court. The Court did not quash the EC but directed that it should remain under suspension until the EAC revisited its recommendations in the light of the concerns which were expressed by this Court. Having assessed the process which took place following the judgment of this Court and the outcome, it would be difficult for this Court to hold that it fails to meet the standards which the court applies in the course of judicial review in environmental matters.

## E Directions

46 For the above reasons, the minutes of the meeting of the EAC dated 23 April 2019 are taken on record as prayed for. The additional conditions which have been imposed by the EAC shall, together with the original conditions of the EC dated 28 October 2015 and the directions issued by the NGT be cumulatively observed. The conditions cumulatively imposed for the grant of an EC, have been set out below:

### I. Conditions imposed by the EC dated 28 October 2015

**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 approved from the NHA land 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 land use around the Airport complex shall be regulated through a plan to control unauthorized development which may create problems in the operation of the 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 25$^{th}$ June 2008.

(xxi) Construction spoils, including bituminous material and other hazardous materials, must not be allowed to contaminate watercourses and the dumpsites 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.

(xxiii) Under the provision 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, creche 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 below 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 27$^{th}$ 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 fulfill 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 as to provide protection against particulars 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.

…

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

## II. Conditions imposed by the NGT in its order dated 21 August 2018

### A. AIR ENVIRONMENT

1. Total Suspended Particulate Matter (SPM), Respirable Particulate Matter (RPM) during construction phase and un-burnet and Hydro Carbons (HC), Lead (Pb), $CO^2$, $SO^2$, $CO^2$, 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 weeks 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 as to capture all the excess drainage for water-recharge.

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."

## III. Conditions imposed in the revised assessment of the EAC dated 23 April 2019

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 drawing of water from Tillari Irrigation Canal.

II. **AIR QUALITY MONITORING AND PRESERVATION**:

(i) The project proponent shall install system to carry out Ambient Air Quality monitoring for common/criterion parameters relevant to the main pollutants released (e.g. PM 10 and PM 2.5 in reference to PM emission and $\underline{SO^2}$, and NOx in reference to $\underline{SO^2}$ and NOx emissions) within and outside the airport area covering upwind and downwind directions.

(ii) Notification GSR 94€ 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 impervous 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 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 GSR 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 EP 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 green belt shall inter alia cover the entire periphery of the Airport.

(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 right 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 monoculture 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 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, creche 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."

47 We have also taken note of the assurance which has been tendered on behalf of the concessionaire that it will adopt a Zero Carbon Programme both in the construction and operational phases of the airport. We accept the undertaking of the concessionaire and issue a direction for compliance.

48 The earlier judgment of this Court highlighted numerous deficiencies by the project proponent leading to the grant of the EC. This Court highlighted numerous concerns including the preservation of forests, the existence of ESAs with their attendant features and the impact of the proposed project on natural water channels. The Court also noted the abject failure of the project proponent to provide complete information on the existence of reserved forests. In the proceedings that followed the judgment of this Court, the project proponent sought to remedy its failure by taking into account additional information on significant aspects of the environment. In the process leading to the grant of the EC as well as the lifting of its suspension by this Court, numerous mitigatory conditions have been imposed on the project proponent. We deem it appropriate to ensure the oversight of the project by a specialized body to ensure compliance with the directions cumulatively issued by this Court. We direct the National Environmental Engineering Research Institute[19] to be appointed to oversee compliance with the directions cumulatively issued by this Court. The project proponent shall bear the costs, expenses and fees of NEERI.

[19] NEERI

49 The suspension on the EC shall accordingly stand lifted. The Miscellaneous Application is accordingly disposed of.

**.....J**
**[Dr Dhananjaya Y Chandrachud]**

**.....J**
**[Hemant Gupta]**

**New Delhi;**
**January 16, 2020.**