

**BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL,  
PRINCIPAL BENCH, AT NEW DELHI  
ORIGINAL APPLICATION NO. 312 OF 2016**

Arun Kumar Sharma

... Original Applicant

**VERSUS**

MOEF&CC  
**IN THE MATTER OF:-**

.... Respondents

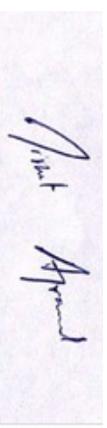
PRAGNESH SHAH

...Applicant/Intervenor

**I N D E X**

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Dated:- 07.02.2021

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**OBJECTIONS ON BEHALF OF THE APPLICANT / INTERVENOR  
(SH. PRAGNESH SHAH) TO THE REPORT DATED 08.12.2020  
FILED BY THE EXPERT COMMITTEE APPOINTED VIDE ORDER  
DATED 07.11.2019**

1. That before placing the objections to the report dated 08.12.2020 filed by the Expert Committee appointed vide order dated 07.11.2019, it would be relevant to give a brief background of the case of the Intervenor i.e. Sh. Pragnesh Shah's land situated in Mount Abu which he could not develop inspite of having being cleared by MOEF&CC and is approved and under the statutory Master Plan of the Government of Rajasthan.

**BRIEF BACKGROUND**

2. That the present Intervenor is the owner of Survey Numbers. 28-30 and 157-192 (hereinafter referred to as "**Intervenor's lands/Near STP Plant**"), situated in Village Hetamji, **Near STP Plant**, District Sirohi, Rajasthan.

- 3.** That in the year 2000, the State of Rajasthan issued the Zonal Master Plan 2025 wherein, the present Intervenor's lands were identified to fall in "Residential" zone and "Tourist Facility" zone. Further, in the draft Master Plan 2025, this land was identified as Residential and Tourist Facility Zone. It is apposite to mention that the present intervenor's lands are in close proximity to village abaadi on the main highway of Abu Road to Mount Abu and fall within the municipal limits of Mount Abu Nagar Palika.
- 4.** At this juncture, it is pertinent to mention that the present intervenor belongs to a joint family and has also had his family members residing in Mount Abu itself. That the present Intervenor's lands' erstwhile owners (also Gujarati and his relatives) already owned such land from as long as 2002.
- 5.** That as per the existing land use plan 2002 pertaining to the land use of Mt. Abu, the land owned by the Applicant had been shown as vacant land. That thereafter, the application for change of land use of the present intervenor's lands from green to non-green was already made in the year 2002 itself.
- 6.** That the then owners had paid all the conversion charges and due receipts were issued by the concerned authorities. However, the final clearance was not given only because the matter was pending before the Hon'ble Supreme Court. This is evident from a perusal of the copy of the applications dated 03.08.2002 moved by the erst-while owners and the relevant file noting dated 05.08.2002.
- 7.** That on 04.03.2004, the Commissioner, Municipal Board, Mount Abu wrote a letter to the Senior Town Planner, Jodhpur seeking

information regarding the land use of the Khasra Nos. 30 and 157 to 192 under the Master Plan 2025.

**8.** That thereafter, by reply letter dated 05.03.2004, the Senior Town Planner, Jodhpur informed the Commissioner, Municipal Board of Mount Abu inter alia that the land use of Khasra No. 30 was "Residential as well as open park", for Khasra Nos. 157-159 the land was earmarked as "Residential", and the land falling under Khasra Nos. 160-192 was earmarked as "Tourist Facility".

**9.** That the Hon'ble Supreme Court earlier directed that Mount Abu be declared as Eco-Sensitive Zone by MoEF&CC. Further, on 19.04.2004, the Hon'ble Supreme Court directed MoEF&CC and State Government to constitute a committee in consultation with the Central Empowered Committee (CEC) for granting permission to carry out repairs or renovating in the municipal areas till the notification was issued.

**10.** That the MoEF&CC issued a notification dated 25.06.2009, wherein Mount Abu and area surrounding it was declared as Eco Sensitive Zone. The said notification inter alia provided that the State Government of Rajasthan was required to prepare a New Zonal Master Plan. That although the said notification did not permit change of land use from green usage to non-green usage, however, a limited conversion of agricultural land to meet the residential needs of local residents was permitted.

**11.** That thereafter, the State Government appointed School of Planning and Architecture to prepare Zonal Master Plan 2030 in the

year 2010 in which the Intervenor's land was shown as vacant land due to an error.

**12.** That in the meanwhile, the present Intervenor made a representation before the Monitoring Committee on 12.09.2012 stating that the suit property is earmarked as "Forest/ Green Belt" in the Zonal Master Plan 2010-2030 which was not as per law. Thus, conversion of the land use was requested.

**13.** That the present Intervenor made another representation before the MoEFF&CC on 04.04.2013 stating that the suit property was earmarked as "Residential Zone" and "Tourist Facility" in the Zonal Master Plan 2025. However, in the Zonal Master Plan 2030, the suit property is earmarked as "Agricultural Zone".

**14.** That in the 3rd Meeting of the Expert Committee on Eco- Sensitive Zone held on 10.05.2013 by the MoEFF&CC, the Expert Committee suggested for "reconsideration" of the Zonal Master Plan 2030 after "examination of the representation" of the present intervenor as well as other representations made regarding correction of errors with respect to the demarcation of land use "as depicted in the Draft Zonal Master Plan 2025 vis-a-vis Draft Zonal Plan 2030". The following was suggested :

*"such land use disputes should be examined and settled by the State Government as the land is State Subject and land records are also maintained by them."*

**15.** That the present Intervenor made another representation to the Principal Secretary, Department of Urban Development and Housing, Government of Rajasthan requesting to consider his case in light of the above submissions made. It may also be noted that vide the said representation, the present intervenor being a conscientious individual with respect for Environmental laws and policy, also inter alia gave undertaking that he “*will not harm trees and hill slope as per government laws or as per the State Government’s directions*” and “*will consider all environment enhance steps of growing dense trees in vacant land with rain water harvesting system*”.

**16.** That the present Intervenor sent another representation on 19.07.2013 to the Chief Secretary, Government of Rajasthan requesting them to consider his case.

**17.** That it may be noted, on 16.08.2013, The Municipal Commissioner informs Additional Chief Town Planner that Mr. Pragmesh Shah’s land was identified as “Residential” and “Tourist Facility” in the Master Plan 2025 and even the Senior Town Planner Jodhpur has confirmed the land use of the said land. It was stated in the said letter that the present Intervenor’s lands were liable to be shown as for “Residential/Tourist Facility” purposes in the Draft Zonal Master Plan 2030 and appropriate corrections had to be carried out in the same. Photographs of the present Intervenor’s lands along with the report of the Senior Town Planner were also enclosed with this letter.

**18.** That a full-fledged meeting of the officers of Government of Rajasthan for the Zonal Master Plan of Mount Abu took place on 07.09.2013, wherein it was decided that a low density development

unto 20% coverage only may be permitted to the present Intervenor herein having Khasra Nos. 28-30, 157-192 in the revenue Village Hitamji, Mount Abu and further in the view of the communication from the MoEF&CC on the said issue in the meeting held on 10.05.2013, it was decided that a letter may be sent to the MoEF&CC for their concurrence.

**19.** That the Deputy Secretary- II, Urban Development, Housing and LSG Department wrote a letter dated 09.10.2014 to the Chief Town Planner, Jaipur stating that “*after approval at the appropriate level*” the State Government had taken a decision that the land use of the present Intervenor’s lands were to be retained as “Residential” and “Tourist Facility” respectively as given in the Master Plan 2025.

**20.** That thereafter, the Chief Town Planner, Jaipur while submitting the Zonal Master Plan for Mount Abu Eco Sensitive Zone 2030 wrote to the Additional Chief Secretary, Urban Development Department, Government of Rajasthan on 09.12.2014, that the corrections in the Zonal Master Plan 2030 with the respect to the land belonging to the present Intervenor had been carried out.

**21.** That thereafter the Environment Department, Government of Rajasthan after receipt of approval from MoEF& CC ( Respondent No.1 herein) vide letter dated 28.09.2015, notified the Zonal Master Plan for Mount Abu Eco Sensitive Zone vide Notification No. F.12(3)/Env./2009/Part-III dated 29.10.2015.

At this juncture, it is worthwhile to mention that the said Zonal Master Plan needs to be prepared in accordance with the Notification dated 25.06.2009 issued by the Respondent No.1 herein

(MOEF&CC) vide the said Notification only, Mount Abu was declared as Eco-Sensitive Zone and there were guidelines which were to be considered while preparing it. However, the same were properly considered by each and every department and because of which it got the approval from the Respondent-Ministry.

**22.** That thereafter, the present Original Application has been filed by one Dr. Arun Sharma before this Hon'ble Tribunal challenging the Zonal Master Plan 2030 for Mount Abu, Rajasthan vide O.A. No. 312 of 2016 on the ground that the same is not in conformity with the MOEF&CC notification dated 25.06.2009.

**23.** That thereafter, this Hon'ble Tribunal vide its order dated 31.05.2016 stayed the sanction of all fresh plans for constructions.

**24.** That since the Original Applicant had specifically mentioned the name of the present Intervenor (Sh. Pragnesh Shah) the Applicant/Intervenor herein therefore moved a Miscellaneous Application for Intervention as a necessary party in the present proceedings which was allowed on 10.04.2017 being M.A. No. 570/2016 in O.A. No.312 of 2016 as any outcome of these present proceedings would have direct bearing on the constitutionally guaranteed rights of the Applicant/Intervenor.

**25.** That thereafter vide order dated 26.11.2018, the Hon'ble Tribunal directed the Respondent-Ministry to evaluate the discrepancy of approved Zonal Master Plan, 2030 with ESSZ Notification dated 25.06.2009 by constituting a committee only with reference to the following sites in the said Plan:

1. Inside Salim Ali Bird Sanctuary;
2. Aranya Village
3. Behind Maganji
4. Inside Salim Ali Bird Sanctuary
5. Hill Sahil
6. Sunset Road Scheme
7. Sunrise Housing
8. Takhawala
9. Takhawala
10. Arna Village
11. Mohanpura
12. Hitanji
- 13. Near STP Plant (Intervenor's land)**

At this juncture, it is worthwhile to note that this Hon'ble Tribunal directed the Respondent-Ministry to constitute a committee having two Representatives of MoEF&CC, Representative of School and Architects Delhi and Representative of CPCB and further vide the said order dated 26.11.2018, narrated the mandate of the committee.

A copy of the order dated 26.11.2018 passed by this Hon'ble Tribunal is annexed herewith and marked as **ANNEXURE R/1**.

**26.** Pursuant to the aforesaid order dated 26.11.2018, the said committee visited Mt. Abu from 31.07.2019 to 2.08.2019 and after meeting, the committee visited the above-mentioned disputed sites and also interacted with the local residents on the issues raised by this Hon'ble Tribunal and after thoroughly examining the same, the committee gave site wise observation vide its report dated 09.03.2019. The site wise observation of the land in question (i.e. Near STP Plant- Sh. Pragnesh Shah's land) in the report dated 09.03.2019 is reproduced herein under for ready reference:

***"3.11 Near STP Plant***

*As per the land use plan of 2009 ESZ Notification, this site has been shown in Residential and Plantation/Agricultural/Vacant*

*Land. The State Government has proposed residential and tourist facilitation centre at this site. This site is situated within Municipal limits and being located at the entry point of Mount Abu, it is suitable for Tourist Facility Centre. This site can be developed provided Buffer Zone between construction and the Natural Drain/Naala should be at least 50 meters. No construction should be allowed on Hill Slopes of more than 20 degrees and unto 50 meters of Forest Boundary.*

**27.** That vide order 07.11.2019 the Hon'ble Tribunal further constituted the Committee of Expert Members as the Hon'ble Tribunal was not satisfied with the observation and recommendations of the report dated 09.03.2019, and directed the expert members to evaluate each and every aspect of the above mentioned thirteen sites again. A relevant extract of the order dated 07.11.2019 is reproduced herein below for ready reference:

*"9. Accordingly, without expressing any opinion on merit, we direct further exercise to be undertaken by modified Committee as follows:*

- 1. An Expert of Ecology from G.P. Pant Institute, Almora, Uttarakhand to be nominated by the Director of Institute.*
- 2. A senior Scientist from MOEF&CC & CC, to be nominated by the Secretary, MOEF&CC & CC.*
- 3. A senior Scientist from the Indian Council of Forestry Research and Education, Dehradun.*
- 4. Senior Scientist from Wadia Institute of Himalayan Geology, Dehradun, to be nominated by the Director.*
- 5. Scientist/ Senior official from the Central Pollution Control Board, New Delhi.*
- 6. Representative of School of Planning and Architecture, New Delhi.*

**7. Member Secretary, Rajasthan Pollution Control Board, shall be a member and Nodal Officer, who shall ensure the compliance.**

*10. The Committee may take into account the material already on record but undertake further study in terms of the directions of this Tribunal and also take into account the pattern of studies in the context of Manali referred to order of this Tribunal dated 19.09.2018 in O.A. No. 635/2017, Ramesh Chand v. State of Himachal Pradesh), Shimla (referred to order of this Tribunal dated 16.11.2017 in O.A. No. 121/2014, Yogendra Mohan Sengupta v. UOI & Ors. and Kasauli (referred to order of this Tribunal dated 05.10.2018 in O.A. No. 218/2017, SPOKE Vs. Kasauli Galaxie Resorts (Kasauli case).”*

A copy of the order dated 07.11.2019 passed by this Hon'ble Tribunal is annexed herewith and marked as **ANNEXURE R/2**.

**28.** That in compliance of the order dated 7.11.2019 in the present Original Application, a Report was given by the Expert Committee constituted by this Hon'ble Tribunal under Smt. Shalija Derval the then Nodal Officer cum Member Secretary (R.S.P.C.B.). The said First Report was prepared on the basis of the site survey, meetings of the members at Mount Abu and other deliberations done by the committee but for the reasons best known to the committee, the said Report, without any further discussion, site survey and deliberations, changed/manipulated while removing crucial aspects in the Present Report is submitted before this Hon'ble Court. The said report has not even been brought before this Hon'ble Court which is the **“First Report”**. It is specifically submitted that the conclusion of the said First Report qua the Intervenor (Sh. Pragnesh Shah) was changed without any basis while submitting the Present Report before the Hon'ble in order to oust the Intervenor herein. As per the

recommendations/remarks in the First Report, the Applicant's land is as under :

*“The proposed tourism facility centre is residents and some mechanism should be devised so that in future these residences are occupied by the local residents only.” (ref page 83 of First Report)*

A true copy of the First Report by the Expert Committee obtained from RTI by the Applicant dated 01.02.2021 is annexed herewith and marked as **ANNEXURE R/3**.

**29.** That pursuant to the above directions, the Present Report dated 08.12.2020 has been placed on record filed by the Expert Committee appointed vide order dated 07.11.2019 wherein, the site of the Intervenor i.e. *Near STP Plant* has been marked as unsuitable for construction without providing any justification to it and the committee has come to such a baseless conclusion, thus it is legitimate to state that the committee acted on sheer conjectures and surmises. It is submitted that even on the basis of the recommendations and observations of the Present Report, the Intervenor's land would have been cleared on the basis of the conditions mentioned by the committee viz -

- i)** No construction on the area having high slopes more than 20 degree slope and which is geologically unstable.
- ii)** The whole conclusion of the Committee in the Present Report that the site is not suitable for construction is against their own observations and recommendations.

**iii)** That the present site is admittedly near a STP Plant of the city of Mount Abu where a huge construction has already taken place and many persons must be working at the said plant 24/7. Hence, there cannot be any question disturbing the wildlife in the Intervenor's/Applicant's land. The only observation by the committee for not recommending the site even below 20 degree slope is that it will disturb the wildlife habitat as it found footprints of the 'Sloth Bear'. It is submitted that there is no evidence produced by the committee that they found the said footprints of the Sloth Bear in the land ever and even in the other site where site number 7, Sunrise Housing Society has identified the Sloth Bear in the First Report.

**30.** The site of the present Applicant is having human movement and just opposite the site of the Applicant there is a village called Hettamji. Accordingly, the conclusion of the Expert Committee may kindly be corrected and the Applicant/Intervenor may be permitted to carry out its activities as per the observations and recommendations as well as conclusions of the committee. The following are the detailed objections qua the Present Report dated 08.12.2020 :

**OBJECTIONS TO THE PRESENT REPORT**

**31.** At the outset, it is submitted that the final recommendation of the present Committee is on the basis of a pick and choose policy

qua many affected parties. On the basis of the same survey, observation and criteria parties such as Sunrise Housing Society and Behind Maganji's Mountain have been allowed to carry out construction. Even though the case of Applicant is based on the same premise, he has not been recommended for said purposes by the Committee without any legal count and admissible evidence. This sole reason shows that the purpose and intent of the orders passed by this Hon'ble Tribunal have not been reached so as to seek the opinion/ recommendation from an independent committee/ agency. In this view of the matter and in view of the following details and suggestions, the Present Report filed by the committee is unacceptable in law and the same needs to be examined by the Hon'ble Court so as to see the correctness and validity of the same.

#### CONTRADICTION IN THE PRESENT REPORT

##### **SATELLITE DATA NOT SUFFICIENT**

**32. No proper ground truthing done to determine vegetation or land use.** It is humbly submitted that satellite data of different spatial resolutions such as Landsat (30 m), Sentinel 2 (10 m) and Cartosat 1 (2.5m) have been used for providing satellite images given in the Present Report by the Expert Committee dated 08.12.2020 (ref Page 20). The Present Report states that "it appears from the satellite images that there exists a good to very good vegetation cover during the study period (2009-2020)". However, it is

pertinent to note that there is no evidence of proper ground truthing done for the process of gathering objective and provable data in relation to the vegetation cover. At this juncture, it pertinent to mention that ground truthing is important here as it allows image data to be related to real features and materials on ground. The collection of ground truth data enables calibration of remote-sensing data and aids in the interpretation and analysis of what is being sensed whereas, aerial imagery or remote sensing data is used to map surface features such as vegetation or land use, ground truthing is used to check or validate data using observations on the ground. Thus, the committee chose not to verify the same on ground which shows the approach of the very first approach of the committee knowing the fact that the Present Report will affect thousands of people and their livelihoods.

**33.** It is pertinent to note that ground truthing entails verifying that surface features or hazards are accurately described and actually located at the reported location. However, there is no information brought on record by the Expert Committee in the Present Report dated 08.12.2020, so as to analyze and examine any discrepancies in the images (ref fig.11, page 19). Therefore, at this juncture, the concept of “ground truthing” is important to bring out the correct facts which the satellite images, provided in the Present Report by the Expert Committee, is unable to determine.

#### **NO DESCRIPTION OF TEMPORAL CHANGES**

34. No detailed description of “temporal changes” mentioned with the provided images to study and scrutinize the mentioned sites. It is submitted that the Present Report by the expert committee mentions that “*Temporal changes*” have been identified at the mentioned 13 sites inside Mt. Abu ESZ as viewed through satellite images and it appears from the satellite images that there exist a good to very good vegetation cover during the study period 2009-2020, which in turn make the changes in land use to be insignificant after the notification issued by the Ministry of Environment, Forest and Climate Change (MOEF&CC) dated 25.06.2009 which declared Mount Abu as the Eco-Sensitive Zone (ESZ). However, it is seen that there is no detailed description of these “temporal changes” mentioned with these images to study and scrutinize the said temporal changes in each of these sites and therefore, a conclusion of this sort cannot be relied upon. It is further submitted that as per the land use plan of 2009 ESZ Notification, site number 13 referred to as ‘Near STP Plant’ has been marked as Residential and Plantation/ Agricultural/ Vacant Land. The State Government has proposed residential and tourist facilitation centre at this site. It is pertinent to note that even an ‘open space’ and ‘vacant land’ can be seen in the images given in the Present Report (ref page 33, fig 26) which shows that the land in question is suitable for construction as the vacant land is meant for the construction as per the plan sanctioned by the authorities.

**MAJOR LAND PORTION BELOW 20 DEGREE SLOPE**

**35. The major portion of the land in question falls under the 0-20 degree slope category and therefore, fits the criteria.** It is humbly submitted that according to the Zonal Master Plan 2030, the slope map of municipality area displays that areas with 0-10% slope are least sensitive and suitable for development and 10-20% slope is marginally suitable for developmental activities. Further, considering this particular criteria, Near STP Plant/ Intervenor's land covers 2.521 Ha. in the 100 m buffer zone and 10.708 Ha. in the 200 m buffer zone under the 0-20 degree slope category and only 0.619 Ha. in the 100 m buffer zone and 1.858 Ha. in the 200 m buffer zone, under >20 degree slope category (ref table 3, table 4, page 23). It is clearly mentioned that domain with slopes having slopes <20 degree are geologically stable and suitable for construction and even then site number 13 (land in question/Intervenor's land ) is marked unsuitable for residential construction in the report by the Expert Committee. Thus, the major portion of the land in question falls under the 0-20 degree slope category and shall be allowed for the purpose of residential construction.

#### **BIASED NATURE TOWARDS OTHER SITES**

**36.** The Present Report is factually incorrect and biased towards other sites. It is most respectfully submitted that other sites mentioned in the Present Report such as Sunset Road Scheme, having slope less than 20 degree, that is 3.061 Ha under 100 m buffer zone and 10.048 Ha under the 200m buffer zone in the 0-20 degree slope category which is close to the forest land was permitted for construction with the ESZ criteria of a buffer zone with forest and

water stream. Similarly, Sunrise Housing Society having slope less than 20 degree, that is 3.045 Ha under the 100m zone and 11.22 Ha. under the 200m zone in the 0-20 degree slope category which is near a local natural stream (nala) is allowed constructional activity as per norms, complying with the ESSZ criteria of the buffer zone with water stream and forest. Therefore, the same criteria ought to have been applied to site number 13- Near STP Plant ("land in question") as the major portion of the land comes under the 0-20 degree slope category as it is in consonance with the ESSZ Notification dated 25.06.2009. It further submitted that the said report is factually incorrect as even though the major portion of the land in question is suitable for construction according to the ZMP and ESSZ Notification, the Present Report by the Expert Committee has marked it as unsuitable for construction which is completely baseless and based on criteria best know to the committee which the committee did not even explain in the Present Report while making the site not suitable for construction.

#### **NO STUDY ON SOIL EROSION**

**37. No information or study based on soil erosion has been presented in the Present Report and still observed that there is possibility of soil erosion.** It is submitted that the Committee in its present report had observed that there is possibility of soil erosion in the area "Near STP Plant" However, there is no study through any scientific method or reports or any images /evidences provided to support any analysis of soil erosion by the Expert Committee in the Present Report. Hence, it should not be considered a

ground for instability of the land in question as there is no data or information provided to support the same.

**NO DATA/STUDY/EVIDENCE OF SLOTH BEAR IN NEAR STP PLANT**

38. No information has been provided to determine footprints of the Sloth Bear. It is further submitted that the expert committee explicitly states in the Present Report (ref Page 81) for site number 13 (i.e. Near STP Plant) that *“the proposed tourism facility centre at the gentle slopes may be allowed. But it may disturb the wildlife ecosystem. Although low slopes domain may be suitable for construction, geologically. But this site is the habitat of the wild animals. For example, footprints of the sloth bear were also observed during the field visit.”* However, it is pertinent to note that no survey has been done to determine or photos provided of the footprints of the Sloth Bear due to which the land in question is said to be unsuitable for construction. That no scope of work or analysis has been given to prove the above stated observation. Thus, the use of land in question is not contrary to the provisions of the ESSZ Notification. At this juncture, it is humbly submitted that the Intervenor has already mentioned before the various authorities and even during the course of argument before this Hon'ble Tribunal it was mentioned that no trees will be cut while raising the construction and that the Intervenor will do rain water harvesting.

**39. Major portion of the land falls under 0-20 degree slope category.** It is submitted that while considering the radius of the land in question, the total area of the land in question is 15.706 Ha. and

that Near STP Plant covers 2.521 Ha. in the 100 m buffer zone and 10.708 Ha. in the 200 m buffer zone under the 0-20 degree slope category, which means that Intervenor's land covers 13.229 Ha. in the 0-20 degree slope category and only 2.477 Ha. falls under the >20 degree slope category. Therefore, domain with low slopes having slopes <20 degree are geologically stable and suitable for construction (ref fig 26 (a), page 33) and that the major portion the land is question is under the 0-20 degree slope category and shall be allowed for residential as well as tourist construction but still the site in question has been marked as unsuitable without having any concrete studies qua the same.

#### **NON-APPLICATION OF DOCTRINE OF UNIFORMITY**

**40.** That it is most respectfully submitted that the Present Report states that site number 5, Hill Sahil has mostly steep (>30 degree) slope. However, Hill Sahil covers 86.14% slope under 0-20 % slope category and only 13.86% slope in above 20% slope category. At the same time, site number 3, Behind Magarji's Mountain with 85.1% slope under the 0-20% slope category and site number 7 Sunrise Housing Society with 89.32% slope under 0-20% slope category are marked as suitable for construction purposes. Thus, an inference can be drawn from these situations stating that the Present Report is made in a manner so as to oust and remove the Gujarati community as the Expert Committee has applied a pick and choose policy and has therefore, not carried out any principles uniformly in the said Present Report.

## REPORT IS CONTRARY IN NATURE

**41. Contrary remarks by the Expert Committee.** It is apposite to mention that the Expert Committee in its report dated 08.12.2020 has observed (ref page 30) that landscape with low slopes is geological stable and suitable and in fact, the Committee had observed two domains at the Intervenor's land one of which is suitable for Construction. However, still while forming the conclusion, the committee marked the entire site (i.e. Near STP Plant) not suitable able for construction which is contrary in itself as it is erroneous on the part of the Expert Committee to say the site is suitable on one hand and on the other they have marked it unsuitable. Thus, the entire report may be reviewed properly and thoroughly by the independent agency. The relevant part of the observation (ref page 30) and recommendation (ref page 81) of the Committee is reproduced herein for ready reference:

### "Near STP Plant

#### Observation :

*" The site is considered for the (i) tourism centre (ii) residential buildings in the ZMP 2030. The tourism centre is proposed at a land where the slopes are less than 20 degree and are geologically stable. But the proposed site for residential buildings covers the land of low slopes that are geologically stable (Fig.26a) as well as the land with a high slope domain that is not geologically stable for construction (Fig.26b). At this site, the bedrock is hard and compact with negligible weathering. In the stable slope region, no prominent fractures/joints are developed that may cause instability.*

#### Recommendation :

*This site is considered for the (i) tourism centre (ii) residential buildings in the ZMP 2030.*

*The proposed site for residential buildings covers the land of high slope domain that is not geologically stable for construction.*

- *At this site, the bedrock is hard and compact with negligible weathering. In the stable slope region, no prominent fractures/joints are developed.*
- *At places the measured slope towards STP site was found > 20 degree even the landscape is fragile in terms of soil erodibility. Thus high slope domains must be kept as such.*
- *The proposed tourism facility centre at the gentle slopes may be allowed. But may disturb the wildlife ecosystem.*
- *Although the low slopes domain may be suitable for construction, geologically. But this site is the habitat of the wild animals. For example, footprints of the sloth bear were also observed during the field visit. Therefore, any construction may disturb the wildlife ecosystem. Therefore, any construction must not be allowed to preserve the ecosystem of this region. ”*

*Conclusion : Site is not suitable for construction. ”*

#### **LAND IN QUESTION IS WITHIN MUNICIPAL LIMITS**

**40.** The said land is within Municipal limits. It is pertinent to note that the land in question has been marked as “Residential” and “Tourist Facility” in the New Master Plan 2030 in the order dated 07.11.2019, after approval of land use of the suit property to be retained as Zonal Master Plan 2025 as per the 4th meeting of the Expert Committee dated 03.12.2014. The land in question is within Municipal limits and being located at entry point of Mount Abu, it is suitable for Tourist Facility centre and it is submitted that the Applicant is a law abiding citizen and has proposed to use his land as per the law and plans sanctioned by the Municipality.

#### **LAND USE IS IN CONSONANCE WITH ESZ NOTIFICATION**

**41.** It is most respectfully submitted that the ESZ notification provides that the ZMP shall demarcate all the existing village settlements, tribal areas including tribal hamlets, types and kinds of forests, agricultural areas, fertile land, green areas, horticultural areas, orchards, lakes and other water bodies, natural heritage sites including points (such as Sunset Point) and man-made heritage sites, steep slopes, drainage channels, first order streams, ground water, recharge areas and areas rich in ground water, spring recharge areas, spring lines and other environmentally and ecologically sensitive areas and no change of land use from green uses such as orchards, horticulture areas, agriculture parks and other like places to non-green uses shall be permitted in the ZMP, except that strictly limited conversion of agricultural lands may be permitted to meet the residential needs of the existing local residents together with natural growth of the existing local population, without the prior approval of the State Government. Further, no change in use of land from tribal uses to non-tribal uses shall be permitted without the prior approval of the State Government. Thus in the present case, the Intervenor has been allotted the land for tourist facility as the land in question is located at the entry point of Mount Abu, looking to the population growth so which is completely in accordance with the intention of ESZ formation.

**42. The change of land use is in consonance with the ESZ Notification.** It is submitted that according to the Present Report by the Expert Committee dated 09.03.2019, under site specific observations in relation to site number 13, it has been observed that :

*“3.11 Near STP Plant*

*The State Government has proposed residential and tourist facilitation centre at this site. The site is situated within Municipal limits and being located at the entry point of Mount Abu, it is suitable for Tourist facility centre. This site can be developed provided buffer zone between construction and the natural drain/naala should be at least 50 meters. No construction should be allowed on Hill Slopes of more than 20 degrees and upto 50 meters of forest boundary.”*

43. The sudden transfer of the nodal officer raises a doubt whether the Present Report is completely reliable. It is submitted that Smt. Shalija Derval who was the then Member Secretary and the Nodal Officer, visited the site along with the other team members, deliberated the whole matter with them and to the best knowledge and belief of the present Applicant and submitted a report also on the basis of the entire survey, study, site visits and meetings with other members. The said report had not even been brought before this Hon'ble Court which is the **“First Report”**. The said First Report had never been supplied and made public, hence the Applicant would request this Hon'ble Tribunal to direct the Nodal Agency to place the same on record in front of the tribunal, so that the same can be examined for the purpose of passing appropriate orders in the present case. It is further submitted that the Nodal Officer and the submissions of the Present Report dated 08.12.2020 before this Hon'ble Tribunal without any fresh study, site visits or survey,

needs the kind indulgence of this Tribunal to examine the same for the purpose of passing appropriate judicial orders and to protect the interest of the Intervenor (Sh. Pragnesh Shah). Each and every committee member is an integral part of the survey and report preparation and therefore, the sudden transfer of the nodal officer raises a doubt whether the Present Report is completely reliable as one of the committee members, Smt. Shailja Derval was not present for the third meeting and for the most crucial point of the report to give their final opinion and compilation of the said report. At this juncture, it is relevant to point out the following changes made after the Nodal Officer was changed with a intention to oust the Intervenor from his own land :

**CHANGES MADE IN THE FIRST REPORT TO OUST THE INTERVENOR HEREIN**

**POPULATION DENSITY**

44. It is submitted that in the First Report a separate column for “*Population Density in 2001*” (ref page 7) has been mentioned which clearly shows the Population Density in the Eco-Sensitive Area and Mount Abu Municipal Area in the year 2001. However, in the Present Report by the Expert Committee dated 08.12.2020, the column for ‘*population density in 2001*’ has been intentionally removed (ref page 9) so as to paint a picture that the said amount of area prescribed for ‘*Residential*’ as well as ‘*Tourist*’ facility in ZMP 2030 qua the site in question is not required to be used for the purpose as mentioned in the ZMP 2030. At this juncture, it would not be

out of place to mention that the said land (Near STP PLANT) was converted by the Authorities on 03.08.2002 for the said land use.

#### **TEMPORAL CHANGES**

45. It is pertinent to note that no such words as “*Temporal Changes*” have been mentioned in the First Report to describe the concerned thirteen sites (ref page 17). The word “*Temporal Changes*” has been added in the Present Report describing the images of the concerned thirteen(13) sites (ref page 19). However, it can be seen that there is no detailed description of these “*Temporal Changes*” mentioned along with these images so as to study and scrutinize the said temporal changes in the site in question. It is submitted that the said word (*Temporal Changes*) has been used vaguely with describing the same therefore, a conclusion of this sort cannot be relied upon.

#### **FIELD PHOTOGRAPHS**

46. It is further submitted that the field photographs given in the First Report (ref Page 38) mentions proper timings and dates so as to portray the true nature of the area concerned (i.e. STP Plant). However, the photographs of Near STP Plant ( Intervenor’s Land) were changed in the Present Report (ref page 33) with the intention to show non-sustainability for construction activity. It is pertinent to note that the photographs in the First Report clearly show the existence of some buildings by which it could be inferred that construction activity would not harm the environment (ref page 37-38) as the land is vacant and already the construction is on it. Thus, the Present Report has been manipulated in a manner so as make the land in question unsuitable for construction and for this reason alone the same cannot be relied upon.

## **GROUND TRUTHING**

47. It is humbly submitted that in the First Report it is clearly suggested and observed that it would be better to have detailed survey along with collection of ancillary/collateral data for relatively smaller areas to get more accurate results for ground truthing of the results obtained from remote sensing data." (ref page 26). However, it can be seen that the Present Report mentions nothing relating to ground truthing and said point have been completely removed so that no one should question the Present Report (ref page 40). Thus, this shows that the committee felt that Ground Truthing is required so as to get a clear picture but after the change of Nodal Officer, the Committee removed those points in a manner so that nobody should question the Present Report. This shows that how the Present Report has been managed to oust the Intervenor from its own land.

## **CITY LEVEL POPULATION DENSITY**

48. It is pertinent to note that in the First Report, the following detail in respect of population has been stated as:

*"The population of Mount Abu stood at 22,045 in 2001 and has increased by more than five times from population size of 4165 in the year 1931. From 1901-1951, there has not been much growth in population. During 1951-1961 a paid increase in population was observed primarily due to administrative changes which took place. From 1961-2001 the town developed as an important tourist place as well as centre for educational facilities thereby showing a consistent rising trends in population growth." (ref page 41)*

The above said data is necessary as it helps in determining that how much land (Residential and Tourist facility) is required for future generations while forming the ZMP 2030. However, in the Present Report, the aforesaid particular paragraph has been completely removed in order to portray that no change of land is required. (ref page 43)

#### **HOUSING AND PROPERTY ANALYSIS**

49. It is further submitted that in the First Report by the expert committee it was explained as under:

*“Housing and Property Analysis - The density of development in 1981 for 12713 persons in Mount Abu for the developed area observed was 22.7 ppa with gross residential density of 70.2 ppa which changed to 14.5 ppa and 61.6 ppa respectively in 2002 for population size of 22045 persons.” (ref page 42 )*

The above said paragraph explains the number of dwelling or housing units per hectare of Gross Residential Area which have been completely removed from the Present Report (ref page 45). Thus, the removal of aforesaid paragraphs was not required as this the basis of checking the number of houses per hectare and helps in planning the Zonal Master Plan 2030.

#### **THREATS AND PRIORITIES**

50. It is humbly submitted that in the First Report, the Committee has specifically mentioned about the ‘Threats and Priorities’ of the sensitive area (ref page 49-53). However, it has been completely removed in the Present Report. This clearly shows that the Present Report is concealing material facts which are necessary to place on record as it reflects the threats in the most sensitive areas

where the area of Intervenor does not come. The said points have been removed and the Present Report has been manipulated in order to save the other people who have construction on these areas.

#### **MINUTES OF MEETINGS**

**51.** It is submitted that in the First Report, the issues and decisions decided by the committee members in the second meeting dated 16.01.2020 and 17.01.2020, the following point was mentioned :

*“Maps, details of site and proposed plan and the proposed colony located behind Maganji, shall be provided to the committee (Action by Nagar Palika- Mount Abu)”* (ref page 77).

The aforesaid paragraphs explains about the requirement of documents and further shows that they were not available during the meetings and visits. However, the aforesaid paragraph has been removed from the Present Report (ref page 73) so as to grant the approval for construction in the said area (i.e. Behind Magan Ji Mountain). Thus, this act of committee specifically shows the intention while forming an opinion regarding the Intervenor’s site.

#### **REMARKS AND RECOMMENDATIONS**

**52.** It is most respectfully submitted that in the First Report, the table (ref page 80-83) describes the sites in detail from all aspects including its vegetation type, biodiversity (Plants and Animals) and slope in such a manner to conclude its suitability for construction activities. Further, it is to be noted that in this report with respect to all the 13 disputed areas, the presence of animals and vegetation has been shown and nothing is concealed. However, in the Present Report (ref page 75-82), the Slope, Biodiversity, Remarks columns

have been completely removed and a column of 'recommendations' has been added in order to show that the site of Intervenor is not suitable for construction by concealing its detail description.

53. It is important to note that, another remark has been added mentioning about the footprints of 'Sloth Bear' in the site in question (Near STP Plant). However, it is to note that only in this site alone, the committee has particularly mentioned about the footprints in order to show that the site is not suitable for construction. At this juncture, it is worthwhile to note that in the First Report the committee themselves have mentioned the presence of 'Sloth Bear' at the sites named as '**Sunrise Housing Society and Arna Village**' but while preparing the Present Report, the Committee in order to mark them suitable for construction have removed the said point from the Table (ref page 75-82). Thus, the recommendation stating "*construction must not be allowed to preserve the ecosystem of this region.*" (ref page 80-81) is completely baseless. In fact, there is no data provided for any footprints of the Sloth Bear to show the site (i.e Intervenor's land) is unsuitable.

54. It is further submitted that in the First Report, it has been mentioned that the site "**Maganji Mountain**" has slope >20 degree (ref page 81). However, in the Present Report, regarding the same site "**Maganji Mountain**", it has been stated that "*most of the land at this site has slope <20 degree*" (ref page 76). Therefore, it can be seen that the data provided has been manipulated in order to arrive at a conclusion which is favourable to this particular site and its owners and thus the entire report is questionable and needs the

indulgence of this Hon'ble Tribunal to verify all facts along with its genuineness.

**55.** In view of the above objections, it is humbly submitted that the Present Report is self-contrary in nature and not sufficient study has been conducted and further the same as been manipulated and changed in a manner to oust the Intervenor herein. Therefore, a High Powered Committee or Independent Institution may be appointed so as to bring on record the correct facts and proper observation before this Hon'ble Tribunal and further direction may be issued to do extensive study with proper mechanism so that there shall be basis for the conclusion.



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**Counsel For the Intervenor  
(Sh. Pragnesh Shah)**

New Delhi

Dated: 07.02.2021

**BEFORE THE NATIONAL GREEN TRIBUNAL PRINCIPAL BENCH,  
NEW DELHI**

**31**

**ORIGINAL APPLICATION NO. 312 OF 2016**

**IN THE MATTER OF:**

**DR. ARUN SHARMA**

.....APPLICANT

Versus

**MINISTRY OF ENVIRONMENT,  
FOREST AND CLIMATE CHANGE & ORS.**

...RESPONDENTS

**AND**

**IN THE MATTER OF:**

**Pragnesh Shah**

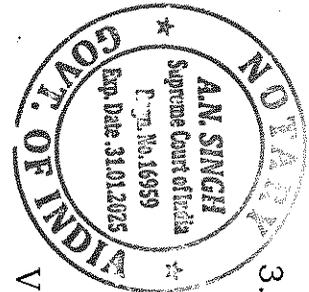
...Applicant

**AFFIDAVIT**

I, Pragnesh Gunwantal Shah, s/o Late Shri GunwantalHiralal Shah, aged about 48 years, R/o "Gunj" Bungalow, Opposite IRMA Gate, Near Collector Bungalow, Anand, Gujarat.- 388001, Presently at. New Delhi do hereby solemnly affirm and state as under:

*I Identify the deponent who has Signed/Put T.I. in my presence*

1. That I am the Applicant/Intervenor in the above captioned Original Application and in that capacity I am competent to swear and depose the present affidavit.
2. That the Accompanying Objections /Reply to the Report has been drafted under my instructions, which I have read and understood. I further state that the averments made therein are true and correct to my knowledge and belief.
3. That the Annexures filed alongwith the Objections/ Reply are true copy of their respective originals.



**ATTESTED**

*[Signature]*  
Deponent

*[Signature]*  
Notary Public, Govt. of India, Delhi

Verified at New Delhi on this **6<sup>th</sup> DAY** of February 2021, that the contents of my above Affidavit are true to the best of knowledge and belief. No part of it is false and no material has been concealed therefrom.

*[Signature]*  
Deponent

6 FEB 2021

BEFORE THE NATIONAL GREEN TRIBUNAL  
PRINCIPAL BENCH, NEW DELHI

Original Application No. 312 of 2016  
(M.A. Nos. 569 of 2016, 418 of 2018,  
748 of 2018, 807 of 2018 & 1246/2018)

Dr. Arun Kumar Sharma

Applicant(s)

Versus

Ministry of Environment, Forest and Climate Change & Anr.

Respondent(s)

Date of hearing: 26.11.2018

**CORAM :HON'BLE MR. JUSTICE ADARSH KUMAR GOEL, CHAIRPERSON  
HON'BLE MR. JUSTICE S.P. WANGDI, JUDICIAL MEMBER  
HON'BLE MR. JUSTICE K. RAMAKRISHNAN, JUDICIAL MEMBER  
HON'BLE DR. NAGIN NANDA, EXPERT MEMBER**

For Applicant(s):

Mr. Amit Sibal, Sr. Adv. Ms. Nina R. Nariman, Ms.  
Geetika Kapur and Abhinav Jeggannath, Mr. Ambar  
Bhushan, Mr. Vinay Tripathi, Mr. Sushant Singh  
and Mr. Ankit Kaushal, Advocates.

For Respondent(s):

Mr. Prateek Yadav. and Mr. Raj Kumar Maurya,  
Advs.  
Mr. Saurabh Rajpal and Ms. Shikha Sandhu, Advs.  
for State of Rajasthan  
Mr. Sandeep Mishra, Advocate in MA 748/2018  
Mr. C.K. Singh, Sr. Advocate and Mr. Dhaval  
Mehrotra, Advocates  
Mr. Puneet Jain and Mr. Abhinav Gupta, Advocates.  
Mr. Pinali Misra, Sr. Adv., Mr. Nishit Agarwa, Mr.  
Kushangra Pandey, Advocates

**ORDER**

1. This application challenges the Zonal Master Plan, 2030 (ZMP 2030) for the Mount Abu Eco-sensitive Zone (MA ESZ). Further prayer is for constitution of an Expert Committee to review the said plan.

2. Avertments in this Application are that vide Notification dated 25.06.2009, issued by the MoEF under the provisions of the Environmental (Protection) Act, 1986, Mount Abu was designated as Eco-Sensitive Zone (ESZ). The Notification mentions that the area has significant ecological importance. It comprises of tropical dry deciduous forests at lower altitude and evergreen forests at higher

altitude. Flora and fauna of the region comprise of several endemic and rare species. Besides, Mount Abu has natural heritage such as Nakki Lake and man-made heritage like Dilwara temple apart from other heritage buildings and structures. The Notification notes that adverse impact has been noticed due to degradation of environment with excessive soil erosion on account of water and air pollution and volcanic activities endangering natural resources and affecting health and survival of human beings. The Notification gives boundaries of the ESZ wherein the activities are to be regulated by preparation of a ZMP for the restoration of denuded areas, conservation of existing water bodies including Nakki Lake, management of catchment areas, watershed management, groundwater management, soil and moisture conservation, needs of local community, conservation of heritage sites (both natural and cultural) and their surroundings and such other aspects of the ecology and environment that may need attention.

3. The ESZ notification further provides that the ZMP shall demarcate all the existing village settlements, tribal areas including tribal hamlets, types and kinds of forests, agricultural areas, fertile land, green areas, horticultural areas, orchards, lakes and other water bodies, natural heritage sites including points (such as Sunset Point) and man-made heritage sites, steep slopes, drainage channels, first order streams, ground water, recharge areas and areas rich in ground water, spring recharge areas, spring lines and other environmentally and ecologically sensitive areas and no change of land use from green uses such as orchards, horticulture areas, agriculture parks and other like places to non-green uses shall be permitted in the ZMP, except that strictly limited conversion of agricultural lands may be permitted to meet the residential needs of the existing local residents together with natural growth of the

existing local population, without the prior approval of the State Government. Further, no change in use of land from tribal uses to non-tribal uses shall be permitted without the prior approval of the State Government. With regard to tourism, it is specifically mentioned that a detailed carrying capacity study was to be carried out by the State Government based on existing infrastructure "and not on future projections" of any project that may require environmental or forest clearance. Mount Abu has natural sites such as Nakki Lake, Toad rock, rock formations, waterfalls, pools, springs, gorges, caves, points, walks etc. and plans for their conservation in their natural setting shall be incorporated in the ZMP and Sub-Zonal Master Plan. Strict guidelines shall be drawn up by the State Government to discourage construction activities at or near these sites including in the garb of providing tourist facilities. The general pool reserve areas in the zone shall be reserved. According to the Applicant, the rare species of wildlife are under serious threat by unregulated and impressive developmental activities.

4. The ZMP 2030 has been notified on 29.10.2015, after approval by the MoEF vide letter dated 28.09.2015.

5. According to the applicant, the notified ZMP 2030 is not consistent with the ESZ Notification dated 25.06.2009 in as much as the said plan fails to discourage construction activities at or near the heritage sites, conserve the existing water bodies, permits change of land use by illegal structures. Rock climbing has also been permitted, including sport climbing by fixing permanent anchors. Construction has been allowed on green tracks to benefit some builders.

6. Though, the Ministry of Environment, Forest and Climate Change, (MoEF&CC) vide its letter dated 28.09.2015, while

approving the ZMP, placed a restriction on change of land use from green uses, the ZMP allows paying guest accommodation in residential land which will be commercialization by back door and will be indirect land use change. ZMP does not take care of the fact that the locations of the STP, Aarna Jain Dharamshala Area, Gurukul locations at Sunset Road and Takhatwala bungalow need to be preserved. The water is limited and its quality needs to be retained by not allowing construction near the water bodies, including in the garb of providing the tourist facilities. The number of tourists to be permitted is required to be restricted to protect the environment.

7. The MoEF&CC, in its counter affidavit, has opposed the application by submitting that ZMP 2030 was issued after public hearing. The responsibility for preparation and implementation of the ZMP is with the State Government. There is requirement to constitute a Monitoring Committee to monitor the implementation of the ZMP which will take care of the concerns of the applicant. The State Government has been asked to make a provision for rectification of errors or loopholes and also to restrict the change of land use.

8. The State of Rajasthan has also opposed the application. Reference has been made to the order of the Hon'ble Supreme Court dated 19.09.2004 in W.P. (C) No. 202 of 1995, *T. N. Godavarmaan vs. Union of India*, constituting a committee comprising of three members in consultation with the Central Empowered Committee(CEC), pending issuance of ESZ. After the ESZ notification, order dated 19.08.2011 was passed by the Hon'ble Supreme Court in *T.N. Godavarmaan Thirumulpad Vs. Union of India*, (2011) 14 SCC 390 at page 392 to the effect that interested parties could place their response to the ZMP and the same will be finalized after considering such response. The ZMP was submitted to the

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MoEF for approval and notified after approval was granted. The MoEF constituted a Monitoring Committee comprising of local residents and NGOs as members. Revised committees were also constituted by the MoEF&CC vide order dated 24.01.2012 and 05.05.2015. The State Government engaged the Department of Environment Planning, School of Planning and Architecture as consultant and also consulted the concerned departments, including Environment Department, Forest Department, Tourism Department, Pollution Control Board, SDO, Mount Abu, Secretary UTT, Mount Abu, Municipal Commissioner, Mount Abu, Archaeological Department and Underground Water Resource Department etc. Public objections were also considered. A detailed study of natural and man made heritage, forest, flora and fauna, wetlands, wildlife and other environmental and ecological aspects was carried out. Issue of tourist promotion has been duly addressed. No development has been proposed in the forest land or on slopes of more than 20 degrees. Conservation of forest, wetland, hill slopes and green areas has been given prime importance. There is a proposal for installation of air and noise monitoring stations. There is provision for reuse of waste water, on site waste water treatment and planning and management of waste water resources.

9. This application was filed before this Tribunal on 27.05.2016. On 31.05.2016, this Tribunal directed that no fresh plan should be sanctioned for construction without specific leave of the Tribunal. In view of the said order, certain intervention applications have been filed either seeking permission for repairs, or seeking permission for constructions, claiming to be within the purview of the ESZ and ZMP. Vide order dated 30.01.2018, permission for construction for residential purposes was granted for 'Takhatawala Building' subject to consideration of slope and geological studies and there being no felling of trees and also plan being in conformity with the Hill architecture.

Similar permission was also given for some other areas of Mount Abu mentioned in the order subject to the area being residential and subject to the same conditions as applicable to the 'Takhatawala building'.

10. We have heard the learned counsel for the applicant, learned counsel for the MOEF&CC, State of Rajasthan and for the interveners.

11. Main contention raised on behalf of the applicant is that comparison of land use plan annexed to Mount Abu ZMP for the year 2010 and the proposed land use plan annexed to the ZMP 2030 shows land use change which is inconsistent with the ESZ notification. In particular, reference has been made to the following points in the said plan:-

1. Inside Salim Ali Bird Sanctuary;
2. Aranya Village
3. Behind Maganji
4. Inside Salim Ali Bird Sanctuary Hill Sahil
5. Hill Sahil
6. Sunset Road Scheme
7. Sunrise Housing
8. Takhatawala
9. Takhatawala
10. Arna Village
11. Mohanpura
12. Hitanji
13. Near STP Plant

12. Apart from the above, following points have been raised to point out inconsistencies in the ZMP 2030 as compared to ESZ notification or otherwise:-

- (i). ZMP provides that no construction is to be permitted in the wetland within 50 meters from the water bodies and wherever possible such buffer zone along the wetlands should be wider. Requirement of buffer zone between construction and the wetlands should have been atleast 100 meters, as per study referred to in the ZMP itself in

- (ii). Having regard to the fact that the soil of the hills is loose and the area has potential for landslides, no development should be allowed at slopes having 35 degree or more. Hitanji and Hill Sahil have slopes higher than 35 degree. The same have been described as residential. Thereby, there is possibility of construction being allowed.
- (iii) There is degradation leading to wildlife decline, as noted in ZMP. This requires invocation of Precautionary Principle while permitting any development in the area.
- (iv) Nakki lake is a 'no construction zone' as per ESZ but ZMP permits organized commercial activities for facilities to the tourists and such activities could be cafeteria, shopping areas and accommodation.
- (v) ESZ notification provides for conservation of Toad rock but the ZMP has provision for ropeways which may result in rock not being conserved as required.
- (vi). The ZMP provides for 6700 tourists per day and also refers to carrying capacity having being under taken, as required under the ESZ notification, but the said carrying capacity report has not been furnished. Thus, carrying capacity has to be carried out to assess number of vehicles to be allowed and number of tourists to be allowed, having regard to the available existing infrastructure.
- (vii). Rocks in the ESZ area are required to be conserved but provision in the ZMP for adventure tourism permits sport climbing which may require drilling of the rock which will be against the spirit of the ESZ.
- (viii). Forest Policy, 1988 will be violated if there is reduction in green area as a result of activities permitted under

the ZMP, permitting converting green areas into non-green areas for facilities to tourists, including construction of hotels and resorts. Thus, mere denial of the State Government that no development on land with tree cover is contemplated and that there will no reduction in green area, does not fully appreciate the impact of ZMP. If green area is to be protected, provision for hotels, resorts etc. has to be deleted.

13. Learned counsel for the applicant referred to enunciation of Precautionary Principle, in the judgements of Hon'ble Supreme Court in 2004 (12) SCC 118 para 48, *M.C. Mehta Vs. Union of India & Ors.* and 2006 (1) SCC 1, para 86, 87 and 89, *TN Godavarman Thirumulpad Vs. Union of India & Ors.*

14. We asked the learned counsel for MoEF&CC whether any expert study was carried out prior to grant of approval to the ZMP 2030 or whether points raised on behalf of the applicant have been addressed. In absence of any stand in the counter affidavit of MoEF&CC or instructions, no positive statement could be made.

15. Learned counsel for the State of Rajasthan supported the stand in the counter affidavit dated 06.09.2016 and two further affidavits dated 27.10.2017 and 19.03.2018.

16. Learned counsel for the interveners opposed the above contentions and submitted that ZMP 2030 is consistent with the ESZ, the interveners are original residents and their activities are not in any manner prohibited by the ESZ. It was also submitted that there is no absolute bar to change of land use. The bar can be lifted with the permission of the State Government. Approval for construction has been granted prior to 2010.

17. Learned counsel for the applicant however submitted that his objection is to an amusement park and a hotel. Even if any

permission was granted prior to 2010, the same could be of no avail after ESZ notification was issued and till ZMP 2030 was finalized.

18. At this stage, we do not consider it necessary to go into the merits of individual claims of intervenors for construction. We have to first consider the issue whether ZMP 2030 conforms to the ESZ.

19. There is no merit in the plea that there is absolute power for change of land use, with approval of the State. There are inherent limitations in exercise of such powers. Environment law has to be read into the Development Laws on the accepted concepts of 'Precautionary Principle' and the 'Sustainable Development principle. ESZ Notification itself is part of the Precautionary Principle and Sustainable Development principle. These principles have been treated as part of Article 21 of the Constitution of India and also are statutory principles to be followed by this Tribunal under Section 20 of the National Green Tribunal Act, 2010. The Precautionary Principle operates wherever there is a potential threat of serious damage to the environment. As already noted, the issuance of ESZ notification itself is application of Precautionary Principle. Procedure of MoEF&CC clearance to ZMP is also part of application of the Precautionary Principle. This Tribunal has considered the concerns for protection of ecologically fragile hills recently vide order dated 05.10.2018 in Original Application No. 218 of 2017 SPOKE Vs. Kasauli Galaxie Resorts (Kasauli case). Directions were issued for restriction on construction activity, for slope stability, for waste management based on carrying capacity study.

20. Even though, we refrain from making any final comment on merits on the contention that ZMP 2030 provisions are in conflict with ESZ notification, we are satisfied that there is certainly need for consideration of the issue by an Expert Committee which is constituted as follows:-

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1. Two representatives of MoEF&CC – an officer not below the rank of Joint Secretary/Advisor and an Expert of Eco-Sensitive Zone (ESZ) to be nominated by MoEF&CC;
  2. Representative of School of Planning and Architecture, Delhi - the institution which was hired as consultant by the State of Rajasthan. Representative should be senior level land scape expert.
  3. Representative of Central Pollution Control Board of the level of Director/Additional Director.

21. The Committee will undertake comparison of ZMP 2030, in terms of letter of MoEF&CC dated 28.09.2015 and ESZ Notification dated 25.06.2009 and point out the aberrations in some besides comparing ZMP 2030 map with reference to pre-existing 2010 map in the light of ESZ notification. Thirteen (13) locations noted above must also be specifically looked into. The Expert Committee may also look into the suggestions relating to prohibiting use of plastics, burning of garbage/ or any other waste, proper laying of high tension lines for protecting animals and birds life particularly in Salim Ali Bird Sanctuary area, preventing forest fire, conservation of Nakki lake and water quality management, siting and operation of Solid Waste processing plant in accordance with Solid Waste Management Rules, 2016 (with reference to sanctuary area), any other issues relating to environment management which may become a part of ZMP 2030, including observations of this Tribunal in Kasuahi case.

22. The Committee will also look into the points of concern raised by the applicant in reference to conversion of green areas to non-green areas, permissibility of construction on higher degree slopes, conservation of rocks, water bodies and wildlife and other heritage sites, the issue of water scarcity, carrying capacity of Mount Abu with regard to number of tourists and vehicles to be permitted having regard

to the availability of the infrastructure without relying upon future projection, as required in terms of ESZ notification.

23. The Committee may assume its charge within one month from the receipt of copy of this order by the MoEF&CC. The Nodal Agency will be MoEF&CC. The report of the Committee may be furnished within three months after assumption of charge by the Committee which may be forwarded by MoEF&CC to this Tribunal by e-mail at [nct.filing@gmail](mailto:nct.filing@gmail).

24. The *status quo* as on today in terms of the orders dated 31.05.2016 and 30.01.2018 with regard to any construction in the area will be operative till the finalization and acceptance of report of the Committee by this Tribunal.

25. The application is disposed of except for consideration of the report.

26. The MoEF&CC may revise its approval in the light of the above report, if necessary and consequential action may also be taken by the State of Rajasthan, subject to any challenge to the report as per law.

27. The report may be placed for consideration before this Tribunal on 30.04.2019.

Adarsh Kumar Goel, CP

S.P. Wangdi, JM

K. Ramakrishnan, JM

Dr. Nagin Nanda, EM

November 26, 2018  
A



Item No. 01

**43**  
**Annexure: P/2**  
Court No. 1

**BEFORE THE NATIONAL GREEN TRIBUNAL  
PRINCIPAL BENCH, NEW DELHI**

Original Application No. 312/2016  
(M.A. No. 212/2019 & M.A. No. 227/2019)

Dr. Arun Kumar Sharma

Applicant(s)

Versus

Ministry of Environment, Forest &  
Climate Change & Anr.

Respondent(s)

Date of hearing: 07.11.2019

**CORAM:**  
**HON'BLE MR. JUSTICE ADARSH KUMAR GOEL, CHAIRPERSON**  
**HON'BLE MR. JUSTICE S.P WANGDI, JUDICIAL MEMBER**  
**HON'BLE MR. JUSTICE K. RAMAKRISHNAN, JUDICIAL MEMBER**  
**HON'BLE DR. NAGIN NANDA, EXPERT MEMBER**

For Respondent(s):

Mr. P.S. Narsimha, Senior Advocate, Mr. Nishit  
Agrawal, Advocate to intervenor. Prityajesh Shah  
Mr. Srihansh Prakash, Advocate for Impleaded  
party  
Mr. Puneet Jain, MR. Abhinav Deshwal,  
Advocates  
Mr. Dhaval Mehrotra, Advocate for MA 227 of  
2019

**ORDER**

1. The issue for consideration is whether Zonal Master Plan, 2030 (ZMP 2030) for the Mount Abu Eco-sensitive Zone (MA ESZ) to the extent of change of land use compared to the land use stipulated in ZMP 2010 is inconsistent with the ESZ notification dated 25.06.2009.

2. The applicant challenged the ZMP 2030 as notified on 29.10.2015 with the grievance that land use change provided

therein was not consistent with the ESZ notification particularly with the reference to following locations:-

1. Inside Salim Ali Bird Sanctuary;
2. Aranya Village
3. Behind Maganji
4. Inside Salim Ali Bird Sanctuary
5. Hill Sahil
6. Sunset Road Scheme
7. Sunrise Housing
8. Takhtawala
9. Takhtawala
10. Arna Village
11. Mohanpura
12. Hitanji
13. Near STP Plant

3. Further pointed contention on behalf of the applicant is that ZMP 2030 had deficiencies as follows:-

(i). ZMP provides that no construction is to be permitted in the wetland within 50 meters from the water bodies and wherever possible such buffer zone along the wetlands should be wider. Requirement of buffer zone between construction and the wetlands should have been atleast 100 meters, as per study referred to in the ZMP itself in Chapter - III

(ii). Having regard to the fact that the soil of the hills is loose and the area has potential for landslides, no development should be allowed at slopes having 35 degree or more. Hitanji and Hill Sahil have slopes higher than 35 degree. The same have been described as residential. Thereby, there is possibility of construction being allowed.

(iii) There is degradation leading to wildlife decline, as noted in ZMP. This requires invocation of Precautionary Principle while permitting any development in the area.

(iv) Nakki lake is a 'no construction zone' as per ESZ but ZMP permits organized commercial activities for facilities to the tourists and such activities could be

cafeteria, shopping areas and accommodation.

(v) ESZ notification provides for conservation of Toad rock but the ZMP has provision for ropeways which may result in rock not being conserved as required.

(vi). The ZMP provides for 6700 tourists per day and also refers to carrying capacity having being under taken, as required under the ESZ notification, but the said carrying capacity report has not been furnished. Thus, carrying capacity has to be carried out to assess number of vehicles to be allowed and number of tourists to be allowed, having regard to the available existing infrastructure.

(vii). Rocks in the ESZ area are required to be conserved but provision in the ZMP for adventure tourism permits sport climbing which may require drilling of the rock which will be against the spirit of the ESZ.

(viii). Forest Policy, 1988 will be violated if there is reduction in green area as a result of activities permitted under the ZMP, permitting converting green areas into non-green areas for facilities to tourists, including construction of hotels and resorts. Thus, mere denial of the State Government that no development on land with tree cover is contemplated and that there will no reduction in green area, does not fully appreciate the impact of ZMP. If green area is to be protected, provision for hotels, resorts etc. has to be deleted.

4. This Tribunal considered the matter on 26.11.2018 and it was observed that no expert studies had been carried out for grant of approval to the ZMP 2030 and the issues raised by the applicant had not been gone into. Since environment law had to be read into the development laws, any Master Plan has to be consistent with the Precautionary and Sustainable Development Principles, particularly in and near ESZ areas.

5. The Tribunal referred to earlier order dated 05.10.2018 in Original Application No. 218 of 2017, *SPOKE Vs. Kasauli Galaxie Resorts (Kasauli case)*, wherein a study was directed to be carried out for finalizing the master plan in an eco fragile area.
6. Accordingly, the Tribunal directed constitution of an expert Committee as follows:

1. Two representatives of MoEF&CC – an officer not below the rank of Joint Secretary/Advisor and an Expert of Eco-Sensitive Zone (ESZ) to be nominated by MoEF&CC;
2. Representative of School of Planning and Architecture, Delhi - the institution which was hired as consultant by the State of Rajasthan. Representative should be senior level land scape expert;
3. Representative of Central Pollution Control Board of the level of Director/Additional Director.
7. The mandate of the Committee was to be as follows:-

*“The Committee will undertake comparison of ZMP 2030, in terms of letter of MoEF&CC dated 28.09.2015 and ESZ Notification dated 25.06.2009 and point out the aberrations in some besides comparing ZMP 2030 map with reference to pre-existing 2010 map in the light of ESZ notification. Thirteen (13) locations noted above must also be specifically looked into. The Expert Committee may also look into the suggestions relating to prohibiting use of plastics, burning of garbage/ or any other waste, proper laying of high tension lines for protecting animals and birds life particularly in Salim Ali Bird Sanctuary area, preventing forest fire, conservation of Nakki lake and water quality management, siting and operation of Solid Waste processing plant in accordance with*

*Solid Waste Management Rules, 2016 (with reference to sanctuary area), any other issues relating to environment management which may become a part of ZMP 2030, including observations of this Tribunal in Kasuali case.*

*The Committee will also look into the points of concern raised by the applicant in reference to conversion of green areas to non-green areas, permissibility of construction on higher degree slopes, conservation of rocks, water bodies and wildlife and other heritage sites, the issue of water scarcity, carrying capacity of Mount Abu with regard to number of tourists and vehicles to be permitted having regard to the availability of the infrastructure without relying upon future projection, as required in terms of ESSZ notification."*

8. Though the Committee was to furnish its report within three months from the order dated 6.11.2018 report has been filed almost after more than 9 months on 04.09.2019. We find from the report that the Committee has assumed the ZMP to be conclusive on the ground that suitability analysis test had already been carried out by the State Government. This approach is inconsistent with the directions of this Tribunal. If the analysis of the State Government was to be treated as final, there was no need for the Committee.

9. Accordingly, without expressing any opinion on merit, we direct further exercise to be undertaken by modified Committee as follows:

1. An Expert of Ecology from G.P. Pant Institute, Almora, Uttarakhand to be nominated by the Director of Institute.
2. A senior Scientist from MOEF & CC, to be nominated by the Secretary, MOEF & CC.

3. A senior Scientist from the Indian Council of Forestry Research and Education, Dehradun.
4. Senior Scientist from Wadia Institute of Himalayan Geology, Dehradun, to be nominated by the Director.
5. Scientist/ Senior official from the Central Pollution Control Board, New Delhi.
6. Representative of School of Planning and Architecture, New Delhi.
7. Member Secretary, Rajasthan Pollution Control Board, shall be a member and Nodal Officer, who shall ensure the compliance.

10. The Committee may take into account the material already on record but undertake further study in terms of the directions of this Tribunal and also take into account the pattern of studies in the context of Manali (referred to order of this Tribunal dated 19.09.2018 in O.A. No. 635/2017, *Ramesh Chand v. State of Himachal Pradesh*), Shimla (referred to order of this Tribunal dated 16.11.2017 in O.A. No. 121/2014, *Yogendra Mohan Sengupta v. UOI & Ors.* and Kasauli (referred to order of this Tribunal dated 05.10.2018 in O.A. No. 218/2017, *SPOKE Vs. Kasauli Galaxie Resorts (Kasauli case)*). The Committee may also take into account the order dated 19.01.2019 passed by this Tribunal. The Committee will be free to associate any other Expert or Institution.

11. The Committee will be at liberty to consider the viewpoint of all the stake holders.
  12. The Committee may commence its proceedings at the earliest complete the exercise preferably within two months and furnish its report by 31.01.2020 by e-mail at judicial-[net@gov.in](mailto:net@gov.in).
- List for further consideration on 12.02.2020.



Adarsh Kumar Goel, CP  
S.P Wangdi, JM  
K. Ramakrishnan, JM  
Dr. Nagin Nanda, EM

November 07, 2019  
Original Application No. 312/2016  
A

(17)

**50** *208*  
**Mount Abu ESZ-ZMP 2030 Committee** *Amreasure-B*

Constituted by Hon'ble NGT order dated 07/11/2019 in OA No. 312/2016

**Amreasure:R/3**

Minutes of the meeting cum site visit of 10 disputed sites by committee and meeting with all the stakeholders on 16.01.2020 to 17.01.2020 at Mount Abu under the Chairmanship of Nodal Officer cum Member Secretary(RSPCB), of Committee formed Vide order dated 07.11.2019 of Hon'ble NGT in the matter of OA no 312/2016, Dr. Arun Kumar Sharma V/s MOEF

A meeting cum site visit of 10 disputed sites by committee and meeting with the stakeholders of the committee constituted by Hon'ble National Green Tribunal Order in OA no 312/2016, Dr. Arun Kumar Sharma V/s MOEF was held on 16.01.2020 to 17.01.2020 at Mount Abu, Rajasthan under Nodal Officer cum Member Secretary (RSPCB).

The committee met to discuss the issues regarding the inconsistency of Zonal Master Plan 2030 with ESZ notification 2009 and land use pattern of Mount Abu in year 2010.

The meeting was attended by the Nodal Officer cum Member Secretary (RSPCB), Dr. G.E.S. Negi (G.B. Panth National Institute Himalaya Environment and Sustainable Development), Dr Vikas (Wadia Institute of Himalayan Geology), Shri Ajay Agarwal (CPCB), Dr. G. Singh (AFRI), Shri Pankaj Verma (MOEF & CC), Dr. A.K. Bera (RRSC (West) NRSC/SRO), Local officers of various departments i.e Forest, LSG, RSPCB, PHED etc. also assisted the committee during site visit. The list of the participants is enclosed. A separate meeting was also held with stakeholders on date 17.10.2020 at conference hall of Hotel Sikhar to know the views (list of participants enclosed)

At the onset, Smt Shailaja Deval, Nodal Officer cum Member Secretary, RSPCB briefed about the various directions issued by Hon'ble NGT in the matter.

The committee member deliberated upon various issues and following decisions were taken:

1. Hard copy of study carried out by School of Planning and Architecture, New Delhi,ZMP-2030 and building by-laws shall be provided to committee (Action by - Chief Town Planner, GOR)
2. Data regarding vehicular movement and vehicles in the town for last three years shall be provided to committee (Action by Nagar-Palika, Mount abu)
3. Data regarding tourist inflow in the town for last three years shall be provided to committee (Action by Nagar-Palika, Mount abu)
4. KML files of 10 impugned polygons with area imposed on Google maps and auto cad files shall be provided to the committee. Constructible area of each polygon after application of building by laws of impugned site shall also be provided (Action by- Chief Town Planner,Jaipur)
5. Authenticated maps of nearby forest land of 10 impugned site shall be provided to committee (Action By- Forest Department)
6. Data regarding position of ground water and bore wells in mount abu shall be provided to committee (Action by-GWD)

*RS*  
R.K THAKURIA  
GIC (Legal)



# Mount Abu ESZ-ZMP 2030 Committee

Constituted by Hon'ble NGT order dated 07/11/2019 in OA No. 312/2016

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7. Detailed report on factual status of surprise housing land shall be provided to committee (Action by- forest department)
8. Maps, details of site and proposed plan and the proposed colony located behind Maganji shall be provided to committee (Action by- Nagar palika, Mount abu)
9. The next meeting shall be held on 24.01.2020 in New Delhi for further discussions and report preparation. Meeting notice would be issued separately. (Action by- MS, RSPCB)

The meeting cum visit ended with vote of thanks to the Nodal Officer.

  
(Shalaja Deval)  
Member Secretary  
and Nodal Officer  
Mt. Abu ESZ-ZMP 2030 Committee

No.F1(.....)/RSPCB/Jaipur/328-339

Date: 22/01/2020

Copy to following for information and necessary action:

1. P.S. to Addition Chief Secretary, RSPCB, Jaipur
2. Sr.P.S. to Member Secretary, RSPCB
3. Dr. G.E.S. Negi, Scientist-G, G.B. Panth National Institute Himalaya Environment and Sustainable Development, Almora Uttarakhand,
4. Dr. G. Singh, Scientist-G, AFRI, Jodhpur
5. Dr. Meenkshi Dhote, School of Planning and Architecture, New Delhi
6. Sh. Ajay Aggarwal, A.D., Central Pollution Control Board, New Delhi
7. Sh. Pankaj Verma, Scientist-E, MOEF&CC, New Delhi
8. Dr. A.K. Bera, RRSC (West) NRSC/ISRO, Jodhpur
9. Dr. Vikas, Scientist-C, Wadia Institute of Himalyan Geology, Dehradun
10. Chief Town Planner, Govt of Rajasthan, Jaipur
11. Chief Engineer, GWD, Jodhpur
12. DFO, Forest Department, Sirohi
13. Regional Officer, RSPCB, Pali

  
Member Secretary  
and Nodal Officer  
Mt. Abu ESZ-ZMP 2030 Committee

  
R.K. THAKURIA  
GIC (Legal)

Annexure-A

# Mount Abu ESZ-ZMP 2030 Committee 52

Constituted by Hon'ble NGT order dated 07/11/2019 in OA No. 312/2016

Minutes of the first meeting of Committee formed vide order dated 07/11/2019 of Hon'ble National Green Tribunal in the matter of OA no 312/2016, Dr. Arun Kumar Sharma V/s MoEF held on 16/12/2019 at meeting hall of Rajasthan State Pollution Control Board, Jaipur

The first meeting of committee constituted by Hon'ble National Green Tribunal in OA no 312/2016, Dr. Arun Kumar Sharma V/s MoEF was held on 16/12/2019 at meeting hall of Rajasthan State Pollution Control Board, Jaipur in presence of Nodal Officer cum Member Secretary (RSPCB).

The committee met to discuss the issues regarding the inconsistency of Zonal Master Plan 2030 with ESZ notification 2009 and land use pattern of Mount Abu in year 2010.

The Nodal Officer cum Member Secretary (RSPCB), Chief Town Planner-GoR, Assistant Chief Town Planner-GOR, Dr. G.S. Negi- G.B. Panth Institute, Dr K. Luirei- Wadia Institute, Shri Ajay Aggarwal -CPCB, Dr. Bilas Singh-AFRL, Shri Pankaj Verma- MOEF and Dr. Meenakshi Dhote, School of Planning & Architecture, New Delhi, attended the meeting. The list of the participants is enclosed.

At the onset, Nodal Officer cum Member Secretary, RSPCB briefed the committee about various directions issued by Hon'ble NGT in the matter and the compliance desired from various stakeholders Department. The Chief Town Planner, GoR explained the sequence of events since the beginning of ESZ notification in year 2009 to final ZMP -2030 notification in year 2015, to make the committee familiar with the issue.

The committee deliberated upon various issues and the following decisions were taken:

1. In compliance of the Hon'ble NGT order, the requirement of any other expert from any other institution/ field was deliberated and it was decided that one specialised person from the field of GIS and remote sensing shall be made part of the committee. The committee finalized that Nodal officer should seek nomination of expert from the Regional Remote Sensing Centre (RRSC) – West, Indian Space Research Organisation, Jodhpur.
2. Second meeting of the committee should be held at Mount Abu for visiting disputed sites and meeting the stakeholders.
3. A responsibility matrix based on area of expertise & discussions during the meeting shall be drawn and circulated among the members.
4. Chief Town Planner should provide a list of stakeholders.
5. Chief Town Planner should provide revenue maps and land records of 10 impugned land parcels available to the committee.

The meeting ended with thanks to the Nodal Officer and all expert participants and the CTP, GoR, Jaipur

Attended

(Shailaja Deval)

R. K. THAKURIA  
GIC (Legal)

Nodal Officer & Member Secretary, RSPCB  
Mt. Abu ESZ- ZMP 2030 Committee

6/2

Copy to following for information and necessary action:

1. Sr. P. S. to Member Secretary, RSPCB
2. Dr. GES Negi, G.P. Pant Institute, Almora Uttarakhand,
3. Sh. Pankaj Verma, Scientist-E, Senior Scientist from MOEF&CC, New Delhi
4. Dr Genda Singh, AFRI, Jodhpur
5. Dr K L Luirei, Scientist-E, Wadia Institute of Himalyan Geology, Dehradun
6. Sh. Ajay Aggarwal, A.D., Central Pollution Control Board, New Delhi
7. Dr. Meenakshi Dhote, School of Planning and Architecture, New Delhi

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Nodal Officer  
& Member Secretary  
Mt. Abu ESS-ZMP 2030 Committee

Assisted

o/c

35  
R. K. THAKURIA  
GIC (Legal)

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*Attended*

*RK*  
**R. K. THAKURIA**  
GIC (Legend)



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1.	NGT ORDERS	
2.	NGT ORDER DATED 19.1.2018 NGT ORDER DATED 26.11.2018 NGT ORDER DATED 07.11.2019	
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ATTORNEY

R. K. THAKURIA  
GIC (Agent)

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## CHAPTER 1

### 1.0 BACKGROUND

Aravalli Hills, where Mount Abu is situated, are of peculiar beauty that is difficult to understand if one has seen only the sand dunes of Jaisalmer in Rajasthan. Considered as the 'oasis of the desert' for being home to some rivers, lakes, waterfalls, etc, this hill destination is respite from the scalding heat of Rajasthan which is around 66% desert.

Mount Abu area of Rajasthan has been notified as Eco-Sensitive Zone by MOEF&CC vide Notification S.O. No. 1545 dated 25.06.2009. The said Eco-sensitive Zone is situated in the southern area of Rajasthan in Sirohi District between 24°33' 42" and 24°39' 00' North latitude and between 72°41'36" and 72°48'06" East longitude and the configuration of land is hilly and rugged with high altitudinal variation ranging from 300 meter to 1727 meter. Gurusikar, the highest peak of the Aravalli, is the highest peak between the Himalayas and the Nilgiris.

As detailed in the section 3(1) of the Notification S.O. No. 1545 dated 25.06.2009; A Zonal Master Plan for the Eco-sensitive Zone shall be prepared by the State Government within a period of two years from the date of publication of this notification and submitted for approval to the Central Government in the Ministry of Environment and Forests.

A public interest litigation (PIL) No 312/2016 was filed by Dr. Arun Kumar Sharma against Ministry of Environment, Forest & Climate Change in the Hon'ble National Green Tribunal, challenging the Zonal Master Plan of Mount Abu 2030. It states "The notified ZMP 2030 is not consistent with the ESZ Notification dated 25.06.2009 in as much as the said plan fails to discourage construction activities at or near the heritage sites, conserve the existing water bodies, permits change of land use by illegal structures. Rock climbing has also been permitted, including sport climbing by fixing permanent anchors. Construction has been allowed on green tracks to benefit some builders."

Main contention raised on behalf of the applicant is that comparison of land use plan annexed to Mount Abu ZMP for the year 2010 and the proposed land use plan annexed to the ZMP 2030 shows land use change which is inconsistent with the ESZ notification, 2009. In particular, reference has been made to the following points in the said plan:-

1. Inside Salim Ali Bird Sanctuary;
2. Aranya Village
3. Behind Maganji
4. Hill Sahil
5. Sunset Road Scheme
6. Sunrise Housing
7. Arna Village
8. Mohanpura
9. Hitanji
10. Near STP Plant

*Approved*

*RS*  
**R. K. THAKURIA**  
GIC (Legal)

### 1.1 CONSTITUTION OF THE COMMITTEE

In view of the above, the Hon'ble NGT vide its order dated 7.11.2019 has constituted a

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Special Expert Member Committee, which was assigned dual assignments of assessing the effect on environment and ecology due to project in question and activities in the Mount Abu at large. The Committee was to be of the following members:

1. An Expert of Ecology from G.P. Pant Institute, Almora, Uttarakhand to be nominated by the Director of Institute.
2. A senior Scientist from MOEF & CC, to be nominated by the Secretary, MOEF & CC.
3. A senior Scientist from the Indian Council of Forestry Research and Education, Dehradun
4. Senior Scientist from Wadia Institute of Himalayan Geology, Dehradun, to be nominated by the Director.
5. Scientist/ Senior official from the Central Pollution Control Board, New Delhi.
6. Representative of School of Planning and Architecture, New Delhi.
7. Member Secretary, Rajasthan Pollution Control Board, shall be a member and Nodal Officer, who shall ensure the compliance.

In follow-up to the above judgment, the concerned organization/department has nominated the following members as the Expert Members, who subsequently attended the first meeting on 16<sup>th</sup> December 2019 at Conference Hall, Rajasthan State Pollution Control Board, Jaipur which was presided by Smt. Shalija Deval, Member Secretary, Rajasthan State Pollution Control Board being the Nodal Officer.

1. Dr. G.E.S. Negi, Scientist-G, G.B. Pant National Institute Himalaya Environment and Sustainable Development, Almora Uttarakhand,
  2. Sh. Pankaj Verma, Scientist-E, Senior Scientist from MOEF&CC, New Delhi
  3. Dr. Bilas Singh, AFRI, Jodhpur
  4. Dr. K. L. Luirei, Scientist-E, Wadia Institute of Himalyan Geology, Dehradun
  5. Sh. Ajay Aggarwal, A.D., Central Pollution Control Board, New Delhi
  6. Dr. Meekshi Dhote, School of Planning and Architecture, New Delhi
- MOEF & CC vide its email dated 22.07.2020 has informed that Sh. Lalit Bokolia, Director, ESZ Division will be member of the committee on behalf of the Ministry instead of Sh. Pankaj Verma.

#### 1.2 MANDATE & SCOPE

In pursuance to the Hon'ble NGT orders, the mandate of the Committee is as below

"The Committee will undertake comparison of ZMP 2030, in terms of letter of MoEF&CC dated 28.09.2015 and ESZ Notification dated 25.06.2009 and point out the aberrations in some besides comparing ZMP 2030 map with reference to pre-existing 2010 map in the light of ESZ notification. Thirteen (13) locations noted above must also be specifically looked into.. The Expert Committee may also look into the suggestions relating to prohibiting use of plastics, burning of garbage/ or any other waste, proper laying of high tension lines for protecting animals and birds life particularly in Salim Ali Bird Sanctuary area, preventing forest fire, conservation of Nakki lake and water quality management, siting and operation of Solid Waste processing plant in accordance with 5 Solid Waste Management Rules, 2016 (with reference to sanctuary area), any other issues relating to environment management which may become a part of ZMP 2030, including observations of this Tribunal in Kasuali case.

*Attested*

*R. K. THAKURIA*  
GIC (Legal)

The Committee will also look into the points of concern raised by the applicant in reference to conversion of green areas to non-green areas, permissibility of construction on higher degree slopes, conservation of rocks, water bodies and wildlife and other heritage sites, the issue of water scarcity, carrying capacity of Mount Abu with regard to number of tourists and vehicles to be permitted having regard to the availability of the infrastructure without relying upon future projection, as required in terms of ESZ notification."

-----

*Attested*

*RS*  
**R. K. THAKURIA**  
GIC (Legal)

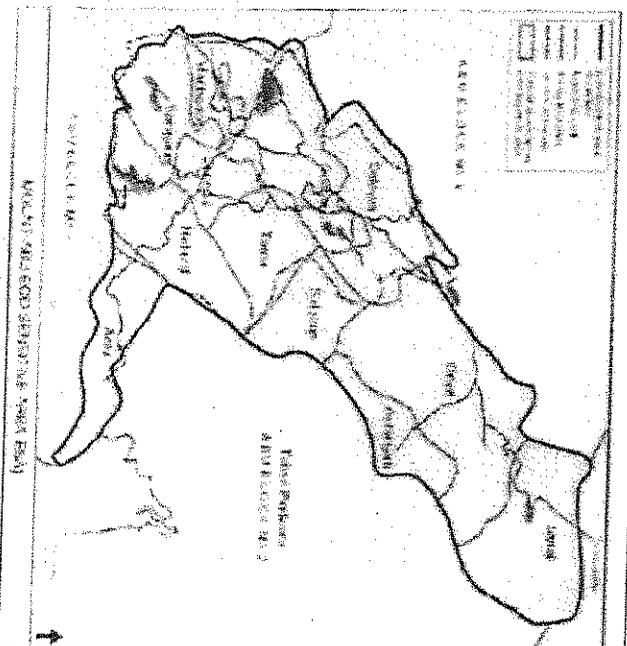
**2.0 About the Study Area**

According to the published report on 'Zonal Master Plan (ZMP) 2030 - Volume I, Mt. Abu ESZ, Govt. of Rajasthan' the Mount Abu Eco-Sensitive Zone (ESZ) consists of Mount Abu town and 12 villages (Jawai, Oriya, Achalgarh, Salgaon, Arna, Sanigaon, Goagoan, Hetamji, Delwara, Torna, Dhundai and Machgaon). Out of these 12 villages, 7 villages exist within municipal boundary whereas 5 are outside. The extent of ESZ lies between 24°03'42" N to 24°09'00" N latitude and 72°04'36" E to 72°04'06" E longitude. The ESZ spread over an area of 47.30 sq.km with a population of 24,242 in 2001 (Table 1.1). Present study has been carried out within the extent of Mt. Abu ESZ (i.e. bounding box created with above coordinate range). Two buffer (100 m & 200 m radius) has been formed around the 10 identified sites within ESZ.

Table 1

Population of Mount Abu eco-sensitive and municipality areas

Study Area	Area (sq. km)	Population in 2001	Population Density in 2001 (Persons/sq. km)	Population in 2011 (as per Census of India)	Projected Population in 2030
Eco-Sensitive Area	47.30	24,242	512	NA	NA
Mount Abu Municipal Area	21.41	22,045	1029	22,943	NA



(Source: ZMP2030 - Volume I, Mt. Abu ESZ, Govt. of Rajasthan)  
Fig. 1: Location of Mt. Abu Eco-Sensitive Zone

**2.1 Spatio-Temporal Changes at 10 Identified Points inside Mt. Abu ESZ as Viewed through Satellite Images**

Land use refers to the purpose the land serves such as agriculture, recreation or wildlife habitat. Change in land use and land cover can be detected at the global to local scales by

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coarse to very high resolution sensors of various Earth-orbiting satellites. 10 identified points inside Mount Abu Eco-Sensitive Zone have been viewed through high resolution satellite images as available in Google Earth (Fig. 2.0 to Fig. 2.10). It appears from the satellite images that there exist a good to very good vegetation cover during the study period (2009 to 2020). Changes in land use are found to be insignificant after the notification issued by the Ministry of Environment, Forest and Climate Change dated 25.06.2009 which declared the Mount Abu as the Eco-Sensitive Zone (ESZ).

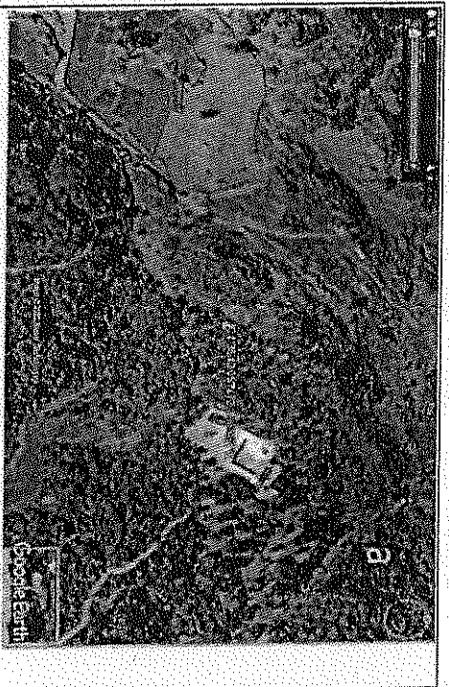
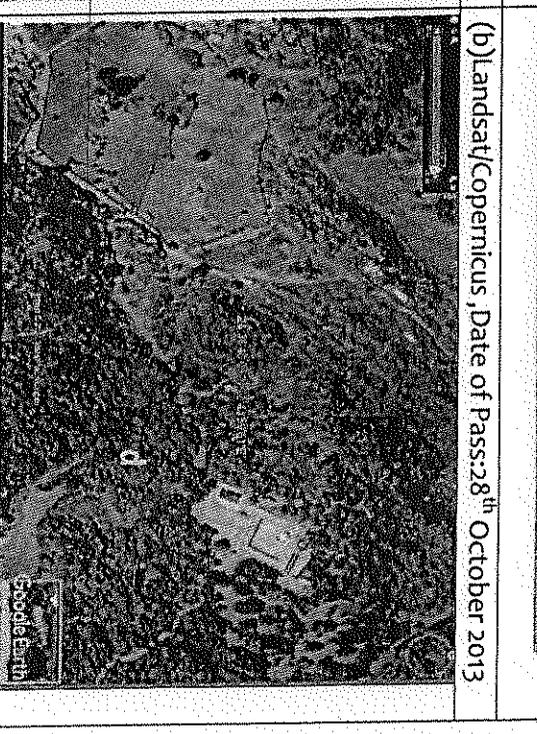
	
<p>(a) Landsat/Copernicus, Date of Pass:1<sup>st</sup> January 2012</p> 	<p>(b) Landsat/Copernicus, Date of Pass:28<sup>th</sup> October 2013</p> 
<p>(c) Landsat/Copernicus, Date of Pass: 24<sup>th</sup> January 2015</p>	<p>(d) Landsat/Copernicus, Date of Pass:13<sup>th</sup> November 2018</p>

Fig. 2 :inside Salim Ali Bird Sanctuary

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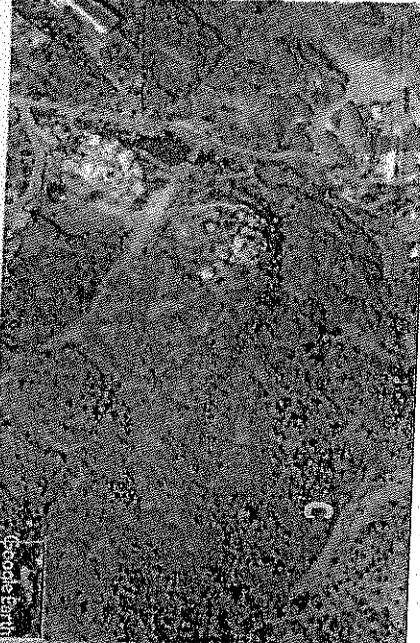
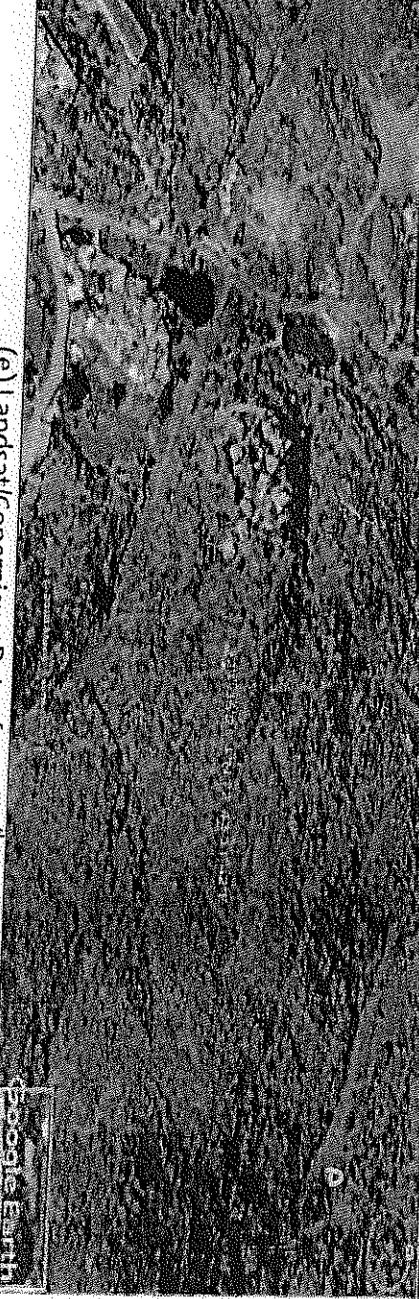
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 <p>(c) Landsat/Copernicus, Date of Pass:24<sup>th</sup> January 2015</p>	 <p>(d) Landsat/Copernicus, Date of Pass:15<sup>th</sup> October 2018</p>
 <p>(e) Landsat/Copernicus, Date of pass:28<sup>th</sup> April 2019</p>	

Fig.3 :Next to Aranya Village

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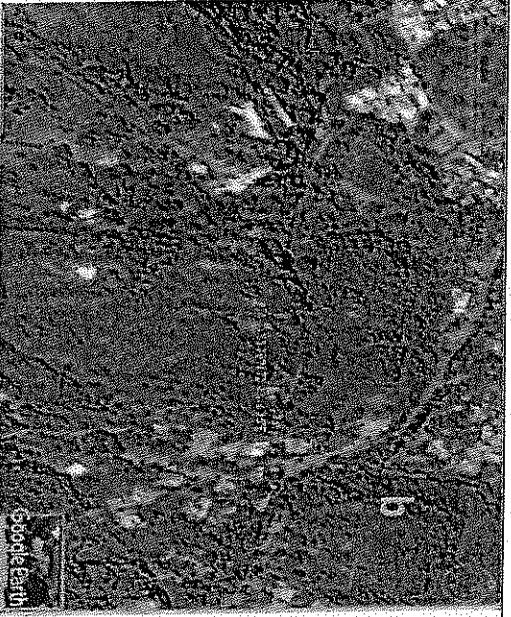
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<p>(c) Landsat/Copernicus, Date of Pass:24<sup>th</sup> January 2015</p> 	<p>(d). Landsat/Copernicus, Date of Pass:15<sup>th</sup> October 2018</p> 
<p>(e) Landsat/Copernicus, Date of pass:28<sup>th</sup> April 2019</p> 	

Fig.4: Behind Maganji Mountain

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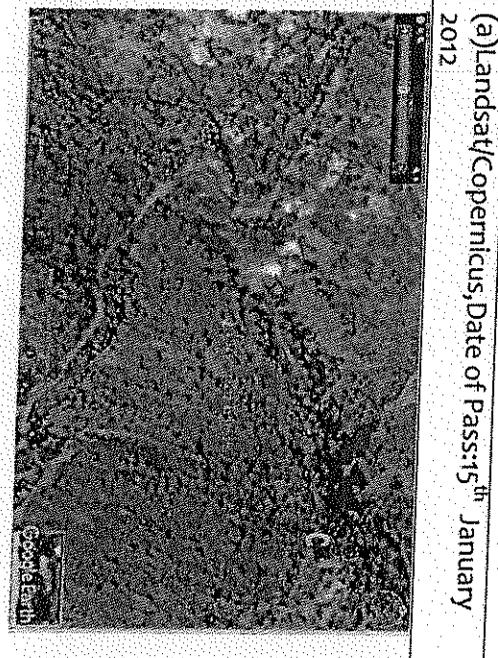
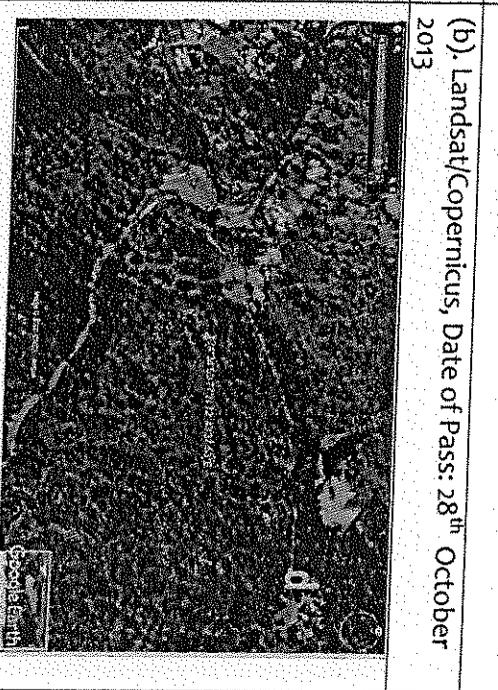
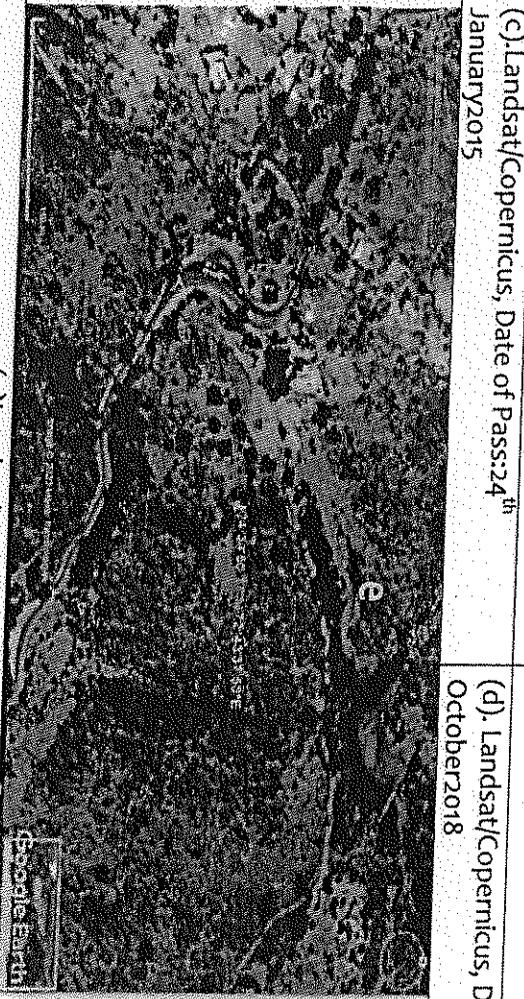
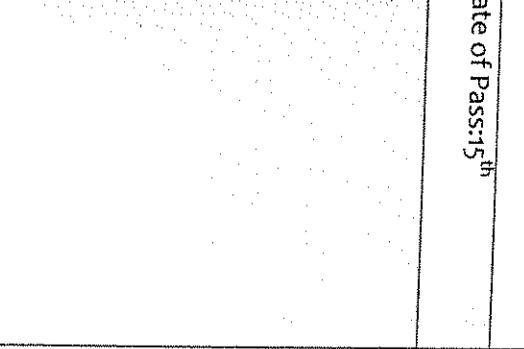
	
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<p>(c) Landsat/Copernicus, Date of Pass: 24<sup>th</sup> January 2015</p> 	<p>(d) Landsat/Copernicus, Date of Pass: 15<sup>th</sup> October 2018</p> 
<p>(e) Landsat/Copernicus, Date of Pass: 28<sup>th</sup> April 2019</p>	

Fig.5: Hill Sahil

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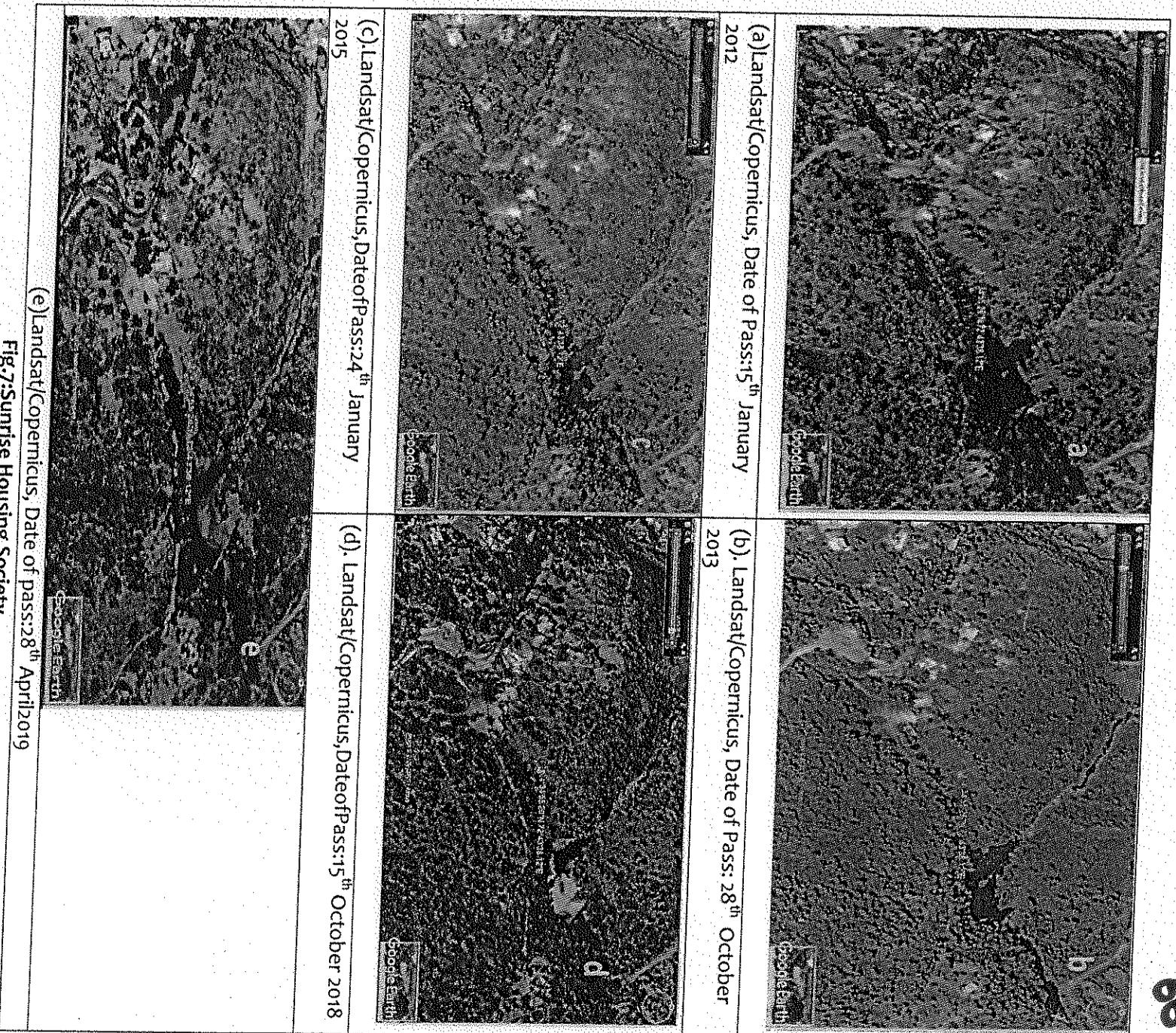


Fig. 7: Sunrise Housing Society

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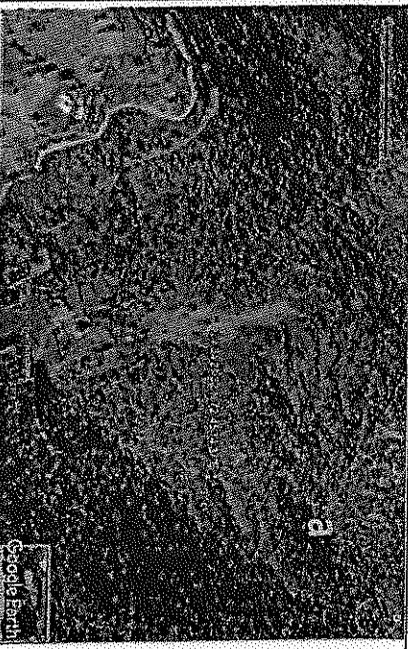
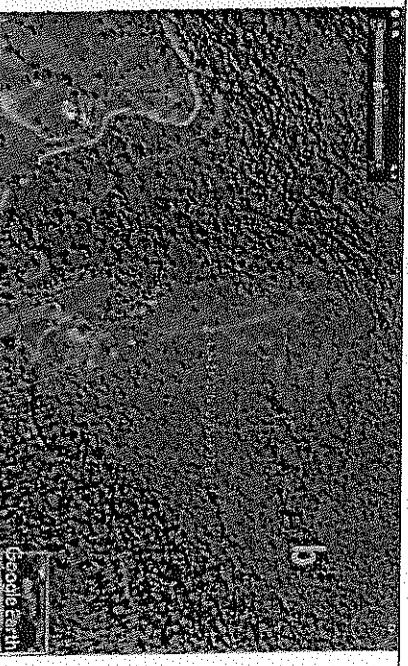
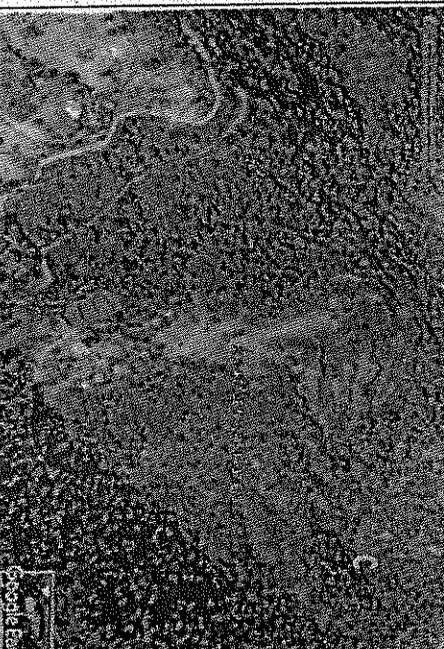
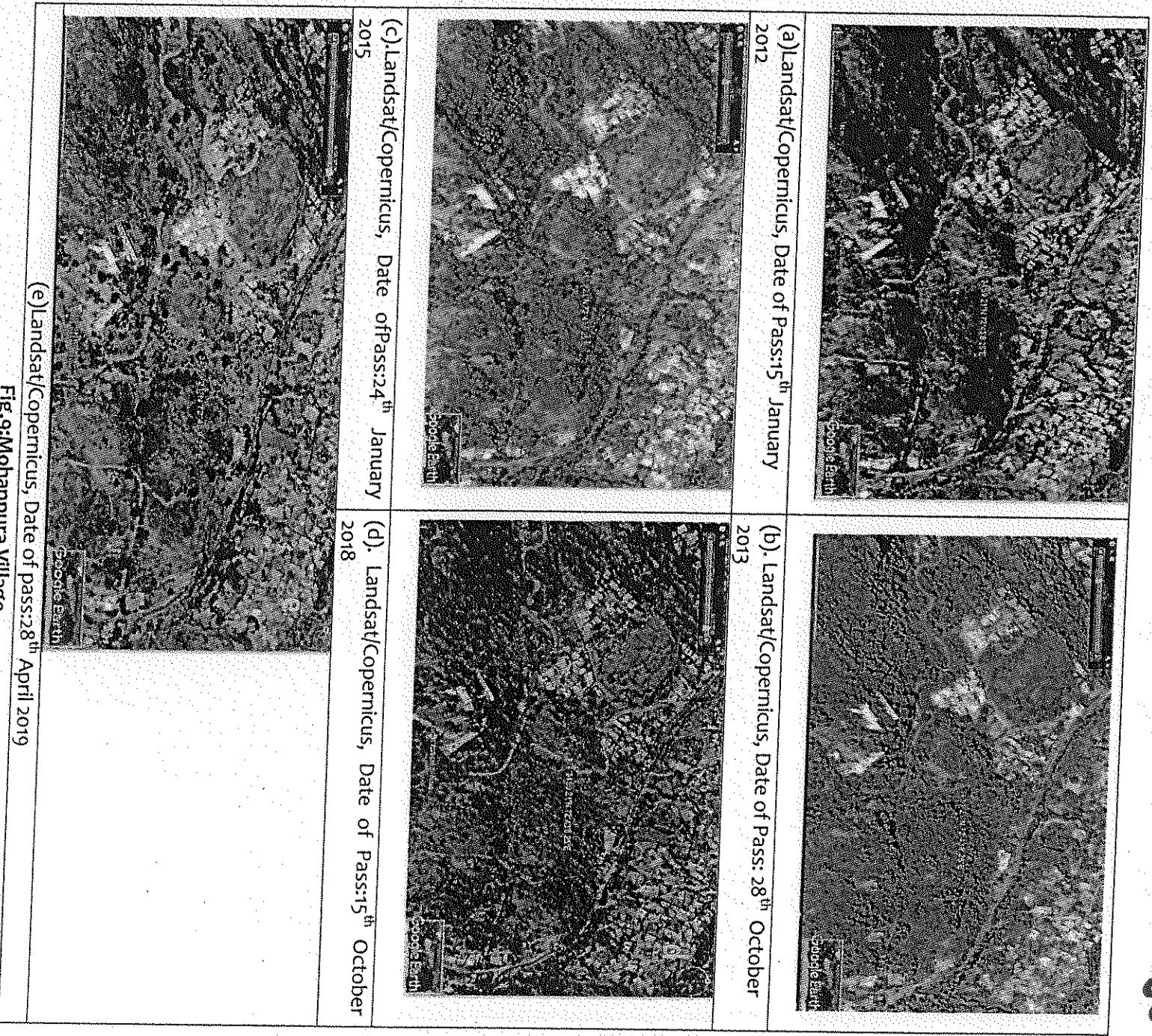
 <p>(a) Landsat / Copernicus, Date of Pass: 15<sup>th</sup> January 2012</p>	 <p>(b). Landsat/Copernicus, Date of Pass: 28<sup>th</sup> October 2013</p>
 <p>(c) Landsat/Copernicus, Date of Pass: 24<sup>th</sup> January 2015</p>	 <p>(d). Landsat/ Copernicus, Date of Pass: 15<sup>th</sup> October 2018</p>
 <p>(e) Landsat/Copernicus, Date of pass: 28<sup>th</sup> April 2019</p>	

Fig.8: Arna Village

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(a) Landsat/Copernicus, Date of Pass:15<sup>th</sup> January 2012  
 (b) Landsat/Copernicus, Date of Pass:15<sup>th</sup> January 2015  
 (c) Landsat/Copernicus, Date of Pass:24<sup>th</sup> April 2019  
 (d) Landsat/Copernicus, Date of Pass:28<sup>th</sup> October 2013  
 (e) Landsat/Copernicus, Date of Pass:15<sup>th</sup> January 2018

Fig.9:Mohanpura Village

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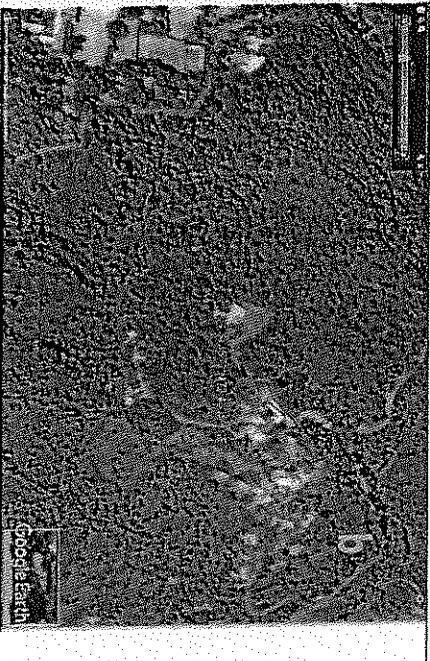
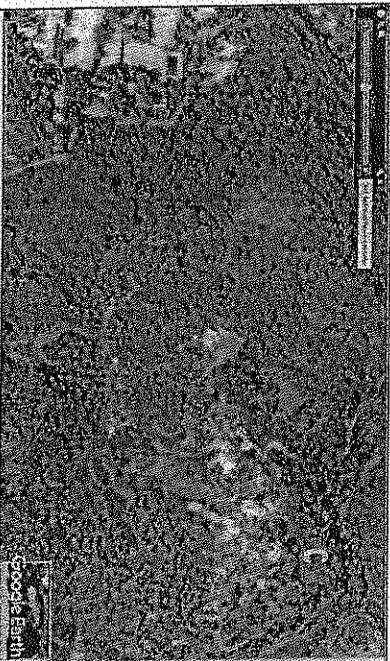
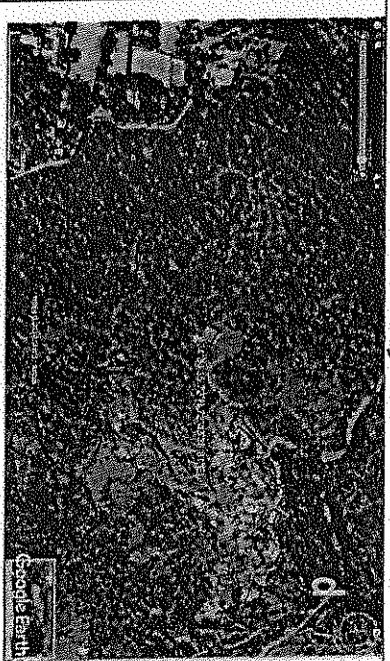
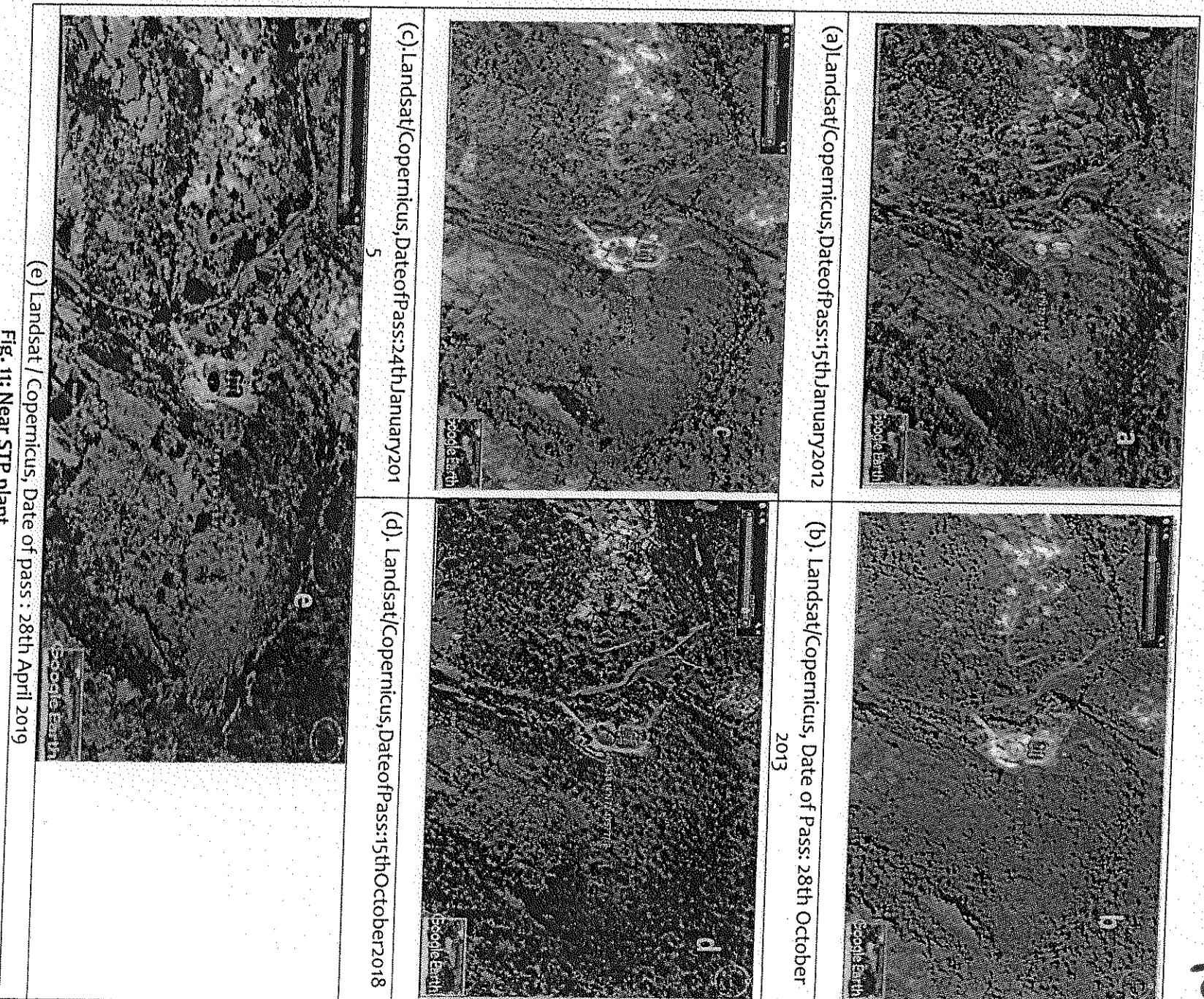
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 <p>(e) Landsat / Copernicus, Date of pass: 28th April 2019</p>	

Fig. 10: Hitanji Village

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(e) Landsat / Copernicus, Date of pass : 28th April 2019  
 Fig. 11: Near STP plant

2.1.1 Satellite Data Used

Satellite data of various spatial resolutions namely, Landsat (30 m), Sentinel 2 (10 m) and Cartosat-1 (2.5 m) have been analyzed for the period 2009 -2020. Maximum vegetation cover is generally found after the rainy season. Satellite data used include Landsat-5 (14

October 2009), Landsat-8 (15 October 2015), Sentinel 2B (25 October 2019), Sentinel 2B (18 January 2020).

Landsat has been designed and operated by NASA, USA. It provides moderate resolution multispectral data of the Earth's surface on a global basis. Landsat 8 satellite was launched in February of 2013 with a 16-day repeat cycle. Sentinel-2 has been developed, and is being operated by ESA (European Space Agency). It provides multi-spectral data (with 13 bands in the visible, near infrared, and short wave infrared part of the spectrum), revisiting every 5 days with spatial resolution of 10 m, 20 m and 60 m in various bands. Cartosat-1 was launched on 5 May 2005 by the Indian Space Research Organization (ISRO). It has two panchromatic cameras with 2.5 m spatial resolution to acquire two images simultaneously for near instantaneous stereo data.

#### 2.1.2

##### Physical Profile

The Aravalli range is disconnected in south-western parts and spread in the form of cluster of hills in Sirohi and Banas Kantha district of Gujarat. The prominent feature is the isolated hills mass of Abu. It has been separated from the main Aravalli range by the wide valley of west Banas and a narrow plateau (6 km), nearly 1200m above mean sea level. The elevation within the Mt. Abu sanctuary varies from 300 m at the foothills to 1722 m at Guru Shikhar, the highest peak in Aravallis, and the north western side exhibiting a sharp rise. Within the ESZ, altitudinal variation ranges from 700 m to 1700 m south to north. The town lies on the larger main plateau (1150 m elevation) but the villages like Oriya and Achalgarth are located on the elevated plateau (1400 m elevation) in the north. According to ZMP 2030, the slope map of ESZ was prepared at 100 m contour interval. It shows the existing town and villages are located on < 5% slope. The slope map of municipality area (with 20 m contour interval) displays that densely built up areas are limited to <5% slope. It has been suggested in ZMP 2030 that the areas with 0-10% slope (least sensitive, and suitable for development), 10-20% slope (marginally suitable for development activities like expansion of village settlements), 20-35% slope (only suitable for recreational spaces, lodges and hotels) and >35 % slope (highly sensitive, and should be treated as restricted zone to be preserved in its pristine state). Digital Elevation Model (DEM) is a 3D representation of a terrain. Digital elevation model (DEM) generated from Cartosat-1 stereo data showing elevation variations (m) as given in Fig. 3. Slope and aspect have been derived from the DEM, and represented in Fig. 4 & 5. Area covered under various categories of slope within 100 m and 200 m radius buffer zones have been calculated (Table 2 & 3)

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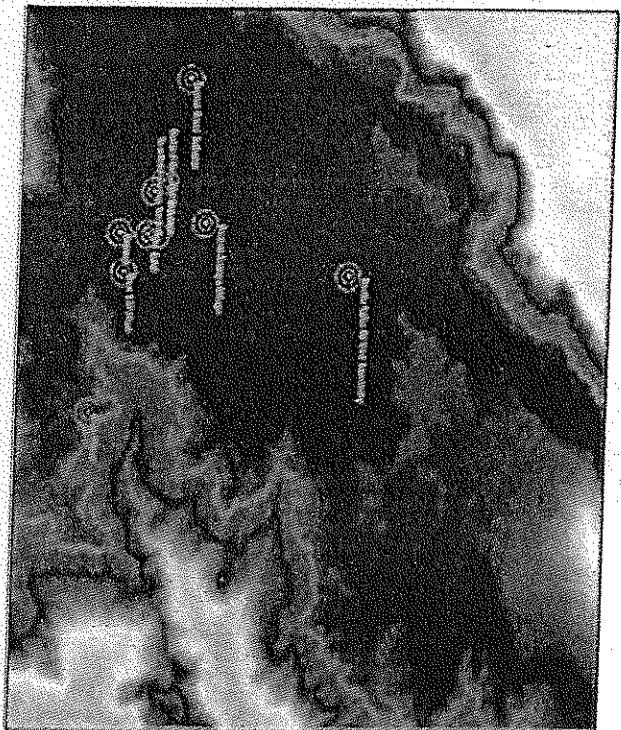


Fig. 12: Variation of elevation (in m)

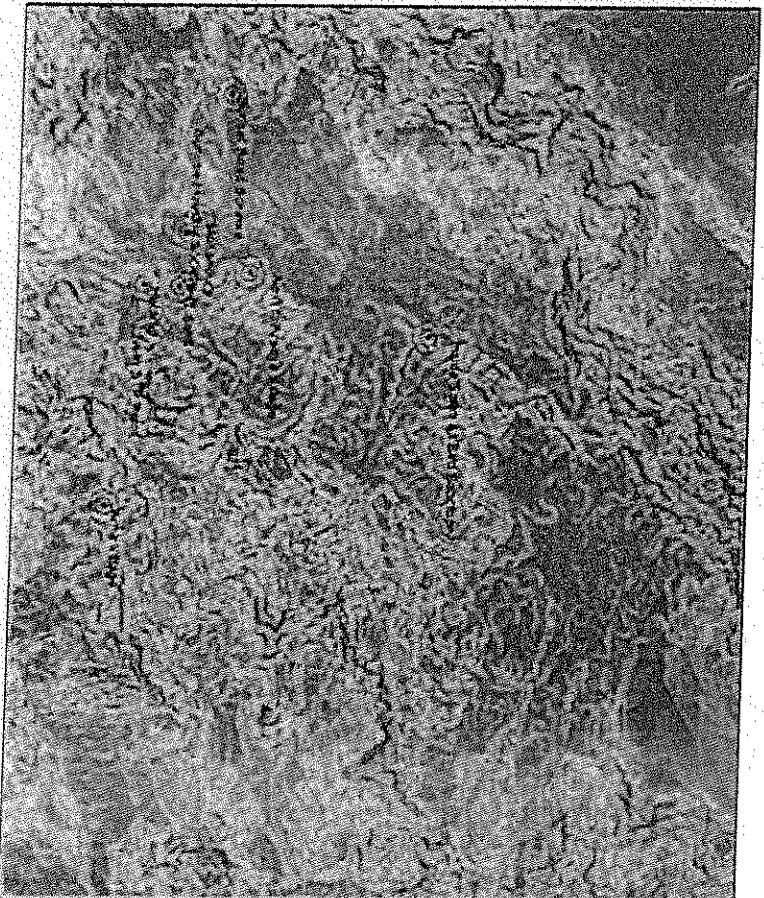


Fig. 13: Variation of slope (in degree)

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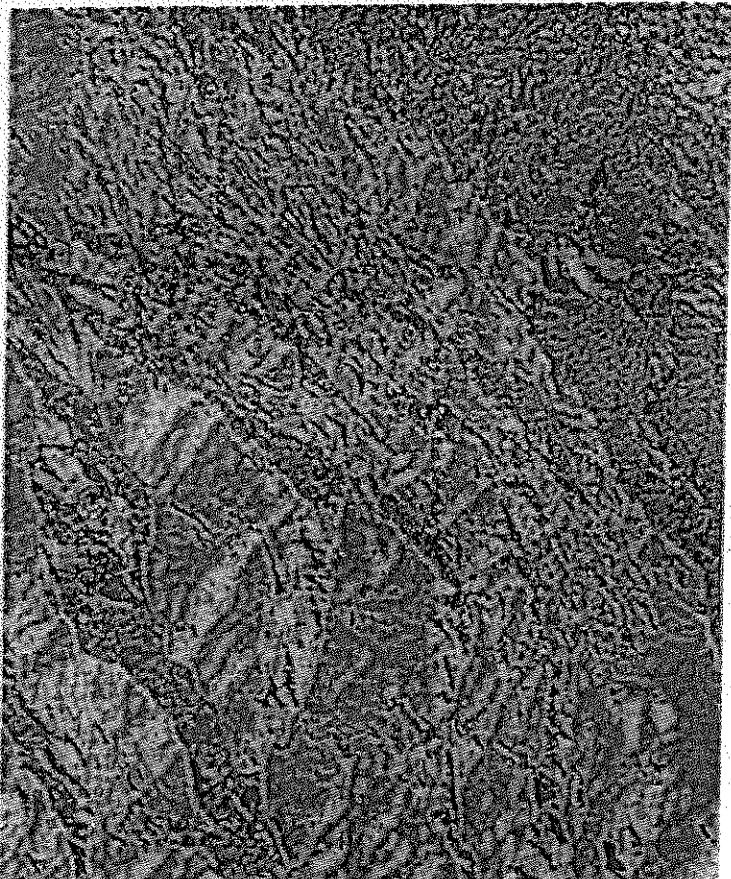


Fig. 14 : Variation of aspect (in degree)

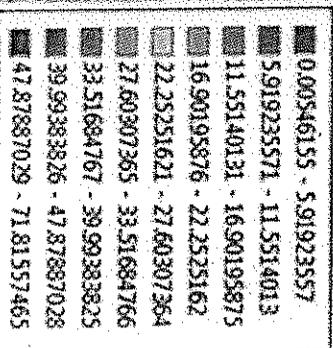


Table 2

Area (ha) under various slope categories (°) within 100 m buffer

Sl. No.	Name of the Site	Area(ha) under Various Slope Categories (°) within 100 m buffer										
		0°-5°	5°-10°	10°-15°	15°-20°	20°-25°	25°-30°	30°-35°	35°-40°	>40°		
1	Inside Salim Ali Bird Sanctuary	0.180	0.614	0.939	0.695	0.619	0.092	-	-	-	-	
2	Next to Aranya Village	0.418	0.532	0.654	0.644	0.256	0.132	0.195	0.243	0.066	-	
3	Behind Maganji's Mountain	0.944	0.872	0.666	0.312	0.260	0.086	-	-	-	-	
4	Hill Sahil	0.580	0.868	0.972	0.544	0.176	-	-	-	-	-	
5	Sunset Road Scheme	1.270	0.976	0.491	0.324	0.062	0.018	-	-	-	-	
6	Sunrise Housing Society	0.148	1.098	1.161	0.638	0.093	0.000	-	-	-	-	
7	Arna Village	0.503	0.666	0.798	0.594	0.279	0.168	0.130	0.002	-	-	
8	Mohanpura	0.413	1.119	0.986	0.336	0.256	0.030	-	-	-	-	
9	Hetanji	0.398	0.801	0.523	0.719	0.482	0.140	0.050	0.026	-	-	
10	Near STPlplant	0.573	0.704	0.816	0.428	0.499	0.076	0.044	-	-	-	

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Table 3

Area (ha) under various slope categories (°) within 200 m buffer

Sl. No.	Name of the Site	Area (ha) under Various Slope Categories within 200 m buffer										
		0°-5°	5°-10°	10°-15°	15°-20°	20°-25°	25°-30°	30°-35°	35°-40°	>40°		
1	Inside Salim Ali Bird Sanctuary	0.840	3.001	3.394	2.075	2.434	0.701	0.119	-	-	-	
2	Next to Aranya Village	1.427	2.498	3.551	3.298	0.890	0.309	0.274	0.252	0.066		
3	Behind Maganji's Mountain	1.833	3.959	3.267	1.634	1.196	0.384	0.175	0.103	0.013		
4	Hill Sahli	2.027	3.218	3.473	2.101	0.925	0.678	0.121	0.021	-		
5	Sunset Road Scheme	3.361	3.286	1.831	1.570	1.140	0.756	0.454	0.166	-		
6	Sunrise Housing Society	1.856	3.739	3.777	1.848	0.972	0.282	0.090	-	-		
7	Arna Village	1.187	1.625	1.694	1.850	2.301	2.033	0.986	0.526	0.362		
8	Mohampur	2.179	3.445	2.899	1.785	1.121	0.654	0.372	0.098	0.011		
9	Hetajji	1.086	2.974	2.805	2.762	1.720	0.777	0.388	0.053	-		
10	Near STP Plant	1.550	2.386	4.219	2.553	1.439	0.255	0.163	0.001	-		

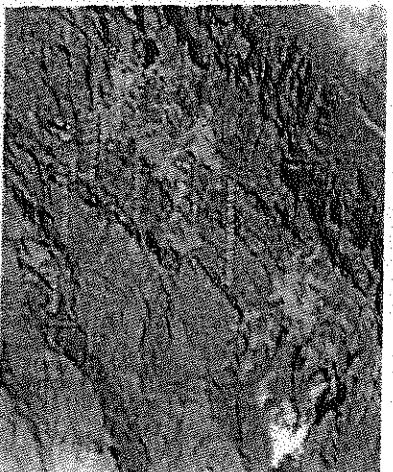
### 2.1.3 Vegetation Cover/Density

Land use/land cover change over a time period can be measured reliably through the use of remote sensing satellite data. A multispectral satellite image consists of several bands of data. Each band of the image may be displayed as one band at a time as a grey scale image, or in combination of three bands at a time as a colour composite image for visual display. If a multispectral image consists of the three visual primary colour bands (red, green, blue), the three bands may be combined to produce a "true colour" image. False Colour Composite (FCC) scheme for displaying multispectral image includes combination of R (NIR band), G (red band) and B (green band). FCC allows vegetation to be detected readily in the image. In this FCC, vegetation appears in different shades of red depending on the types and conditions of the vegetation, since it has a high reflectance in the NIR band. Clear water appears dark-bluish (higher green band reflectance), while turbid water appears cyan (higher red reflectance due to sediments) compared to clear water. Bare soils, roads and buildings may appear in various shades of blue, yellow or grey, depending on their composition.

NDVI imply "Normalized Difference Vegetation Index". It is computed by the formula :  $NDVI = (NIR - Red) / (NIR + Red)$ . It is based on the fact that chlorophyll, absorbs strongly the red wavelength (R) and reflects strongly near infrared (IR) light. So the greener (or more vigorous) is vegetation, bigger will be the Index (closer to 1). False Colour Composite (FCC) and NDVI variation in different years are given in Figure 12, 13 & 14. Area covered under various categories of NDVI within 100 m and 200 m radius buffer zones have been calculated (Table 2 & 3).

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(a)



(b)

No Vegetation  
 Low  
 Moderate  
 High

Fig. 15 (a) False Colour Composite (FCC) and (b) variation of vegetation density during 2009

Table 4a :

Sl. No.	Name of the Site	Area(ha)underNDVI Categorieswith100mbuffer			
		No Vegetation	Low	Moderate	High
1	Inside Salim Ali Bird Sanctuary	0.015	1.026	1.332	0.767
2	Next to Aranya Village	0.997	1.418	0.724	-
3	Behind Maganji's Mountain	0.841	1.452	0.816	0.030
4	Hill Sahil	0.141	0.403	1.305	1.289
5	Sunset Road Scheme	0.446	1.711	0.981	-
6	Sunrise Housing Society	0.112	1.103	1.671	0.253
7	Arna Village	0.090	1.107	1.400	0.542
8	Mohanpura	1.777	1.152	0.210	-
9	Hetanji	1.014	2.126	-	-
10	Near STP Plant	0.909	2.052	0.179	-

Table 4b:

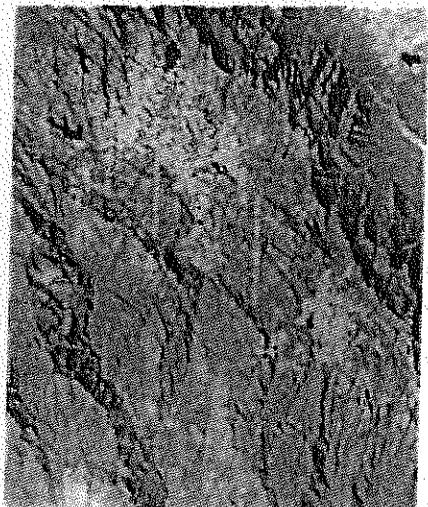
Area under various vegetation density cover (with 200m buffer) during 2009

Sl. No.	Name of the Site	Area (ha) under NDVI Categories within 200m buffer			
		No Vegetation	Low	Moderate	High
1	Inside Salim Ali Bird Sanctuary	2.979	2.749	4.852	1.984
2	Next to Aranya Village	3.684	6.785	2.096	-
3	Behind Maganji's Mountain	3.700	5.778	2.548	0.538
4	Hill Sahil	1.735	3.516	3.739	3.575
5	Sunset Road Scheme	3.604	4.926	4.035	-
6	Sunrise Housing Society	1.111	3.546	4.966	2.941
7	Arna Village	0.865	3.429	5.580	2.690
8	Mohanpura	7.574	3.735	1.075	0.180
9	Hitanji	0.213	1.646	4.378	6.328
10	Near STP Plant	1.411	8.490	2.645	0.018

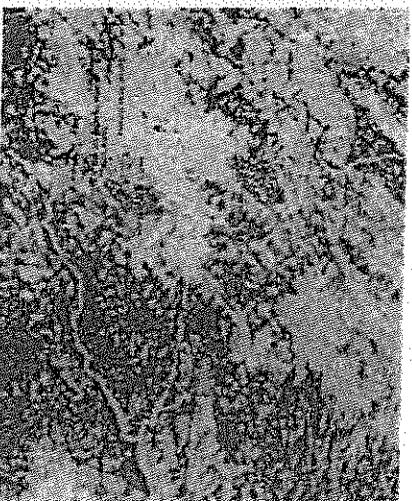
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GIC (Rajasth)

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(a)



(b)

No Vegetation  
 Low  
 Moderate  
 High

Fig. 16 (a). False Colour Composite (FCC) and (b) variation of vegetation density during 2015

Table 5a :

Sl. No.	Name of the Site	Area (ha) under NDVI Categories within 100 m buffer			
		No Vegetation	Low	Moderate	High
1	Inside Salim Ali Bird Sanctuary	0.417	0.600	1.284	0.837
2	Next to Aranya Village	1.047	0.417	1.514	0.162
3	Behind Maganji's Mountain	0.507	0.909	1.463	0.261
4	Hill Sahil	0.185	0.270	1.076	1.609
5	Sunset Road Scheme	0.413	0.722	1.434	0.570
6	Sunrise Housing Society	0.151	0.450	2.322	0.217
7	Arna Village	0.125	1.072	1.942	-
8	Mohanpura	1.075	1.197	0.867	-
9	Hetanji	0.090	0.090	0.955	2.004
10	Near STP Plant	1.349	0.487	1.000	0.303

Area under various vegetation density cover (with 100m buffer) during 2015

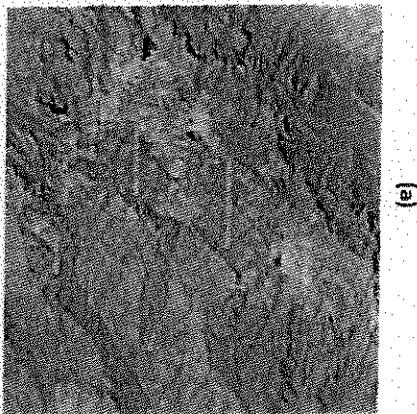
Table 5b :

Sl. No.	Name of the Site	Area (ha) under NDVI Categories within 200 m buffer			
		No Vegetation	Low	Moderate	High
1	Inside Salim Ali Bird Sanctuary	3.438	1.639	3.757	3.731
2	Next to Aranya Village	2.963	3.514	5.360	0.728
3	Behind Maganji's Mountain	3.311	2.855	5.679	0.720
4	Hill Sahil	1.525	1.263	6.147	3.629
5	Sunset Road Scheme	3.662	1.847	3.604	3.451
6	Sunrise Housing Society	2.069	1.305	6.885	2.306
7	Arna Village	0.748	0.363	3.131	8.322
8	Mohanpura	6.971	2.377	2.885	0.330
9	Hetanji	1.027	1.000	3.797	6.741
10	Near STP Plant	1.995	3.243	6.319	1.008

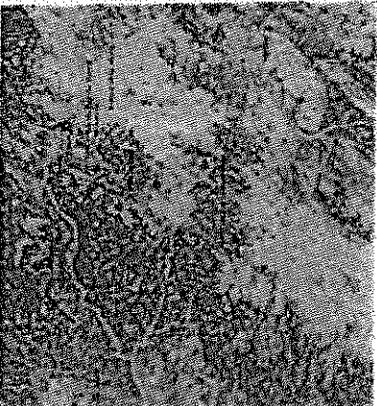
Area under various vegetation density cover (with 200m buffer) during 2015

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(a)



(b)

No Vegetation  
 Low  
 Moderate  
 High

Fig. 17: (a) False Colour Composite (FCC) and (b) variation of vegetation density during 2019

Table 6a :

Sl. No.	Name of the Site	Area (ha) under NDVI Categories within 100m buffer			
		No Vegetation	Low	Moderate	High
1	Inside Salim Ali Bird Sanctuary	0.433	1.606	1.107	-
2	Next to Aranya Village	0.478	1.367	1.201	0.100
3	Behind Maganji's Mountain	0.378	1.372	1.291	0.105
4	Hill Sahil	0.323	0.594	1.027	1.201
5	Sunset Road Scheme	0.647	1.004	1.246	0.249
6	Sunrise Housing Society	0.100	1.355	1.638	0.053
7	Arna Village	0.022	0.506	0.607	2.012
8	Mohanpura	0.751	1.693	0.692	0.010
9	Hetanji	0.190	0.430	0.989	1.537
10	Near STP Plant	1.022	0.891	1.140	0.093

Table 6b :

Sl. No.	Name of the Site	Area (ha) under NDVI Categories within 200 m buffer			
		No Vegetation	Low	Moderate	High
1	Inside Salim Ali Bird Sanctuary	2.030	2.633	4.039	3.890
2	Next to Aranya Village	1.157	6.859	4.013	0.564
3	Behind Maganji's Mountain	2.097	5.182	4.829	0.484
4	Hill Sahil	1.536	3.383	5.319	2.354
5	Sunset Road Scheme	3.981	2.840	5.069	0.701
6	Sunrise Housing Society	1.781	3.759	5.709	1.343
7	Arna Village	0.220	1.473	3.054	7.846
8	Mohanpura	4.592	5.071	2.729	0.200
9	Hitanji	0.773	2.611	3.853	5.356
10	Near STP Plant	1.968	3.778	5.767	1.080

Area under various vegetation density cover (with 200m buffer) during 2019

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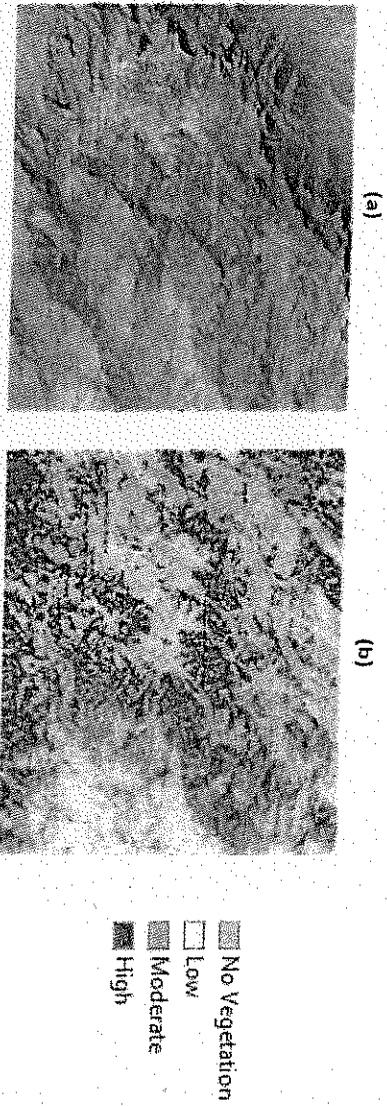


Fig. 18 : (a) False Colour Composite (FCC) and (b) variation of vegetation density during 2020

Table 7  
Area under various vegetation density cover (with 100m buffer) during 2020

Sl. No.	Name of the Site	Area(ha)underNDVI Categorieswith100mbuffer			
		No Vegetation	Low	Moderate	High
1	Inside Salim Ali Bird Sanctuary	0.263	0.590	0.943	1.350
2	Next to Aranya Village	1.895	1.001	0.250	-
3	Behind Maganji's Mountain	1.373	0.806	0.633	0.334
4	Hill Sahil	0.654	0.513	0.800	1.179
5	Sunset Road Scheme	1.185	1.011	0.724	0.226
6	Sunrise Housing Society	1.115	0.974	0.651	0.406
7	Arna Village	0.973	0.615	0.889	0.670
8	Mohanpura	2.197	0.729	0.185	0.035
9	Hitanji	0.482	0.511	0.656	1.497
10	Near STP Plant	2.784	0.299	0.063	-

Table 8  
Area under various vegetation density cover (with 200m buffer) during 2020

Sl. No.	Name of the Site	Area(ha)underNDVI Categorieswith200mbuffer			
		No Vegetation	Low	Moderate	High
1	Inside Salim Ali Bird Sanctuary	4.608	1.826	2.799	3.359
2	Next to Aranya Village	8.677	3.006	0.809	0.100
3	Behind Maganji's Mountain	5.414	3.300	2.111	1.767
4	Hill Sahil	4.685	3.266	2.372	2.269
5	Sunset Road Scheme	5.391	2.699	2.495	2.007
6	Sunrise Housing Society	4.788	2.995	2.491	2.318
7	Arna Village	4.039	3.417	3.238	1.899
8	Mohanpura	8.908	2.150	1.033	0.502
9	Hitanji	4.098	2.022	1.449	5.024
10	Near STP Plant	8.140	2.967	1.088	0.398

#### 2.1.4 Limitation of Remote Sensing and GIS based Analysis

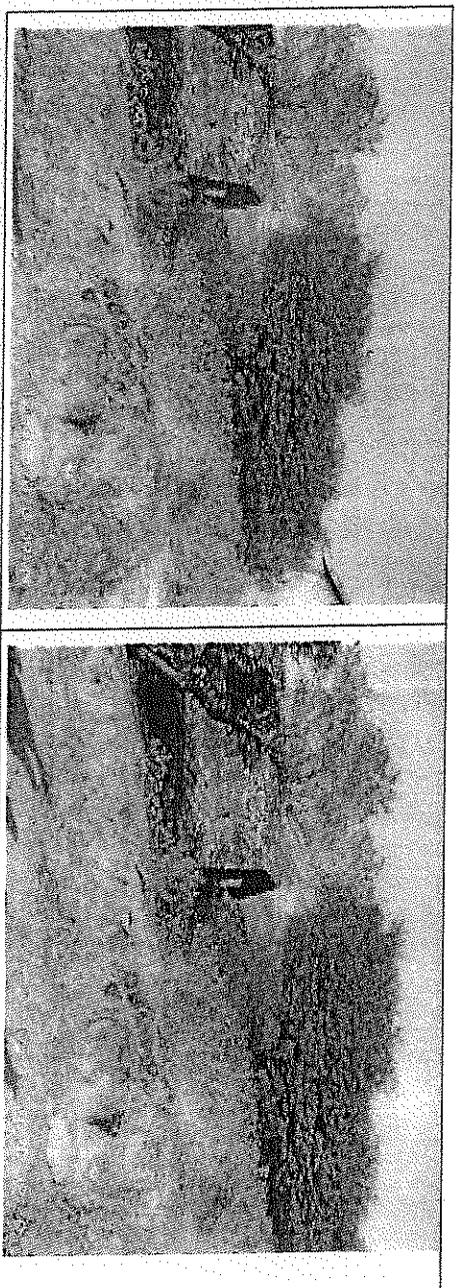
KML or Shapefile for boundary of the identified sites were not available. Hence, analysis has been carried for tentative areas around the sites (i.e. within buffer zones of 100 m & 200 m radius). Freely available moderate to coarse resolution satellite imageries available during 2009-2020 have been used.

DEM has been generated from Cartosat-1 stereo data. CartoDEM is created using Augmented Stereo Strip Triangulation (ASST) software. The seamless CartoDEM generation is an automatic process and makes use of limited Ground Control Points (GCPs) in long stereo strip pairs using dense feature matching, Triangulated Irregular Network (TIN) modeling and automatic long strip mosaicing. The automatic generation of DEM has inherent problems like water-body irregularities, hill-top distortions, plain-area sinks and residual mosaics; and these are corrected in the Tile Editing (TE) system. The vertical accuracy achieved is 8m (LE90) whereas horizontal accuracy attained is 15m (CE90) for ortho data.

Satellite data (Landsat & Sentinel) have significant potential to assess vegetation cover over large areas (even inaccessible) repetitively in short time with reasonably good accuracy. A few specific limitations are mainly related to saturation of the optical signal at high biomass density, cloud cover and availability of radiometrically consistent multi-temporal dataset. Application of advanced classifier algorithms or acquiring high-resolution imagery cannot solve all problems that are encountered during vegetation extraction from remote sensed data but will improve the results. However, it would be better to have detailed field survey along with collection of ancillary/collateral data for relatively smaller areas to get more accurate results and for ground truthing of the results obtained from remote sensing data.

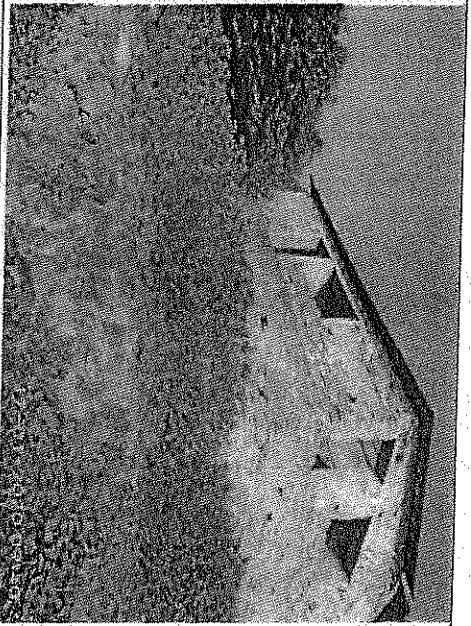
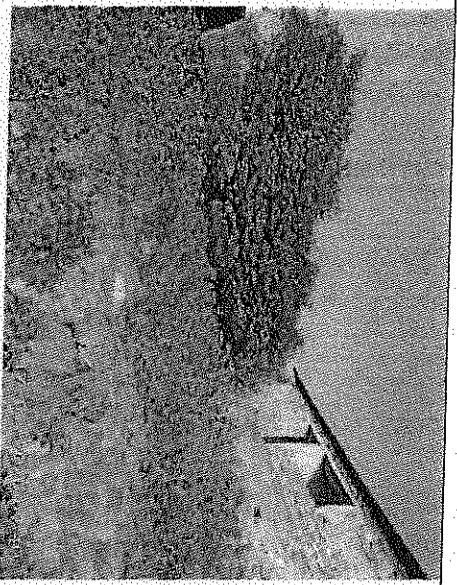
#### 2.1.5 Field Photographs

Field photos of 10 identified sites taken during the field visit (16-17 January 2020) as below:

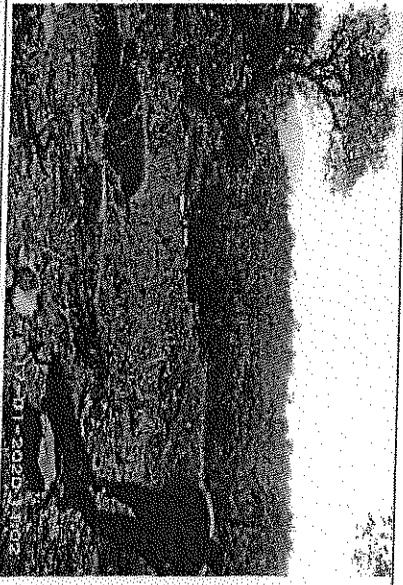
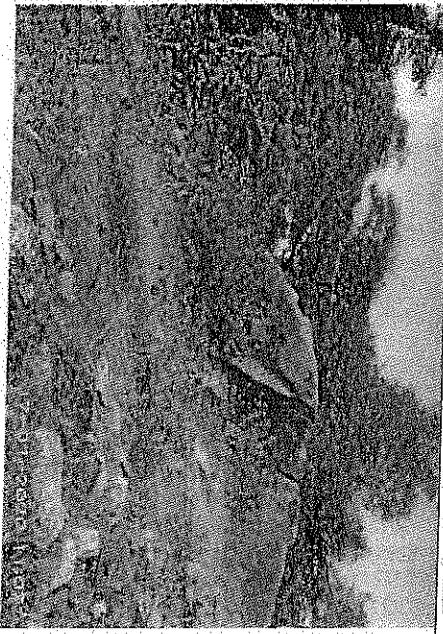
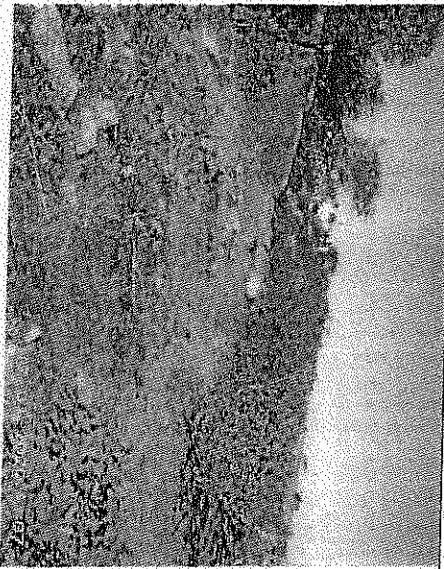
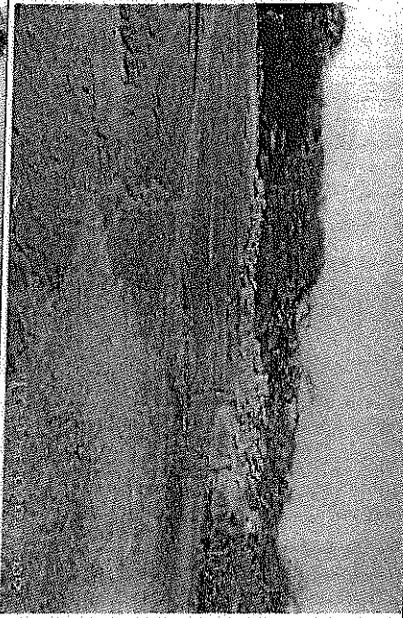
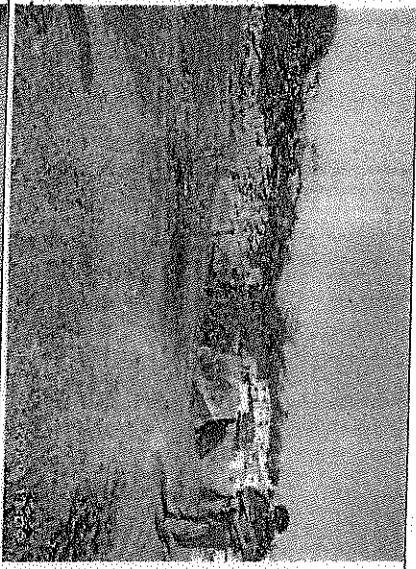


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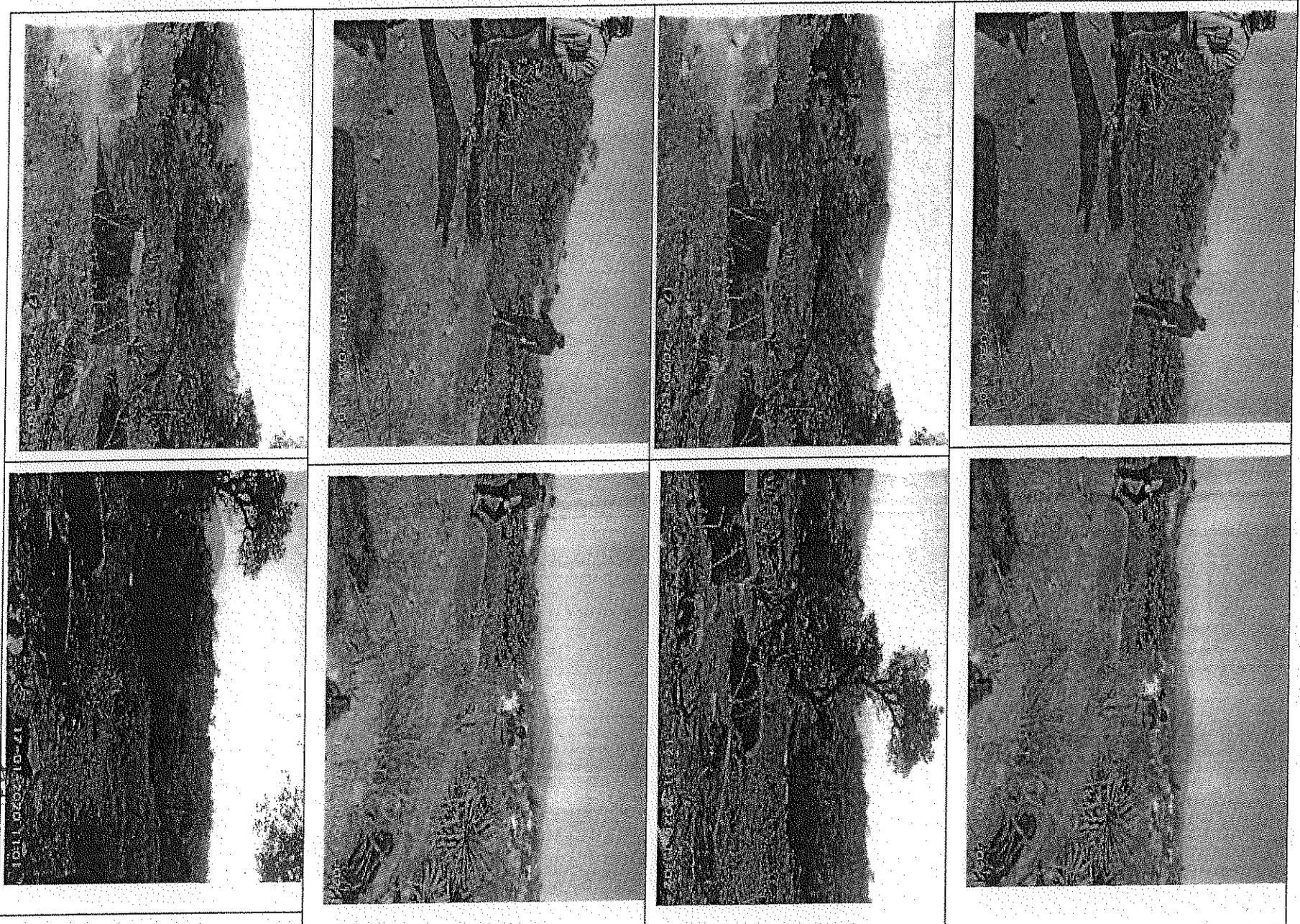


Inside Salim Ali Bird Sanctuary



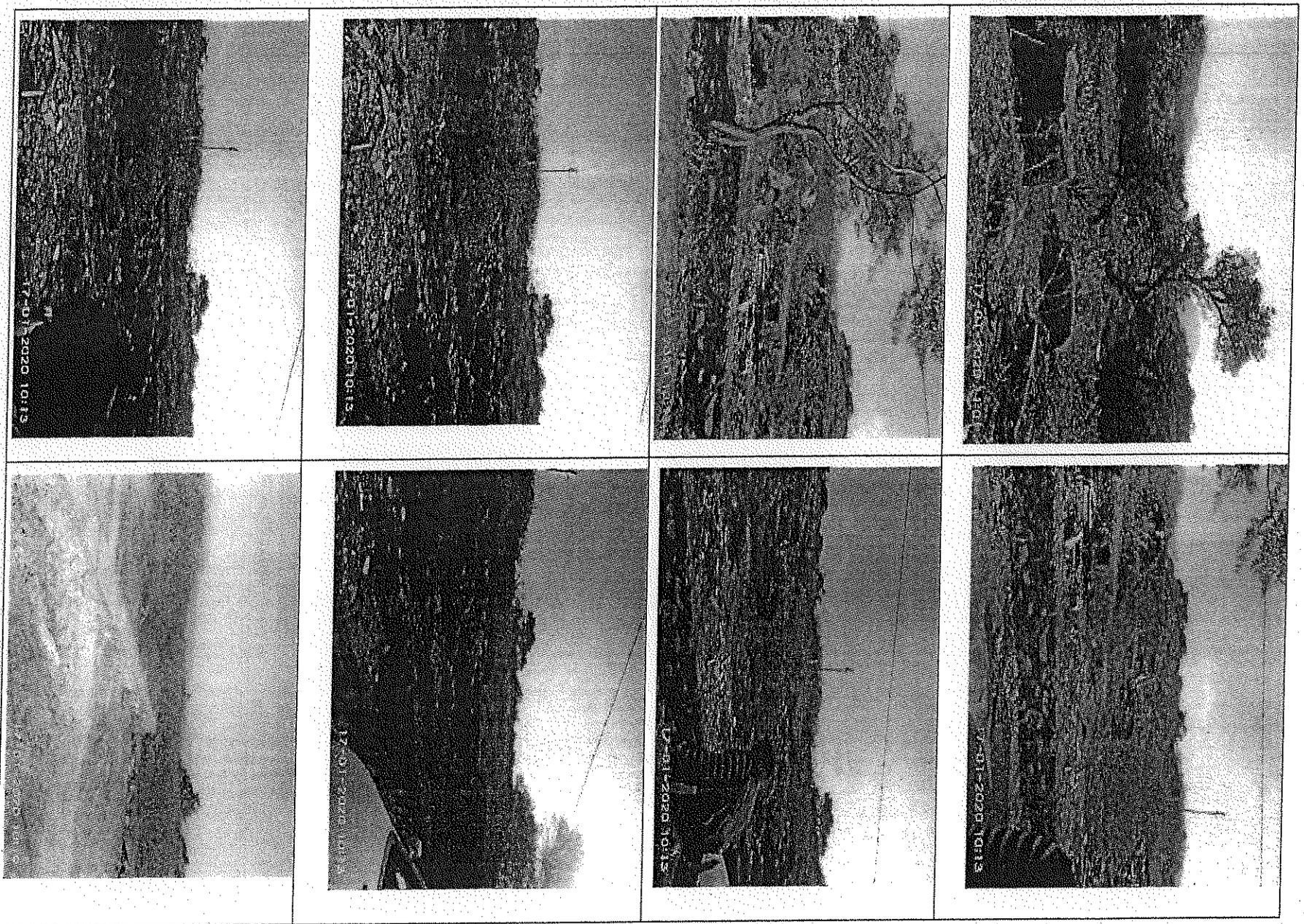
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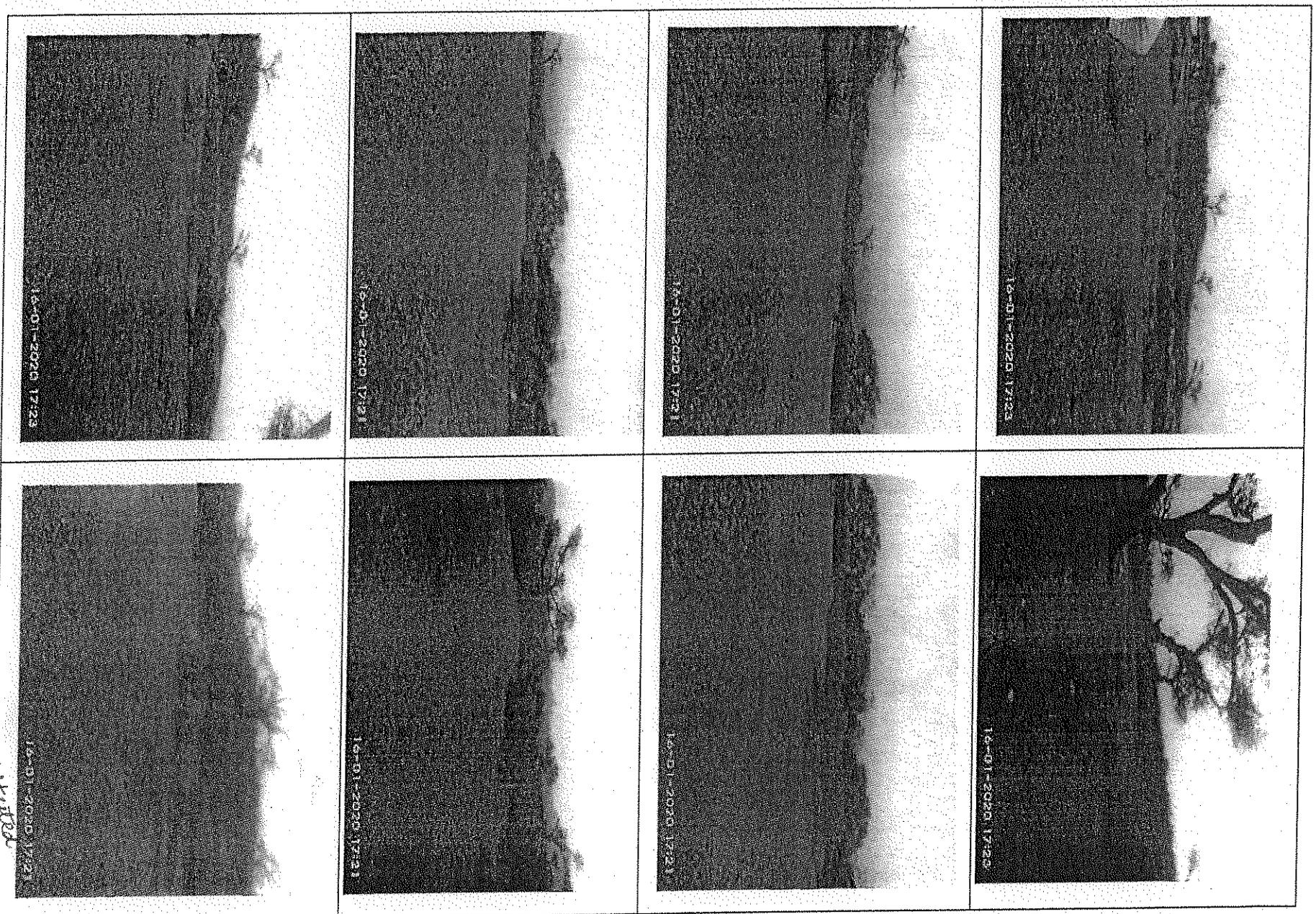
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Next to Aranya Village

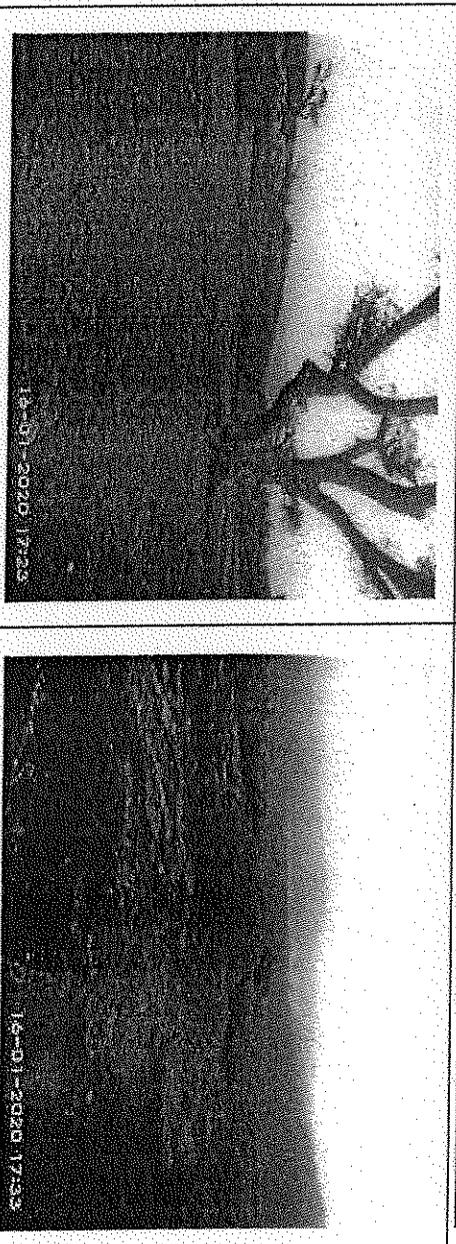
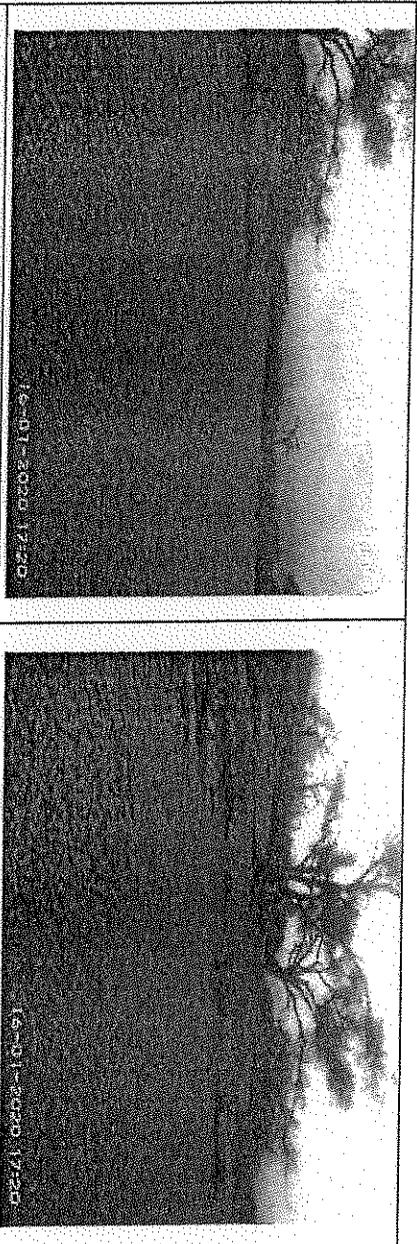
*Aranya*

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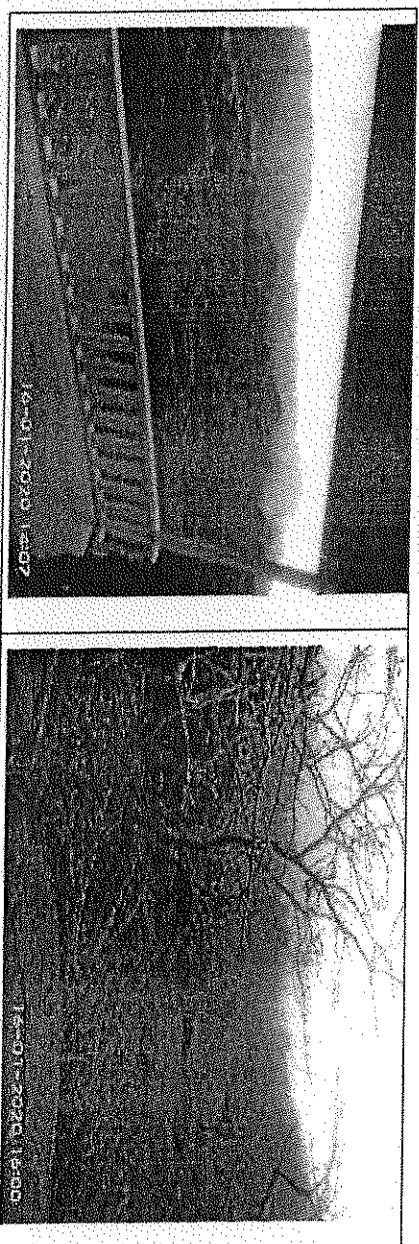


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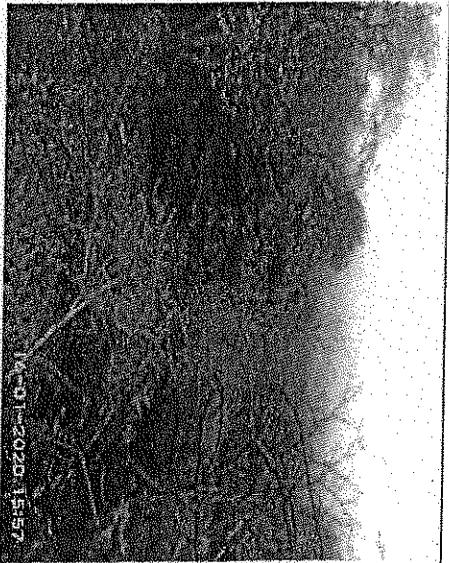


Behind Maganji Mountain



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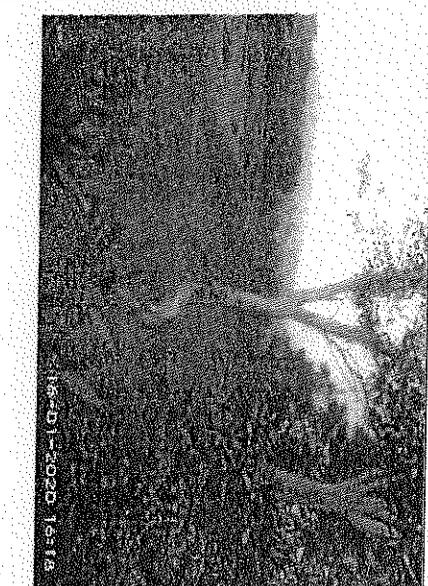
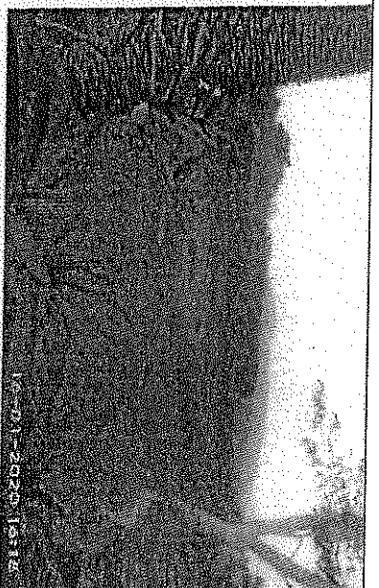
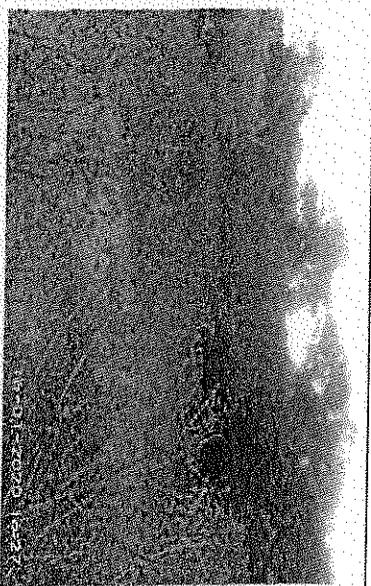
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Hill Sahli



Sunset Road Scheme

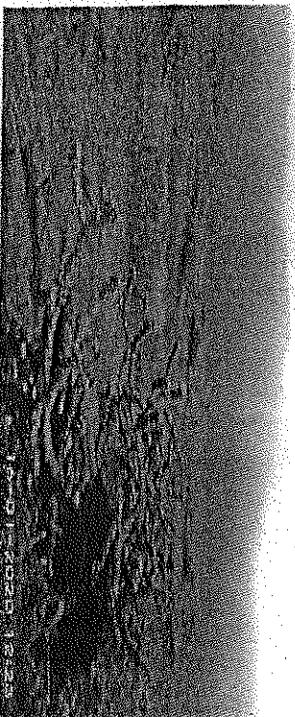
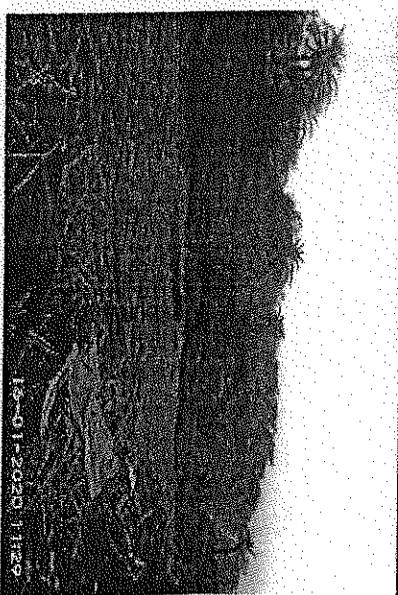
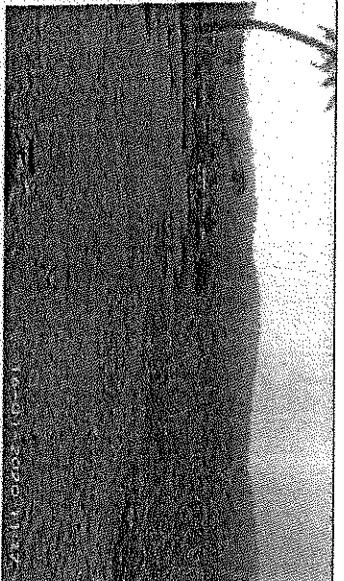
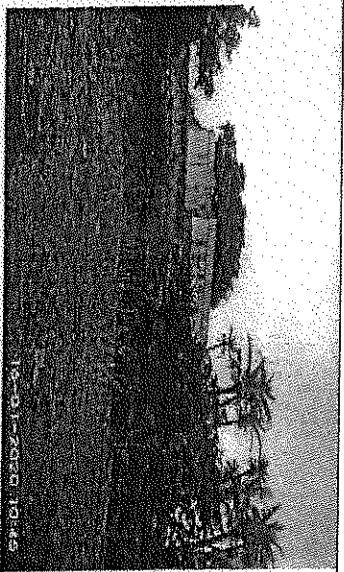


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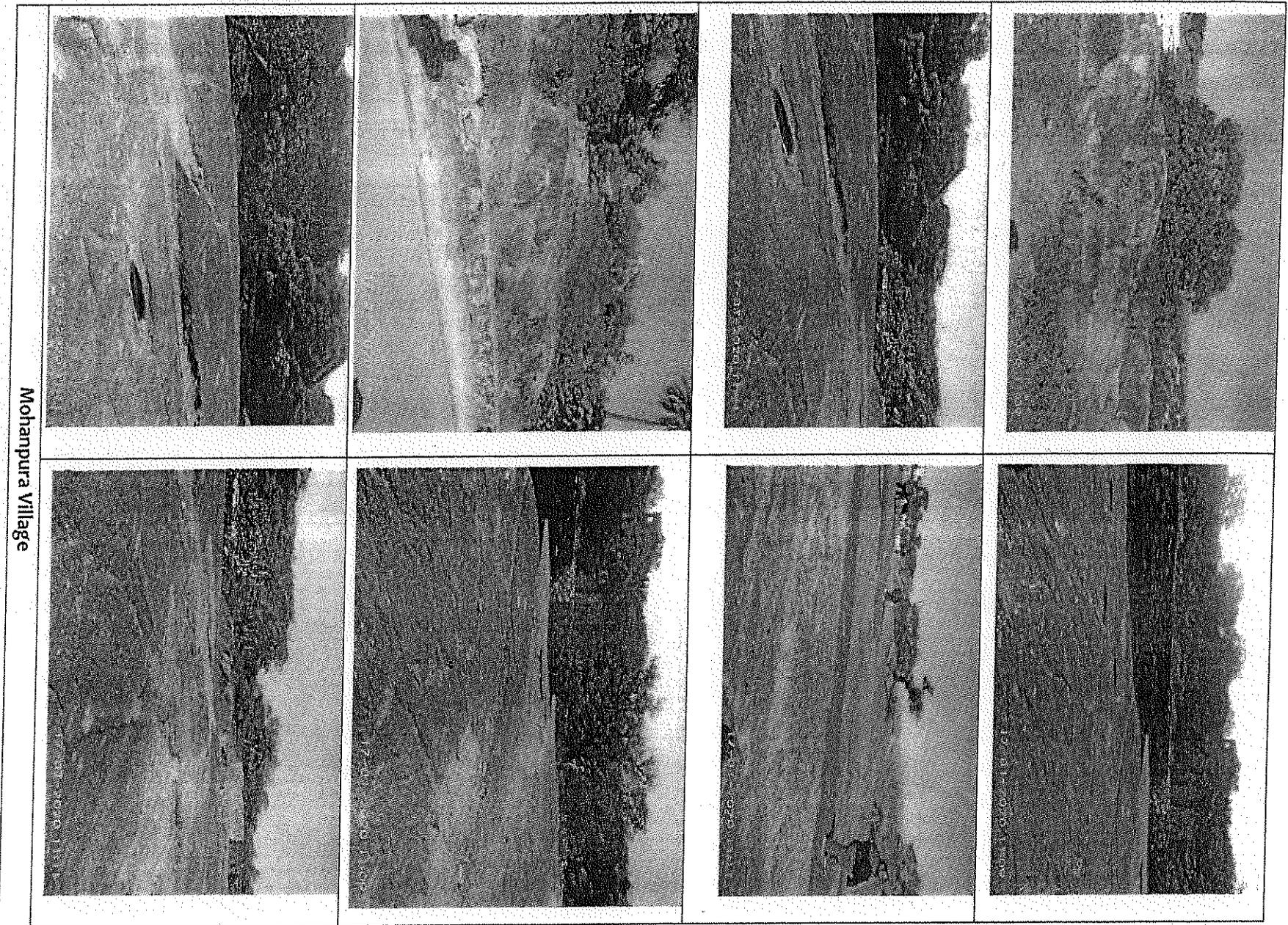
Sunrise Housing Society



Arna Village

*Arna Village*

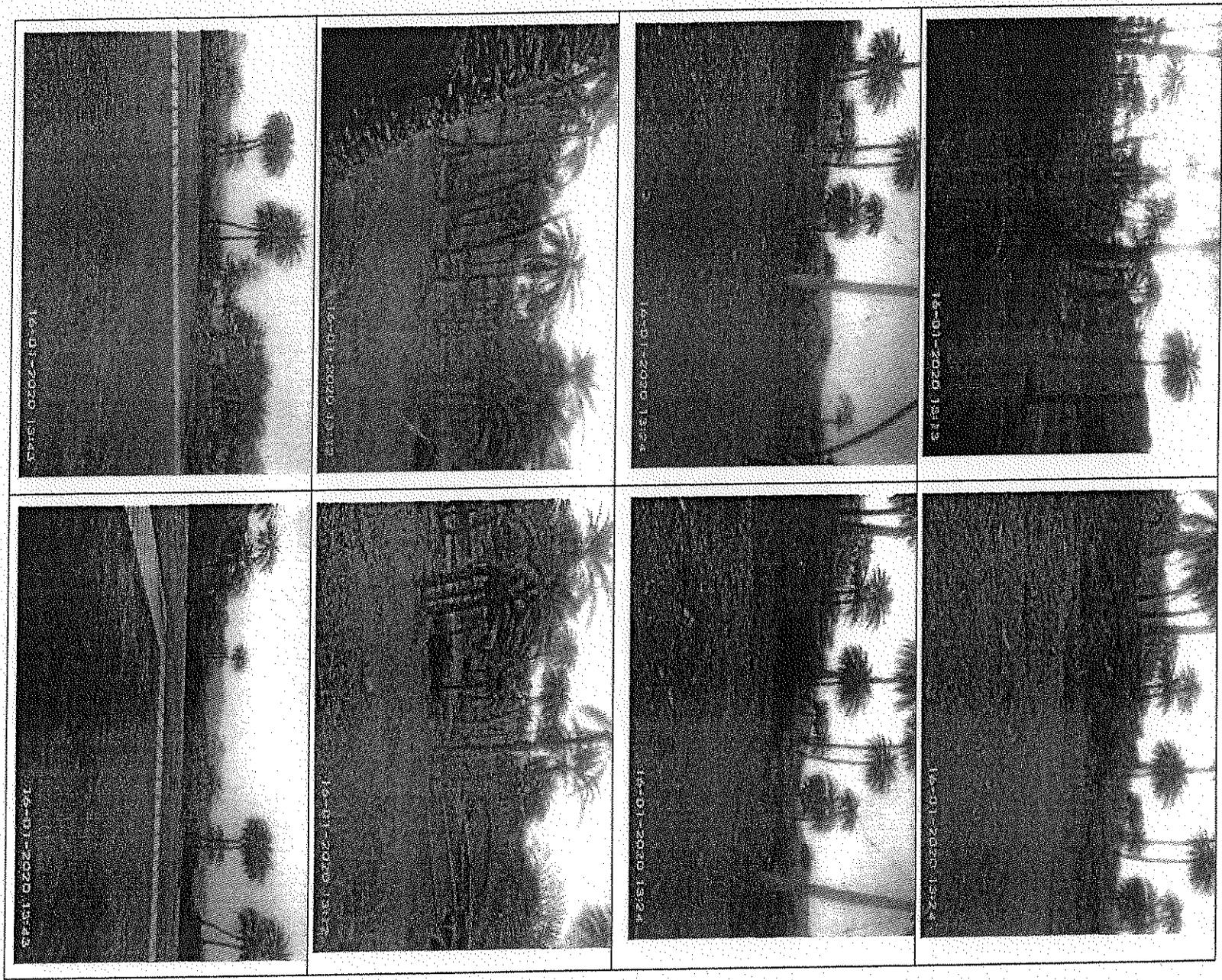
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Report by Expert Committee Members for  
Mount Abu Eco-Sensitive Zone & Zonal Master Plan 2030, Rajasthan  
Initial Draft

89

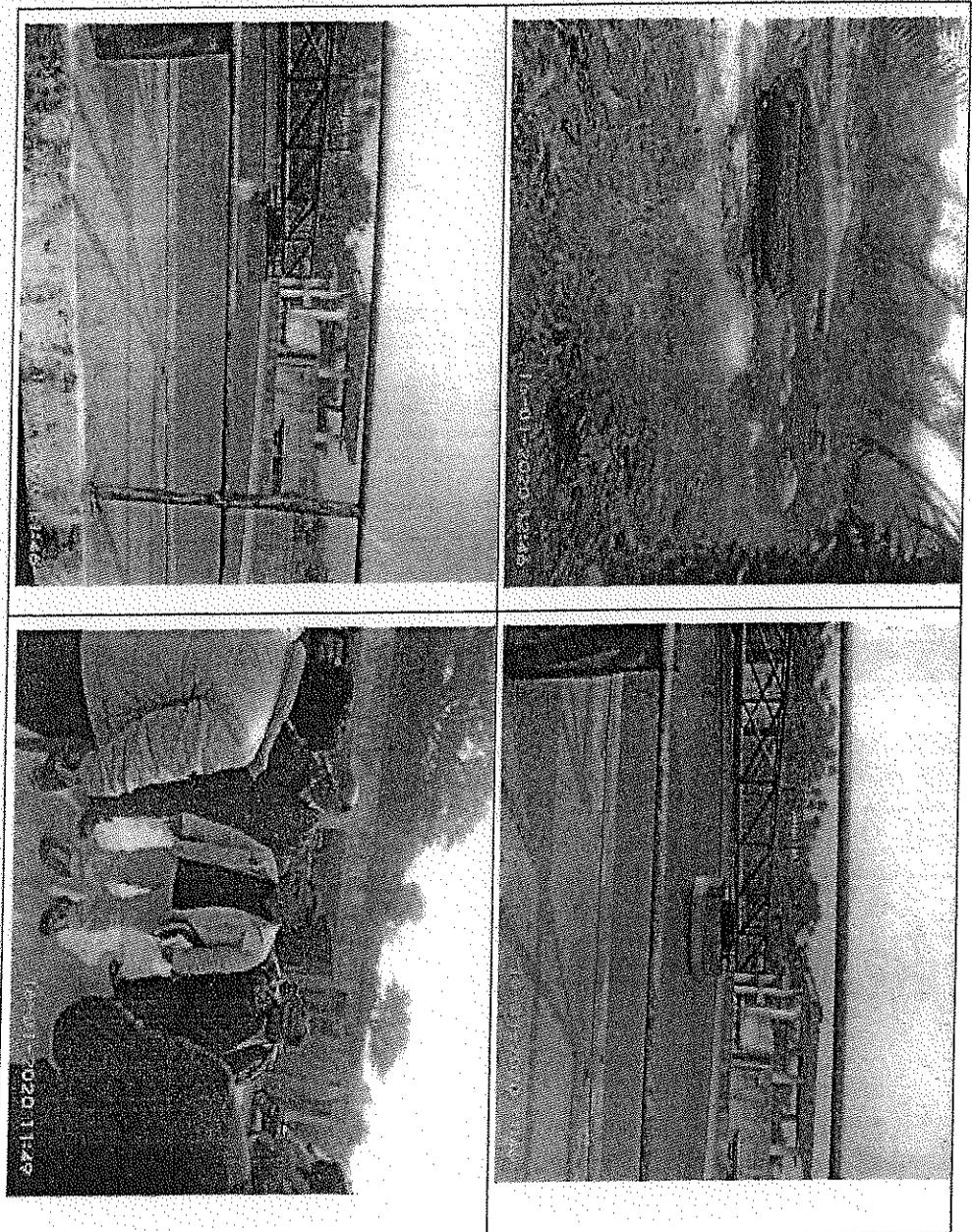


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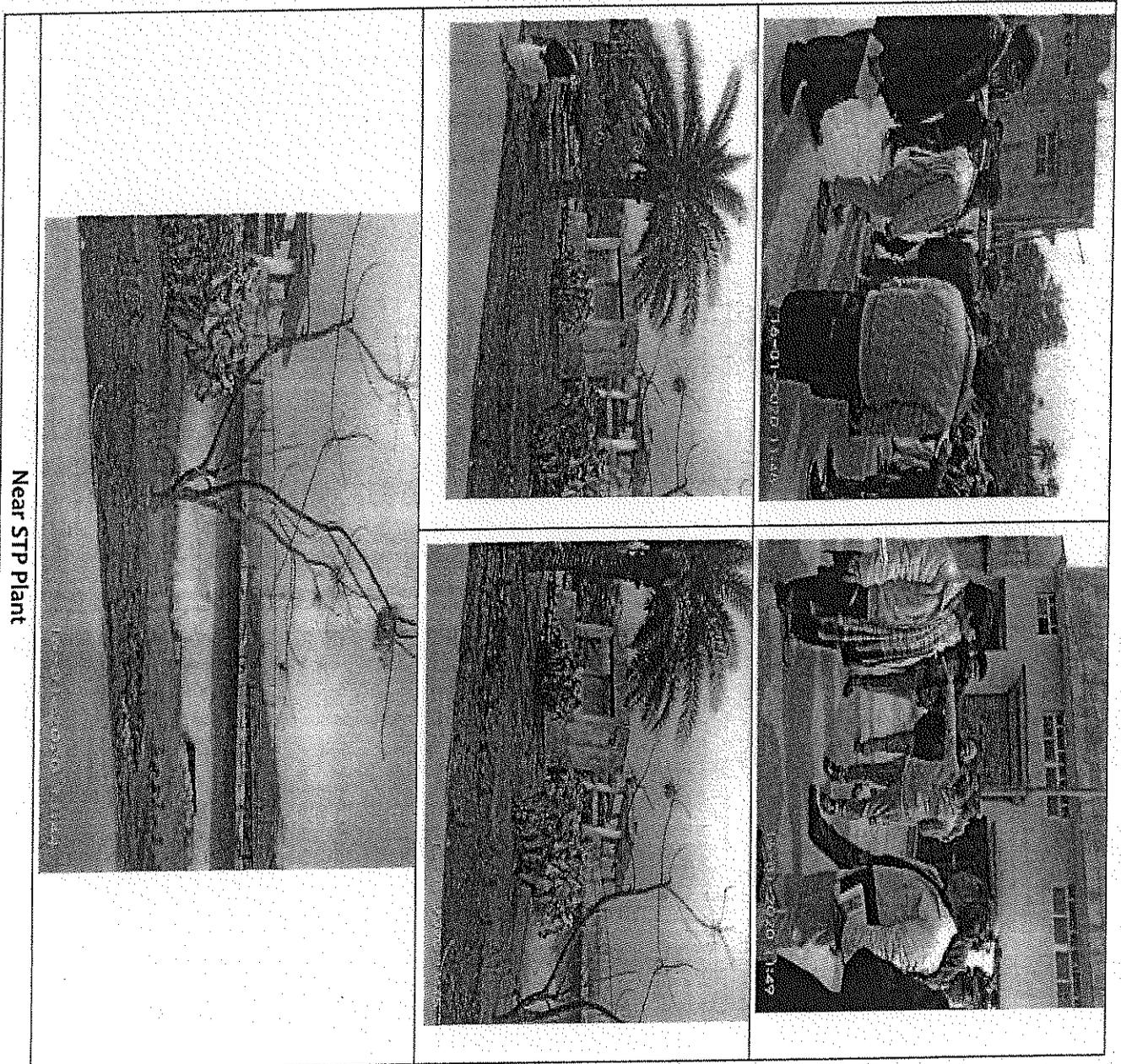
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Hitanji Village



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Near STP Plant

Figure no. 18: Field Photographs

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The summary of events regarding Mt. Abu ESZ notification and ZMP 2030 is given as Annexure -1.

## 2.2 Demographic profile

Mount Abu municipality is located in Sirohi district of Rajasthan state. It has population of 22,943 of which 12,557 are males while 10,386 are females as per Census India 2011 report (source: <https://www.census2011.co.in/data/town/80055Z-mount-abu-rajasthan.html>). Population density of Mount Abu Municipality is 1,072 people/km<sup>2</sup> as compared to Rajasthan state population density of 200 people/km<sup>2</sup>. In addition, it is also a popular hill station where large number of tourists visit every year. Population growth over the years has been on the higher side, and this is set to continue in the coming years. The overall population growth rate of the state is 21.3% during 2001-2011 while it was 28.3% during 1991-2001.

### 2.2.1 Population Outside Municipal Area in ESZ

According to ZMP 2030 - Volume I, Mt. Abu ESZ, Govt. of Rajasthan, the five villages outside the municipal area in ESZ namely, Achalgarh, Arna, Jawai, Oriya and Salgaon together account for nearly 2200 people in 2001. Amongst these five villages Oriya followed by Salgaon are the most populous villages with 891 and 638 persons, respectively in 2001 (Table 9). Oriya has the second highest population growth which could be on account of abundant flat land available for development.

Table 9:

**Trends in population distribution in villages outside municipal area (1961-2001)**

Village	1961	1981	1991	2001	2011*	2030*	% decadal growth 1991-2001	% decadal growth 2001-2011*	% decadal growth 2030*
Achalgarh	343	214	224	324	343		44.64		
Arna	641	122	140	197	220		40.71		
Jawai	1398	117	131	147	184		12.21		
Oriya	2024	463	611	891	1159		45.83		
Salgaon	463	118	168	638	554		279.76		
<b>Total</b>	<b>4870</b>	<b>1034</b>	<b>1274</b>	<b>2197</b>			<b>72.45</b>		

\*'Population as reported in 2011 Census' and 'projected population in 2030' can be added in two separate columns. Accordingly % decadal growth during 2001-2011 can be calculated (Source: ZMP 2030- Volume I, Mt. Abu ESZ, Govt. of Rajasthan)

## 2.3 Population Density

The population of Mount Abu stood at 22,045 in 2001 and has increased by more than five times from population size of 4165 in 1931. From 1901-1951 there has not been much growth population during 1951-1961 a rapid increase in population was observed primarily due to administrative changes with took place. From 1961-2001 the town developed as an important tourist place as well as a center for educational facilities thereby showing a consistent rising trend in population growth.

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Table 10

Growth Trends of Population of Mount Abu Municipal Area (1931-2001)

Year	Population	Decadal Growth
1931	4165	
1941	4316	+ 3.6%
1951	4439	+ 2.85%
1961	8076	+81.93%
1971	9840	+21.84%
1981	12713	+29.20%
1991	15593	+22.65%
2001	22045	+ 41.38%
2011	22943	

Source: Primary Census Abstract, 1961-2001

WARD WISE GROSS POPULATION DENSITY, 2001

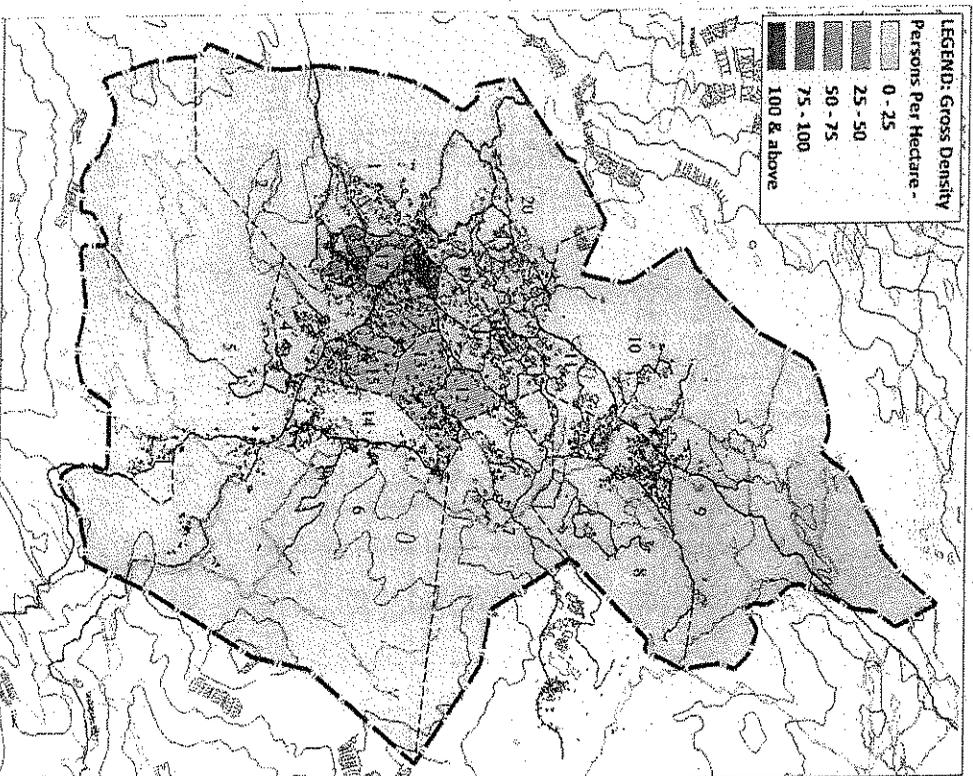


Fig.20: Ward wise population density in Mount Abu municipality area

2.3.1 City Level

The gross population density of Mount Abu Municipal area is 10 pph which is low than the prescribed standard of 45 pph for hill stations (as per UDPFI guidelines). This is mainly due to the presence of forest and rocky outcrops.

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The population of Mount Abu stood at 22,045 in 2001 and has increased by more than five times from population size of 4165 in 1931. From 1901-1951, there has not been much growth in population. During 1951-1961 a rapid increase in population was observed primarily due to administrative changes which took place. From 1961-2001 the town developed as an important tourist place as well as a centre for educational facilities thereby showing a consistent rising trend in population growth.

### 2.3.2

#### Ward Level

According to 2001 census, Mount Abu Municipal Area has 20 wards. As observed from the ward wise Gross Population Density Map, 2001 for the Mount Abu Municipal Area, it is evident there is large variation in the Gross Density Pattern at the ward level. Ward 18 has the highest gross density of 141 ppha while the outer wards 5, 6 and 10 show a low density of 2 ppha.

The city is dense at the core and the density decreases as one moves out from the core due to lack of net developable land. Residential density is more at the fringes than at the core. Low net density wards are 13, 14 and 19 with density varying from 53 to 60 pph. The wards in the south-east of the town have low net density as these mainly comprise of forest land and rocky outcrops.

Table No. 11:  
Ward wise demography of the area

S. no.	Name of village	No of household	SC population	ST population	Total population
1.	Ward No. 1	248	247	391	1215
2.	Ward No. 2	288	580	198	1522
3.	Ward No. 3	245	232	81	1306
4.	Ward No. 4	175	294	64	884
5.	Ward No. 5	189	57	541	817
6.	Ward No. 6	261	105	77	1237
7.	Ward No. 7	336	229	289	1430
8.	Ward No. 8	370	200	197	1681
9.	Ward No. 9	262	190	588	1424
10.	Ward No. 10	191	38	176	835
11.	Ward No. 11	159	143	128	1213
12.	Ward No. 12	164	177	162	786
13.	Ward No. 13	184	127	234	856
14.	Ward No. 14	168	171	253	832
15.	Ward No. 15	347	874	308	1548
16.	Ward No. 16	182	160	143	933
17.	Ward No. 17	113	50	5	665
18.	Ward No. 18	207	409	21	1221
19.	Ward No. 19	227	315	142	1164
20.	Ward No. 20	252	369	343	1374
Grand total		4568	4967	4341	22943

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#### 2.4 Housing and property analysis

Area under Residential Landuse forms 39% of the developed area and 0.8% of Municipal Area. The residential areas are distributed around the original village abadis – Machgaon, Sanegaon, Torna, Goagaon, Delwara, Dundhai and Hetamji. Residential bungalows of government servants and defence personnel are in the civil station and military station area. Some of the old bungalow compounds have been used for residential schemes - these are also in the civil station. Residential schemes are also near Delwara, Dundai and in the south of MDR60. Low density residential is present near Windermere Lake and on north of Nakki Lake. Around main bazaar from State Bank to railway quarters and from Jain Vardhaman Mahavir centre to the church are high density areas. 178 ha are in residential use.

The density of development in 1981 for 12773 persons in Mount Abu for the developed area observed was 22.7 ppa with gross residential density of 70.2 ppa which changed to 14.5 ppa and 61.6 ppa respectively in 2002 for population size of 22045 persons.

#### 2.5 Village settlement & Tribal habitations

Rajasthan is home to many tribes who have very interesting history of origin, customs and social practices. The two types of tribes that can be traced in Sirohi District are Bhils & Grasiyas. Bhils are the largest and probably the oldest inhabitants of this land. Bhil word is derived from the Greek word "BEEL" that means 'String used of BOW'. The primitive nature of Bhils is confirmed by the facts that their description can be found in the oldest epics and religious books like Mahabharata, the Ramayana and the Puranas. Garasias are a Rajput tribe found along the Abu Road area of Southern Rajasthan. District Sirohi has a high proportion of tribal population (23.4%), the group called Garasias. Mount Abu Eco-sensitive Zone is located in the Abu Road Tehsil of Sirohi district in Rajasthan. Rajasthan consists of 32 districts. Sirohi is situated at the south-west part of Rajasthan. It is bordered on the west by Jalor District, on the north by Pali District, on the east by Udaipur District, and on the south by Banas Kantha District of Gujarat. It is the third smallest district in the state. It has an area of 5139 kms which is almost 1.52% of the area of Rajasthan. The district had a population of 850,756 (2001 census), with a population density of 166 persons per km<sup>2</sup>. Sirohi district is a part of Jodhpur Division. The town of Sirohi is the District headquarter. It has five sub-divisions and five tehsils- Sirohi, Sheoganj, Pindwara, Abu Road & Reodar. Abu Road sub-division consists of two statutory towns (Abu Road UA and Mount Abu Municipality) and 81 villages of which 78 are inhabited and 3 are uninhabited.

#### 2.6 Scheduled Tribe Population

Table 12 shows the schedule tribe population growth trends in villages lying outside the municipal area in ESZ. The share of ST population is highest in Salgaon( 27.12%) of the total village population.

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Table 12:

Trends in ST population in villages lying outside M.C. Limits in ESZ

YEAR	ACHALGARH	ARNA	JAWAI	ORIVA	SALGOAN
1961	12	25	0	33	21
1981	21	28	5	47	39
1991	27	30	0	63	57
2001	58	25	5	95	173
2011					

Source: Primary Census Abstract – 2001, 1991, 1981, 1961

## 2.7 Scheduled Caste Population

Table 13 shows the schedule caste population growth trends in villages lying outside the municipal area in ESZ. The share of SC population is highest in Achalgarh (24.69%) ( 27.12%) of the total village population

Table 13:

Trends in SC population in villages lying outside M.C. Limits in ESZ

YEAR	ACHALGARH	ARNA	JAWAI	ORIVA	SALGOAN
1961	27	0	0	16	0
1981	71	0	0	9	0
1991	81	0	1	12	0
2001	80	0	0	28	12
2011					

Source: Primary Census Abstract – 2001, 1991, 1981, 1961

## 2.8 Heritage and cultural infrastructure

This entire ESZ is an exceptionally significant, having multi-layered cultural landscape with a continuing sacred dimension, which has evolved and been consciously shaped by people over a documented period of more than a thousand years. It is a testimony to enduring continuities and respectful synthesis between indigenous and introduced approaches and innovations for sustainable utilization and development of the distinctive resource base of the area.

It has been Termed as the 'Hill of Wisdom' and the 'Olympus of Rajasthan', mentioned by Megasthenes and in the map of Pliny, Arbud or the Mt. Abu area was considered as a place of great sanctity and learning– a 'moksha-tirtha' or place of pilgrimage (literally a place of crossing, and also a 'confluence of art and beauty' – secluded spot amongst natural surroundings, suitable for meditation). Abu was also associated with conceptions of 'landscape mandalas or cosmograms of sacred sites' emerging around the geomorphological heritage, significant topographical and landscape features which were subsequently sanctified by links with the names of various deities, sages and saints, religious or spiritual acts (such as 'yainas' or 'tapas'), the construction of important 'celestial shrines' of different faiths- Vaishnava, Shaiva, Sakta, Jains as well as sacred places of the Bhilis & Garasiyas, and Sufi shrines.

The unparalleled range, diversity and significance of the heritage components of the defined cultural landscape (tangible, intangible, biotic, abiotic) and their complex inter-

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linkages that characterize this plateau area, are an embodiment of the historic contribution of human interactions and cultural approaches which safeguarded, enhanced and enriched significant aspects of the Abu Eco Sensitive Zone, ensuring its balanced and harmonious development till fairly recently. The cultural heritage, therefore, constitutes an invaluable resource, and is integral to the formulation of an effective strategy for sustainable conservation and guided development of this Eco Sensitive Zone, within the Sirohi District.

258 heritage components of the cultural landscape have been identified in the ESZ area, encompassing heritage typologies of historic routes and cultural corridors, sacred centres, complexes and precincts with their built heritage, water systems, sacred groves, irrigated terraced fields and vernacular settlements in addition to the designed historic urban landscape of the Mt Abu civil and military station.

On the basis of analysis of a chronological sequence of historic maps of the ESZ from 1870, 1870 & 1920 Survey Plans of the Mt Abu Civil & Military Station, supported and verified through detailed fieldwork and primary surveys of the 2011 situation, settlement patterns and 258 heritage resources of considerable historical, archaeological, cultural, social, architectural and aesthetic, ecological, environmental, scientific, functional, economic, recreational and educational value have been identified and delineated on maps. The significant character zones and their buffer zones have been defined and delineated on the basis of the distribution and concentration of different types of heritage resources and their attributes.

#### 2.8.1 Inventory of Heritage Resources & Existing Resource Utilization – Cultural Resource Mapping

The inventory formats and datasheets have been developed and compiled as the basis for the listing and classification of the heritage resources, as well as for the delineation of the various heritage zones and sub-zones. The heritage resources that have been included in the inventory are not only integral to understanding and defining the identity of the Abu Eco-Sensitive Zone, but are also of immense architectural, ecological, archaeological, historical, socio-cultural, functional, economic, educational and recreational value to the citizens of Mt Abu as well as numerous visitors and pilgrims. A systematic process of identification and delineation of the heritage resources has been followed, as it is a primary requirement for integration of the heritage resources of the Eco-Sensitive Zone into the planning and management process.

These inventories include sections related to the significance as well as the current status of the heritage resource in terms of its condition, level and type of usage and priority for conservation intervention.

Table 14:  
List of Heritage sites

S. No.	Name of Heritage	S. No.	Name of Heritage
1.	Jaipur Palace	2.	Fatah Palace
3.	Alwar Kothi	4.	Bikaner Palace
5.	Holiday Home	6.	Palanpur Palace
7.	Dholpur House	8.	Uniyara House

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S. No.	Name of Heritage	S. No.	Name of Heritage
9.	Lindi Kothi	10.	Pokran House
11.	Pokran House	12.	Survey of India House
13.	State Community Health Mount Abu	14.	Sirohi Kothi
15.	Udaygarh Palace	16.	Kernaat Palace
17.	Kishangarh House	18.	Sunrise Palace (Bharatpur Kothi)
19.	Khendla House	20.	Sikar Kothi
21.	Chiruti House	22.	St. Xavier's Church
23.	St. Anns Church	24.	Sophia School (Khtari House)
25.	St. Mary High School	26.	St. Walter School
27.	Karna Rajputana Resort	28.	Shelmami daak Banglow
29.	Midest Daak Banglow	30.	Eagle Nest
31.	Palm view Banglow	32.	Jodhpur House
33.	Hill Sahil	34.	Hill View Bungalow
35.	Takhmawala Bungalow	36.	Akkhe Villas
37.	Lake House	38.	Polo Pavilion
39.	Purjan Niwas	40.	Ibbrahim Hall
41.	Sanand House	42.	East View Banglow
43.	Dell Banglow	44.	Kathiyawaadi Kothi
45.	Bohro Ki Masjid	46.	Jama Masjid, Mount Abu
47.	Lords Villa	48.	Jaislmer House
49.	State Jodpur Judiciary House	50.	P.W.D Post Banglow Delwara
51.	Shakti Banglow	52.	Mushkil Aasan (Mount Hotel)

### 2.9 Existing Legislation, Development Regulations & Heritage Management Policies

The primary agencies that are involved with conservation and management of the cultural resources in Rajasthan State, and are relevant in the Mt. Abu ESZ, are the following:

Table 15

Name of Agencies & Relevant Regulatory Framework in Raj. specific to Mt. Abu

No	Name of Agency & Relevant Regulatory Framework	Responsibilities & Reporting Structure	Heritage Management Policies & Relevance
1	Department of Archaeology & Museums Government of Rajasthan.		
	Rajasthan Monuments, Archaeological Sites and Antiquities Act (1961) (Amended 2007)	Act to provide for the preservation, protection, upkeep, maintenance, acquisition and regulation of, and control over, ancient and	No monuments or sites protected in Mt Abu. Historic site of Chandrawati (No.15) protected in the vicinity of Mt Abu. Karori Dhwaja, Gaumukh, etc. not protected. Government Museum, Mt Abu (IV-Local Museum No 18) under them.

No	Name of Agency & Relevant Regulatory Framework	Responsibilities & Reporting Structure	Heritage Management Policies & Relevance
2	Municipal Council, Mt Abu Draft Model Regulations for Conservation of Natural & Manmade Heritage Sites – Ministry of Environment & Forests, 1995  The Rajasthan Municipalities Act, 1959	Specifically mentioned in the ESZ notification for Mt Abu for regulation of all conservation and development activities of the heritage sites. Provision for buildings, artifacts, structures, areas and precincts of historic and/or aesthetic and/or architectural and/or cultural significance; and those natural features of environmental significance and/or of scenic beauty including sacred groves, hill, hillocks, waterbodies (and the areas adjoining the same), open areas, wooded areas	All heritage resources of the ESZ under its purview. Heritage Conservation Committee (HCC) intended as a specialist advisory body associated with the Monitoring Committee that reports to the MOUD under the Supreme Court order to guide approval and conservation procedures. Provide advice on supplementing of heritage list, scrutinize all heritage resource related proposals. Chapter XIII (178-iv) & (192), (194) specifically provide for projects and schemes for 'preservation of objects of historical or national interest or natural beauty and of buildings actually used for religious purposes' and for revitalization and redevelopment. Chapter XIX (353) provides for capacity building for technical functions & land records
No	Name of Agency & Relevant Regulatory Framework	Responsibilities & Reporting Structure	Heritage Management Policies & Relevance
3	Gram Panchayats Oriya (Includes Achalgarh, Gurushikhar & Jawa)	Maintenance of all cultural, educational and community assets.	Relevance for the conservation of common property resources such as the heritage water system of

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No	Name of Agency & Relevant Regulatory Framework	Responsibilities & Reporting Structure	Heritage Management Policies & Relevance
4	Central & State Public Works Department  The Central Public Works Department reports to the Ministry of Urban Development (GoI)	Responsible for the upkeep and maintenance of government owned historic buildings in Mt Abu including heritage resources of great significance such as the Old Lawrence School, Raj Bhawan (Old Residency) and the Sol Building ( Rajputana Agency Office) as well as many architecturally significant historic bungalows and other buildings located within the Municipal Area. Responsible for original drawings prepared by IPWD architects for government buildings in the Abu Municipal area.	interconnected tanks at Achalgarh as well as many other resources in the panchayat area.  Relevant for all the projects and schemes for conservation and heritage tourism in the ESZ area  Abu was the headquarters Rajputana Circle of the Imperial Public Works Department formed in 1863, and many of the buildings used by the CRPF and the ISA in the Civil Station Heritage Zone of Abu were also constructed by this agency between 1870-1920.
5	Mt Abu Cantonment Board	The Cantonment Board regulates development in the Cantonment Area, an area of -located to the North East of the Civil Station, within the Municipal Area, within which features such as the Cantonment low density bungalow layout with extensive gardens, heritage buildings associated with the Military Station, and components such as the Military Hospital are	Mt Abu Cantonment Board reports to the Ministry of Defence.  The Military Engineering Services is concerned with the upkeep and maintenance of historic buildings in this area.

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No	Name of Agency & Relevant Regulatory Framework	Responsibilities & Reporting Structure	Heritage Management Policies & Relevance
6	Religious Trusts & Endowments / Traditional Management Organisations/ Board / Church of North India etc.	The Mt Abu area includes numerous heritage sites, buildings and complexes that are managed and maintained by various religious trusts and organisations. These have been identified in the list of heritage resources.	Sites of global, national and state level significance such as the Dilwara Jain Temple & Rasiobalama Kanyakumari complexes; the Achalgarh Fort & Achaleshwar Temple complex identified in the list as of Grade I* & Grade I significance require protection & technical support for conservation in agreement with the trusts.
7	Archaeological Survey of India - Jaipur Circle  Ancient Monuments, Archaeological Sites and Remains Act, 1959 (Amended 2010)  Notification issued in 1997 under Rule 32 of the Ancient Monuments, Archaeological Sites and Remains Rules, 1959  The Archaeological Survey of India is the Central Government organization under the Union Ministry of Culture for Designation	The nodal officer of the ASI for the monuments of National Importance in Rajasthan is the Superintending Archaeologist, Jaipur Circle, under the Director (Monuments) & the Director (Conservation), and overall responsibility for all the monuments of National Importance is that of the Director General of the ASI, reporting to the Secretary, Culture (GoI).  The 1997 notification declares 'the areas upto 100 metres from the protected limits as	No sites have been notified in the Mt Abu ESZ, despite the well-recognized global level significance of the Dilwara Temple Complex. The ASI and its precursors had prepared the only measured drawing available of this complex in 1902; and H.H. Cole in 1881, as well as Dr Fuhrers progress report for 1893 had stated that it is 'desirable and possible to conserve these temples'.  The Dilwara Temple Complex, in agreement with the religious trust that is responsible for its management, could be designated as a national monument.  The ASI also coordinates with local governments to prohibit, restrict and regulate development in the areas

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No	Name of Relevant Framework	Agency & Regulatory	Responsibilities & Reporting Structure	Heritage Management Policies & Relevance
	& protection of ancient monuments, archaeological sites and remains of National significance, as well as the management of designated Heritage Sites.	World	prohibited and further beyond it upto 200 metres near or adjoining protected monuments as regulated for purposes of both mining operations and construction.'	(100 +200m buffer zones) demarcated around the protected area of each national monument, and after the Dilwara Temple Complex is protected, this provision could be utilized for regulation of the surrounding area designated as a buffer (prohibited and regulated area)

2.10 Existing Situation: Area, Heritage Resources & Priorities for Sustainable Conservation & Development

Table no. 16  
Municipal Area of Mount Abu

S. No.	Municipal Area of Mt. Abu (inc. Dilwara)	Development Pattern	Heritage Resources	Threats & Priorities
Identified precincts/ zones and streetscapes				
1	Nakki Lake N.E. Zone (Nakki Lake Watershed- No build Zone)	Area developed to the east and north of the Nakki Lake between 1870 & 1920. Very low density, sensitively sited, single-storied pitched roof, buildings within a scenic landscape characterized by rock formations and watercourses.	Grade I - 10 Grade II - 14 Grade III - 2 Public facilities such as the Adams Memorial Hospital, few, but very significant historic bungalows, religious structures watercourses, nature trails, & viewpoints	Despite having been designated as a 'No Build Zone', considerable large scale construction of facilities by the Brahmakumari sect on the sites of historic bungalows. Also construction of tourist huts by the State Govt. in an ecologically fragile area.
	Nakki Lake S.W. (Nakki Lake Watershed- No build Zone)	Area to the west and south of the Nakki Lake, largely developed between 1870 and 1920. Sparse, sensitively sited, Vakalat & Palace landmark buildings	Grade I - 2 Grade II - 6 Grade III - 5 Important pilgrim facilities such as the Dhuleshwar Mahadeo & Raghunathji Temples, some historic bungalows,	Area on the southern banks of the Nakki Lake subjected to tremendous tourism and related commercialization pressures requires specific conservation guidelines to be formulated to restrict uncontrolled, inappropriate construction.

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S. No.	Municipal Area of Mt Abu (inc. Dilwara)	Development Pattern	Heritage Resources	Threats & Priorities
2	Arbud Devi Zone (Nakki Lake Watershed- No build Zone & Forest Area)	Largely forested area, to the north of the Nakki Lake, contiguous with the Nakki Lake N.E. Zone to the west and the Dilwara Zone to the east. Almost no construction with the exception of a few prominent historic buildings (post 1920) located on the slopes, and the Arbud Devi Shakti Pith with the important geological formation of the Arbud Devi Pahar and some religious buildings.	Grade I*-2 Grade I-7 Grade II-5 Grade III-1 Important pilgrim destination such as the Arbud Devi cave temple and Shakti Pith, located within a forested scenic landscape, also sacred to the Bhils, pilgrim trails & watercourses; with some historic landmark buildings such as Limbdi House, & viewpoints, visual axes and viewsheds.	The main pilgrim route to the Arbud Devi temple via the Dudh Baori improved and widened, new buildings constructed within the temple complex. Guidelines required for conservation within this zone. Significant heritage buildings within this zone (Limbdi House and the uniquely sited Dawn Bungalow) are currently not in use and consequently deteriorating.
3	Dilwara (Pilgrim Destination & Heritage/Tourism)	Largely forested area contiguous with the Arbud Devi Zone to the west, mainly to the north of the Abu-Dilwara Road, defined on the northern side by a prominent ridge and flat grassland/ agricultural land	Grade I*-5 Grade I-3 Grade II-7 Grade III-1 Globally significant pilgrim destination of the Dilwara Jain Temple complex, the adjacent Rasio Balama/Kanyakumari Complex (6 <sup>th</sup> CE),	Continuing, large scale, inappropriate construction in the immediate vicinity of the Dilwara temple complex, with a detrimental impact on the condition and significance of the sacred complex. Also inappropriate development within the sacred complex itself, for provision of visitor facilities,

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S. No.	Municipal Area of Mt Abu (Inc.Dilwara)	Development Pattern	Heritage Resources	Threats & Priorities
4	Bazaar Zone	along the watercourse (tributary of the KhulGarh Nallah) on the west. Dilwara Temple Complex (11 <sup>th</sup> CE) and the adjacent Rasio Balama/Kanyakumari Complex (6 <sup>th</sup> CE) are important sacred complexes, and there is also a small village abadi.	numerous cave temples located within a forested scenic landscape, also sacred to the Bhils, pilgrim trails & watercourses; concentration of extremely significant built heritage, sacred groves & viewpoints, visual axes and viewsheds.	that unfortunately obscures the significant buildings and sacred grove. No provision of a Buffer Zone – Requires formulation of regulations and guidelines for delineated core and buffer areas.
5	Civil Station – Bungalow Zone	Compact, relatively small and densely built –up area occupied by the historic bazaar street dates to the early 19 <sup>th</sup> century and the initial establishment of the Mt Abu Civil Station. Extent, alignment and footprint of buildings similar to that indicated in the 1870 Map. One of the streets radiating out from the old ‘church square’, to the south of the main ridge road Located within the core of Mt Abu Municipal area.	Grade I - Grade II - 7 Grade III Retains some significant examples of mixed use typologies such as Shop-houses with projected first floors constructed according to a definite module, as well as an unusual Bohra prayer hall, which imparts an interesting character to the streetscape. Most of historic buildings along the narrow bazaar street have been periodically reconstructed.	Recent construction is not sympathetic to the scale and character of the bazaar street. Context specific regulations required for reconstruction within the framework of a collaborative project for historic ‘Bazaar street revitalization and regeneration’ as a Galleria or covered market street with the heritage structures restored and conserved, and upgraded infrastructure.
		Low density development of	Grade I - 20 Grade II - 42	Largely retains its historic character, through

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S. No.	Municipal Area of Mt Abu (inc.Dilwara)	Development Pattern	Heritage Resources	Threats & Priorities
6	Military Station /Cantt Zone	‘bungalow-compound complexes’, significant landmark buildings such as the Raj Bhavan & Agency Office buildings, as well as important facilities of the Hill Resort such as the Polo ground, library, school, club, church, hotel, sports facilities, picturesquely dispersed within an undulating scenic landscape, with distinctive ridges as sites of landmark buildings, watercourses and rock formations as significant features of the cultural landscape.	Grade III – 7 + 4 Large number of significant historic bungalows with compounds and ancillary buildings, some from the pre 1870 period, and the majority from between 1870 and 1920. This zone, in terms of its landscape structure, development pattern and large number of historic buildings exemplifies a distinctive type of heritage hill station that evolved in the central part of India, and is of great significance.	considerable, inappropriate, transformations have taken place in many of the historic building complexes. In many cases, the original building is completely surrounded or overshadowed by subsequent additions and extensions that are out of scale and inappropriate in terms of architectural features and materials. Detailed conservation and development guidelines required.
		Located to the north east of the Civil Station, the Military Station was relocated on the higher ground in this area from an earlier site in the proximity of the Nakki Lake that was considered unhealthy and abandoned. The development pattern in this area is	Grade I - 6 Grade II - 4 Grade III – 1 +13 Large number of imposing institutional - hospital buildings, of well constructed masonry, with pitched roofs and large landscaped compounds; historic barracks, officers bungalows, and other specialized buildings of	Largely retains its historic character, though some modern facilities have replaced old bungalows, leaving only the landscaped compound. All listed buildings and their associated compounds should be protected, restored and reused. Guidelines required for any additions, infrastructure upgradation and alterations, as well as new development

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S. No. of Mt Abu (inc. Dilwara)	Municipal Area	Development Pattern	Heritage Resources	Threats & Priorities
7	Approach Environs	<p>low density, with the character of a small, picturesque cantonment in the hills, including bungalow compounds, barracks for convalescing soldiers, and imposing institutional landmark buildings sited on high points in the landscape.</p>	<p>the 19<sup>th</sup> century (1844-1920's) are located in this zone. In terms of the development pattern, landscape structure, and large number of historic buildings, this zone is typical of a distinctive military station intended for recuperating soldiers.</p>	<p>in the vicinity of historic buildings. Landscape features, historic vegetation to be listed.</p> <p>Threatened and obscured by uncontrolled 'ribbon development' along the access road. Landscaped, buffer plantation areas to be delineated along the access road and associated watercourse.</p> <p>Individual, large palatial buildings and bungalow-compound complexes are to be listed and require regulations for conservation and development.</p>

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Table no. 17  
Eco Sensitive Area

S. No.	Eco-Sensitive Area	Development Pattern	Heritage Resources	Threats & Priorities
1	Achalgarh & Kshetra Abadi	Identified precincts and streetscapes		
		Pilgrim destination with a unique concentration of a diversity of heritage components - 6 <sup>th</sup> century temple complex of Achaleshwar Mahadeo situated at the base of the hill on which the 15 <sup>th</sup> century fortified settlement of Achalgarh, (planned by Rana Kumbha's architect Mandan) is located. Two distinct historic village abadi areas with a heritage character within the fortified area. Important Jain religious complex - the 14 <sup>th</sup> cent. Chaumukha Shrine and sakti pitha of Chamunda Devi located on the hill. Important water system, baolis, gardens, groves and cave hermitages characterize this area. One of the chain of three forts constructed by Rana Kumbha to guard the route between Malwa, Gujarat and Mewar, as well as mythologically significant due to its association of a landscape feature (fissure and rock formation) with Achaleshwar Mahadeo	Grade I - 25 Grade II - 7 Grade III - 4 + 4 Heritage components include the large historic temple complex, garden and baoli of Achaleshwar Mahadeo; rockcut caves and architecturally significant palace/hermitages, traditional water harvesting system of interconnected water reservoirs believed to have been made by the architect Mandan in the 15 <sup>th</sup> century for Rana Kumbha, and which ensured that this area was self sustaining in the past. The historic village abadi area within the fortification has been abandoned, houses relocated outside. A unique double-storeyed rock cut cave hermitage at the top of the hill has unusual mural paintings and calligraphy characteristic of the 16 <sup>th</sup> century.	Chaotic entrance chowk plaza of the heritage area, with heritage components overwhelmed and obscured due to ad-hoc, unplanned parking and sheds for shops and tourist facilities - requires re-organisation, planned relocation of shops and facilities and appropriate landscaping. Large historic abadi areas derelict and uninhabited - potential for reuse for a village based cooperative rural eco-tourism facility. Highly significant, unused hermitage/ palaces-potential for adaptive reuse for village tourism/community facilities. Valuable 15 <sup>th</sup> century system of interconnected water reservoirs silted up and in poor condition. Requires revitalization and protection.

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2	Oriya Village	One of the historic villages, sited on the Oriya plateau, that emerged in the 14 <sup>th</sup> century.	Grade I - 1 Grade II - 3 Grade III - +2	This has been greatly transformed, and some farmhouses/ secondary residences have been constructed using inappropriate materials and architectural features.
3	Jawai Village	One of the historic villages, sited between Oriya & Gurushikhar that emerged in the 14 <sup>th</sup> century. Jawai is a small, picturesque hamlet with beautiful terraced fields nestled between rock outcrops with a number of watercourses and ponds.	The entire village could be characterized as a heritage village, on the slopes of the hills. There is a tank known as Naugera Talao to its east and the Gauria Mata temple on the way to Gurushikhar.	Sustainable rural development initiatives required to ensure infrastructure upgradation and provision of facilities in keeping with the heritage character of the village.
4	Gurushikhar	The highest point of the Aravallis, this peak is also associated with important religious places located on it.	Grade I - 5 Grade II - 1 Grade III	Provision of tourist infrastructure and facilities required in a planned manner – heritage management plan required.

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1 Forest Maps/Boundaries/ Green areas

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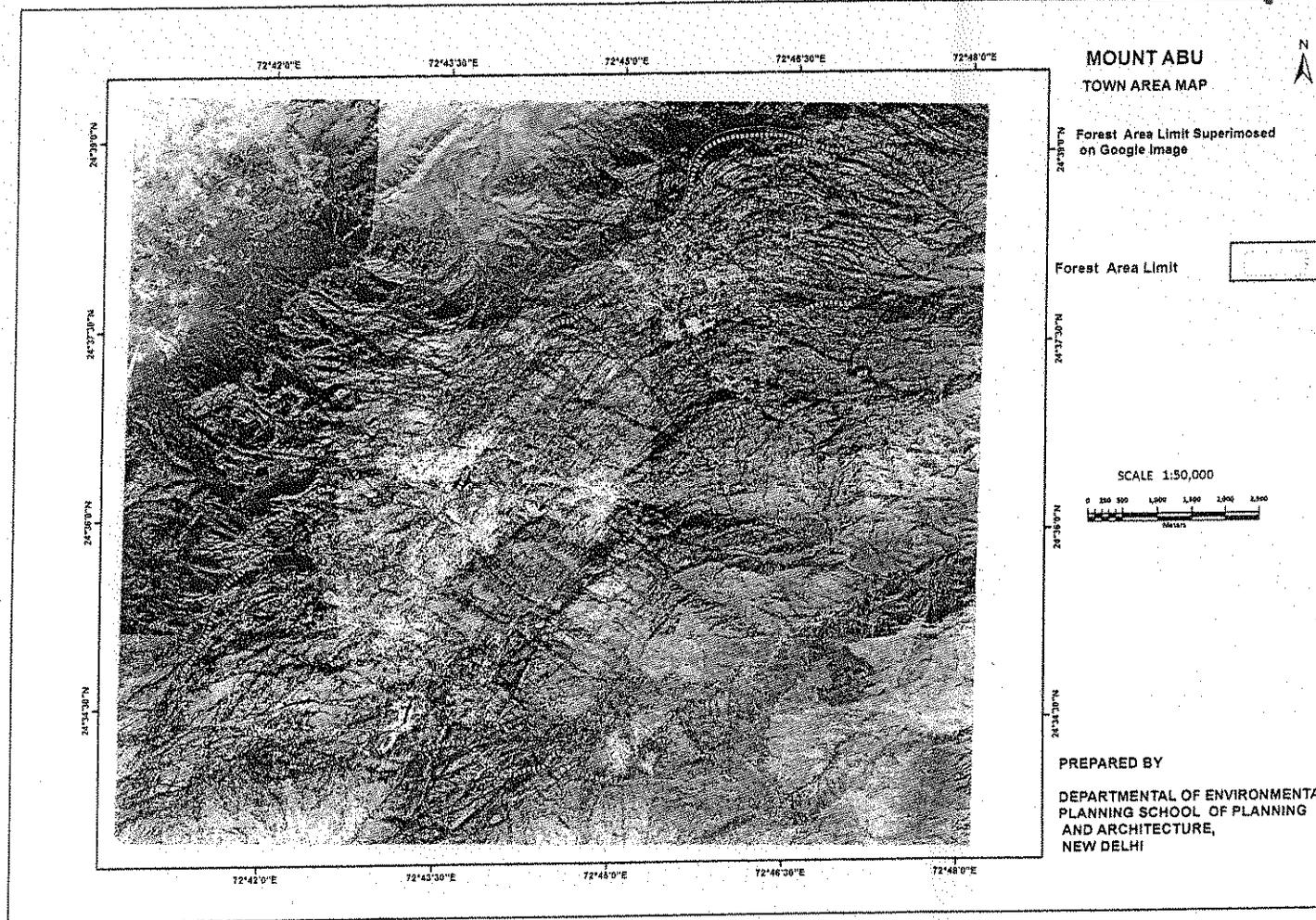


Figure no. 21: Mt. Abu Town Area Map – Forest Area limit superimposed on Google map

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Table: 18

INVENTORY OF FLORAL DIVERSITY

Based on Actual Sighting; based on inputs from locals and Perused from Secondary Data

Habit: Tree (T), Shrub (S), Herb (H), Grass (G), Climber (C)

S. No.	Scientific name	Local name	Family	Core Zone	Buffer Zone
<b>Trees</b>					
1.	<i>Acacia catechu</i>	Khair	Fabaceae	-	+
2.	<i>Acacia nilotica</i>	Babool	Leguminosae	+	+
3.	<i>Acacia senegal</i>	Kunta	Mimosaceae	-	+
4.	<i>Acacia arabica</i>	Gum arabic	Leguminosae	-	+
5.	<i>Adina cordifolia</i>	Haldu	Rubiaceae	-	+
6.	<i>Aegle marmelos</i>	Bel	Rutaceae	-	+
7.	<i>Ailanthus excelsa</i>	Aldu	Simaroubaceae	-	+
8.	<i>Albizia amara</i>	Krishna siris	Fabaceae	-	+
9.	<i>Albizia lebeck</i>	Siris	Fabaceae	-	+
10.	<i>Albizia odoratissima</i>	Black Siris	Fabaceae	-	+
11.	<i>Albizia procera</i>	White Siris	Fabaceae	-	+
12.	<i>Alstonia scholaris</i>	Saptaparni	Apocynaceae	-	+
13.	<i>Anogeissus latifolia</i>	White Dhaura	Combretaceae	-	+
14.	<i>Anogeissus pendula</i>	Black Dhaura	Combretaceae	-	+
15.	<i>Anthocephalus cadamba</i>	Kadamb	Rubiaceae	-	+
16.	<i>Azadirachta indica</i>	Neem	Meliaceae	+	+
17.	<i>Balanites aegyptiaca</i>	Hingot	Zygophyllaceae	-	+
18.	<i>Bauhinia malabarica</i>	Amil	Fabaceae	-	+
19.	<i>Bauhinia racemosa</i>	Kachnar	Fabaceae	-	+
20.	<i>Bombax ceiba</i>	Kapok	Malvaceae	-	+
21.	<i>Boswellia serrata</i>	Salar	Bursaraceae	-	+
22.	<i>Butea monosperma</i>	Palash	Fabaceae	+	+
23.	<i>Buchanania lanzan</i>	Achar	Anacardiaceae	-	+
24.	<i>Callistemon lanceolatus</i>	Bottle brush	Myrtaceae	-	+
25.	<i>Careya arborea</i>	Kumbhi/ Wild Guava	Lecythidaceae	-	+
26.	<i>Cassia fistula</i>	Amaltas	Fabaceae	-	+
27.	<i>Cassia siamea</i>	Kasood	Fabaceae	-	+
28.	<i>Casuarina equisetifolia</i>	Pine tree	Casurinaceae	-	+
29.	<i>Cocos nucifera</i>	Coconut	Arecaceae	-	+
30.	<i>Cordia dichotoma</i>	Gonda	Boraginaceae	-	+
31.	<i>Dalbergia latifolia</i>	Kala Shisham	Fabaceae	-	+
32.	<i>Dalbergia sissoo</i>	Shisham	Fabaceae	+	+
33.	<i>Delonix regia</i>	Gulmohar	Fabaceae	+	+
34.	<i>Dichrostachys cinerea</i>	Khairi	Mimosaceae	-	+
35.	<i>Diospyros melanoxylon</i>	Tendu	Ebenaceae	-	+
36.	<i>Embliba officinalis</i>	Arnla	Phyllanthaceae	-	+
37.	<i>Eucalyptus globulus</i>	Safeda	Myrtaceae	-	+
38.	<i>Ficus benghalensis</i>	Bad	Moraceae	-	+
39.	<i>Ficus carica</i>	Common fig/ Anjeer	Moraceae	-	+
40.	<i>Ficus glomerata</i>	Gular	Moraceae	-	+
41.	<i>Ficus hispida</i>	Hairy fig	Moraceae	-	+

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S. No.	Scientific name	Local name	Family	Core Zone	Buffer Zone
42.	<i>Ficus racemosa</i>	Gular	Moraceae	-	+
43.	<i>Ficus religiosa</i>	Peepal	Moraceae	-	+
44.	<i>Gmelina arborea</i>	Sewan	Verbenaceae	-	+
45.	<i>hardwickia binata</i>	Anjan	Fabaceae	-	+
46.	<i>Lagerstroemia indica</i>	Saona	Lythraceae	-	+
47.	<i>Lamnea coromandelica</i>	Mohin	Anacardiaceae	-	+
48.	<i>Madhuca indica</i>	Mahua	Sapotaceae	-	+
49.	<i>Mangifera indica</i>	Mango	Anacardiaceae	+	+
50.	<i>Mimusops elengi</i>	Maulsiri	Sapotaceae	-	+
51.	<i>Moringa oleifera</i>	Serjana	Moringaceae	-	+
52.	<i>Murraya koenigii</i>	Kari patta	Rutaceae	-	+
53.	<i>Peltophorum pterocarpum</i>	Yellow Gulmohar	Fabaceae	-	+
54.	<i>Phoenix sylvestris</i>	Khajur	Arecaceae	+	+
55.	<i>Pithecellobium dulce</i>	Jungle jalebi	Fabaceae	-	+
56.	<i>Polyalthia longifolia</i>	Ashok	Annonaceae	-	+
57.	<i>Pongamia pinnata</i>	Karani	Fabaceae	-	+
58.	<i>Prosopis cineraria</i>	Kheiri	Fabaceae	+	+
59.	<i>Prunus amygdalus</i>	Badam	Rosaceae	-	+
60.	<i>Pterocarpus marsupium</i>	Bija	Fabaceae	-	+
61.	<i>Salvadora oleoides</i>	Bada Peelu	Salvadoraceae	-	+
62.	<i>Sapindus emarginatus</i>	Artha	Sapindaceae	-	+
63.	<i>Saraca indica</i>	Sita ashok	Fabaceae	-	+
64.	<i>Syzygium cumini</i>	Jamun	Myrtaceae	+	+
65.	<i>Tamarindus indica</i>	Imli	Fabaceae	+	+
66.	<i>Tecomella undulata</i>	Rohida	Bignoniaceae	-	+
67.	<i>Tectona grandis</i>	Sagwan	Lamiaceae	-	+
68.	<i>Terminalia arjuna</i>	Arjun	Combretaceae	-	+
69.	<i>Terminalia bellirica</i>	Bahera	Combretaceae	-	+
70.	<i>Thespesia populnea</i>	Paras Peepal	Malvaceae	-	+
71.	<i>Terminalia tomentosa</i>	Sala	Combretaceae	-	+
72.	<i>Wrightia tinctoria</i>	Kapar	Apocynaceae	-	+
<b>Shrubs</b>					
73.	<i>Achras zapota</i>	Chiku	Sapotaceae	-	+
74.	<i>Adhatoda vasica</i>	Ardusa	Acanthaceae	-	+
75.	<i>Agave americana</i>	Ram bans	Asparagaceae	-	+
76.	<i>Bougainvillea glabra</i>	Bougainvillea	Nyctaginaceae	+	+
77.	<i>Annona squamosa</i>	Staphal	Annonaceae	-	+
78.	<i>Calotropis gigantea</i>	Safed Aak	Apocynaceae	-	+
79.	<i>Calotropis procera</i>	Aak	Apocynaceae	-	+
80.	<i>Capparis decidua</i>	Ker	Capparaceae	-	+
81.	<i>Carissa carandus</i>	Karonda	Apocynaceae	-	+
82.	<i>Cestrum nocturnum</i>	Night Jasmine	Solanaceae	-	+
83.	<i>Datura metal</i>	Dhatura	Solanaceae	-	+
84.	<i>Datura stramonium</i>	Dhatura	Solanaceae	-	+
85.	<i>Euphorbia nerifolia</i>	Thor	Euphorbiaceae	-	+
86.	<i>Hibiscus rosa sinensis</i>	Gudhal	Malvaceae	+	+

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S. No.	Scientific name	Local name	Family	Core Zone	Buffer Zone
87.	<i>Holarrhena antidysenterica</i>	Indrajao	Apocynaceae	-	+
88.	<i>Ipomea carnea</i>	Besharam	Convolvulaceae	-	+
89.	<i>Jatropha curcas</i>	Ratanjot	Euphorbiaceae	-	+
90.	<i>Lantana camara</i>	Raimunia	Verbenaceae	-	+
91.	<i>Lawsonia inermis</i>	Heena	Lythraceae	-	+
92.	<i>Nerium indicum</i>	Red Kamer	Apocynaceae	+	+
93.	<i>Opuntia ficus indica</i>	Naagphani	Cactaceae	-	+
94.	<i>Phoenix acaulis</i>	Date palm	Arecaceae	-	+
95.	<i>Platycladus orientalis</i>	Morpankhi	Cupressaceae	+	+
96.	<i>Prosopis juliflora</i>	Vilayati babool	Fabaceae	-	+
97.	<i>Psidium guajava</i>	Amrud	Myrtaceae	-	+
98.	<i>Ricinus communis</i>	Castor	Euphorbiaceae	-	+
99.	<i>Vitex negundo</i>	Negad (Tarvan)	Verbenaceae	-	+
100.	<i>Withania somnifera</i>	Ashwagandha	Solanaceae	-	+
101.	<i>Woodfordia fruticosa</i>	Dhawai	Lythaceae	-	+
102.	<i>Ziziphus mauritiana</i>	Mota Ber	Rhamnaceae	+	+
103.	<i>Ziziphus nummularia</i>	Chota Ber	Rhamnaceae	+	+
104.	<i>Ziziphus xylopyrus</i>	Jungli Ber	Rhamnaceae	-	+
<b>Herbs</b>					
105.	<i>Argemone mexicana</i>	Pili kater/ Satyanashi	Papaveraceae	-	+
106.	<i>Asparagus racemosus</i>	Shatawari	Asparagaceae	-	+
107.	<i>Cassia tora</i>	Pomaria (Takla)	Leguminosae	-	+
108.	<i>Crossandra infundibuliformis</i>	Priyadarsha	Acanthaceae	-	+
109.	<i>Curcuma aromatica</i>	Wild haldi	Zingiberaceae	-	+
110.	<i>Centella asiatica</i>	Brahmi	Apiaceae	-	+
111.	<i>Hygrophila serpyllum</i>	Sarpat	Acanthaceae	-	+
112.	<i>Indigofera tinctoria</i>	Bekari	Fabaceae	-	+
113.	<i>Leea indica</i>	Kukur jilwa	Vitaceae	-	+
114.	<i>Leptadenia reticulata</i>	Dori, Jhumka	Asclepiadaceae	-	+
115.	<i>Leucas aspera</i>	Chota halkusa	Lamiaceae	-	+
116.	<i>Musa paradisiaca</i>	Banana	Musaceae	-	+
117.	<i>Senecio grahamii</i>	Sonki	Asteraceae	-	+
118.	<i>Solanum surattense</i>	Bhurangani	Solanaceae	-	+
119.	<i>Tephrosia purpurea</i>	Sarphonk	Fabaceae	-	+
120.	<i>Tridax procumbens</i>	Khal-muriya	Asteraceae	-	+
121.	<i>Xanthium strumarium</i>	Adhashishi	Asteraceae	-	+
<b>Climbers</b>					
122.	<i>Butea superba</i>	Palasbel	Fabaceae	-	+
123.	<i>Cuscuta reflexa</i>	Amarbel	Convolvulaceae	-	+
124.	<i>Spatholobus roxburghii</i>	Bandoo lata	Fabaceae	-	+
125.	<i>Tinospora cordifolia</i>	Neem giloy	Menispermaceae	-	+
126.	<i>Vallisneria spiralis</i>	Dudhi bel	Apocynaceae	-	+
127.	<i>Cissus repanda</i>	Pani bel/ Dekarbela	Vitaceae	-	+
<b>Grasses</b>					
128.	<i>Apluda mutica</i>	Bhangti	Poaceae	+	+

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S. No.	Scientific name	Local name	Family	Core Zone	Buffer Zone
129.	<i>Cenchrus ciliaris</i>	Anjan	Poaceae	-	+
130.	<i>Chrysopogon fulvus</i>	Goria	Poaceae	-	+
131.	<i>Gynodon dactylon</i>	Dooob ghas	Poaceae	-	+
132.	<i>Dendrocalamus strictus</i>	Bamboo	Poaceae	+	+
133.	<i>Dichanthium annulatum</i>	Karad	Poaceae	-	+
134.	<i>Eragrostis nigra</i>	Chiri bajara	Poaceae	-	+
135.	<i>Heteropogon contortus</i>	Soorwala	Poaceae	-	+
136.	<i>Parthenium hysterophorus</i>	Congress grass	Asteraceae	-	+
137.	<i>Saccharum arundinaceum</i>	Hardy Sugar Cane	Poaceae	-	+
138.	<i>Saccharum munja</i>	Munj	Poaceae	-	+
139.	<i>Saccharum spontaneum</i>	Kans grass	Poaceae	-	+
140.	<i>Setima nervosum</i>	Sien	Poaceae	-	+
141.	<i>Sorghum halepense</i>	Baru	Poaceae	-	+
142.	<i>Themeda quadrivalvis</i>	Rataida	Poaceae	-	+
<b>Hydrophytes</b>					
143.	<i>Eichhornia crassipes</i>	Belapani	Potendriaceae	-	+
144.	<i>Hydrilla verticillata</i>	Jhangli Kureli	Hydrocharitaceae	-	+
145.	<i>Nelumbo nucifera</i>	Lotus	Nelumbonaceae	-	+
146.	<i>Nymphaea alba</i>	Water lily	Nymphaeaceae	-	+
147.	<i>Pistia stratiotes</i>	Jal kumbhi	Araceae	-	+
148.	<i>Trapa nactans</i>	Singhada	Lythraceae	-	+
149.	<i>Typha angustata</i>	Elephant grass	Typhaceae	-	+

(+) Shows: Presence of the species and (-) Shows: Absence of the species  
Status of RET Species

According to Botanical Survey of India, No endemic, Rare, Endangered and Threatened (RET) species of flora were found in the study area.

**RARE & ENDEMIC SPECIES**

*Dicliptera abuensis*, *Cordia colloseys*, *Ischaemum kingie*,  
*Convolvulvesblateri ceropergia*, etc.

**RED DATA SHEET IUCN**

*Anogeisus sericea*, *Begonia trilocarpa*, *Crotolaria filipe*, *Indigofera constricta*

**MEDICINAL PLANTS**

*Markanganis akalkara*, *Salammisri*, *Safed Musli* etc.

**PREDOMINANT SPECIES**

*Anogeisus pendula*, *Anogeisus Latifolia*, *Anogeris sericea*,  
*Bosivelia serrata*, *Lannea Coromondelica*, *Butia monosperma*,  
Bamboo etc.

**INVASIVE SPECIES**

*Lantana camera*, *Parthenium hysterophorous*, *Prosopis juliflora*

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**INVENTORY OF FAUNAL DIVERSITY of Wild Life Sanctuary**

The State Government vide notification dated 7.4.1960 declared the Mt. Abu area as "Reserved Area" under Section 5 of the Rajasthan Wild Animal and Birds (Protection) Act, 1951 and which is a deemed sanctuary under Section 56 of the Wild Life (Protection) Act, 1972. The notification includes areas of Nakki Lake and Mt. Abu town. The State Government has now, in supersession of the Notification dated 7.4.1960, issued a Notification dated 15.4.2008 pertaining to the Mt. Abu Wildlife Sanctuary. In the revised Notification the area of the sanctuary is shown to be about 326 sq. kms.

Table 19  
Inventory Of Faunal Diversity Of Wild Life Sanctuary

SPECIES NAME AND CODE	HABIT CHARACTERISTIC	FOOD HABITS	OTHER CHARACTERISTICS	THREATS	STATUS
Pangolin	<ul style="list-style-type: none"> <li>Tropical forests, mixed deciduous forests.</li> <li>Open land, scrub, grasslands</li> <li>In close proximity to villages</li> <li>Urban Cultivation</li> </ul>	<ul style="list-style-type: none"> <li>Termites and ants are the primary food source</li> </ul>	<ul style="list-style-type: none"> <li>Adapts wells to modified habitats.</li> <li>Has a medicinal value</li> </ul>	<ul style="list-style-type: none"> <li>Poaching</li> </ul>	I.U.C.N. Near Threatened
Chinkara	<ul style="list-style-type: none"> <li>Inhabits and areas including sand desert and dry scrub</li> <li>Flat plains</li> <li>Hills and light forest</li> </ul>	<ul style="list-style-type: none"> <li>Can go without water for long periods and can get sufficient fluids from plants and dew.</li> <li>Grain, Fruit, Vegetation</li> </ul>	<ul style="list-style-type: none"> <li>Avoid human habitation</li> </ul>	<ul style="list-style-type: none"> <li>Poaching</li> </ul>	I.U.C.N. Least Concern (lower risk) W.P.A Schedule I
Langur	<ul style="list-style-type: none"> <li>Ranges from 100 to 1,700 in tropical rainforest, moist and dry deciduous forest.</li> <li>Near Human Habitats</li> <li>Sacred graves and open scrub</li> </ul>	<ul style="list-style-type: none"> <li>Feeds on leaves, Fruits, buds and flowers</li> </ul>	<ul style="list-style-type: none"> <li>Well adapted to cultivated areas</li> <li>Arboreal semi-terrestrial</li> <li>Group size varies from 15 to 150</li> </ul>	<ul style="list-style-type: none"> <li>Habitat Loss</li> <li>Urban Mitigation</li> </ul>	I.U.C.N. Least Concern (lower risk) W.P.A Schedule II
Sambar	<ul style="list-style-type: none"> <li>Thorn and arid forests</li> </ul>	<ul style="list-style-type: none"> <li>Feeds on 130 to 180</li> </ul>	<ul style="list-style-type: none"> <li>Highly tolerant of forest</li> </ul>	<ul style="list-style-type: none"> <li>Habitat Loss</li> </ul>	I.U.C.N. Vulnerable

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SPECIES NAME AND CODE	HABIT CHARACTERISTIC	FOOD HABITS	OTHER CHARACTERISTICS	THREATS	STATUS
	<ul style="list-style-type: none"> <li>Deciduous forests</li> <li>grassland scrub</li> <li>Evergreen forest</li> <li>Undulating terrain</li> </ul>	<ul style="list-style-type: none"> <li>species of plants</li> <li>Fruits</li> </ul>	<ul style="list-style-type: none"> <li>degradation</li> <li>Highly sensitive to any sort of forest resource extractive activities</li> </ul>	<ul style="list-style-type: none"> <li>Poaching</li> </ul>	W.P.A Schedule III
Blue Bull	<ul style="list-style-type: none"> <li>Avoids dense forest and desert</li> <li>Dry Deciduous forests</li> <li>Agricultural Areas</li> <li>Arid areas and scrubland</li> </ul>	<ul style="list-style-type: none"> <li>Eats grasses, grain leaves, buds and fruit</li> </ul>	<ul style="list-style-type: none"> <li>A crop menace causing large-scale damages</li> <li>Live close to waterholes</li> </ul>	<ul style="list-style-type: none"> <li>Poaching</li> </ul>	I.U.C.N. Least Concern  W.P.A. Schedule III
Mongoose	<ul style="list-style-type: none"> <li>Dry and thorn forests</li> <li>Open Scrub</li> <li>Near to the human settlements</li> <li>Cultivated land</li> <li>Rocky patches</li> <li>Forest Edges</li> </ul>	<ul style="list-style-type: none"> <li>Feeds on insects, snakes, small mammals, Birds, Reptiles, Fruits</li> </ul>	<ul style="list-style-type: none"> <li>Most Common in disturbed areas near garbage dumps</li> <li>Commensal with humans</li> </ul>		I.U.C.N. Least Concern (lower risk)  W.P.A. Schedule IV
Hare	<ul style="list-style-type: none"> <li>Short grasslands</li> <li>Barren agricultural fields and crop fields</li> <li>Forest Roads</li> <li>Open Scrub</li> </ul>	<ul style="list-style-type: none"> <li>Forbs and grasses constitute the bulk</li> </ul>		<ul style="list-style-type: none"> <li>Habitat Loss</li> <li>Poaching</li> </ul>	I.U.C.N. Least Concern (lower risk)  W.P.A. Schedule IV
Porcupine	<ul style="list-style-type: none"> <li>Tropical, temperate, shrubland</li> <li>Rocky hillsides</li> <li>Crossland and forests</li> <li>Plantations and gardens</li> </ul>	<ul style="list-style-type: none"> <li>Feeds on plants, shrubs and leaves</li> <li>Gnaw on animal's bones for salt</li> <li>Roots, Fruits, gain</li> </ul>	<ul style="list-style-type: none"> <li>A board habitat tolerance</li> </ul>	<ul style="list-style-type: none"> <li>Poaching</li> </ul>	I.U.C.N. Least Concern (lower risk)  W.P.A. Schedule IV
Crocodile	<ul style="list-style-type: none"> <li>Freshwater habitats</li> <li>Rivers, lakes and</li> </ul>	<ul style="list-style-type: none"> <li>Feeds on fish reptiles</li> </ul>	<ul style="list-style-type: none"> <li>Terrestrial as well as</li> </ul>		I.U.C.N. Not Listed

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SPECIES NAME AND CODE	HABIT CHARACTERISTIC	FOOD HABITS	OTHER CHARACTERISTICS	THREATS	STATUS
Monitor Lizard	wetlands	<ul style="list-style-type: none"> <li>• Feeds on small mammals, amphibians</li> </ul>	<ul style="list-style-type: none"> <li>• Can also inhabit agricultural areas</li> <li>• Terrestrial as well as freshwater</li> </ul>		W.P.A. Schedule I
					<ul style="list-style-type: none"> <li>• Desert areas to floodplains</li> <li>• Scrubland to forests</li> <li>• Moderate elevations</li> </ul>
Python	<ul style="list-style-type: none"> <li>• Inhabits dry areas, from grassland to open forests</li> <li>• Agricultural land</li> </ul>	<ul style="list-style-type: none"> <li>• Feeds on rodents, amphibians</li> </ul>	<ul style="list-style-type: none"> <li>• Terrestrial as well as freshwater</li> </ul>		<ul style="list-style-type: none"> <li>• Least Concern (Lower Risk)</li> </ul>
Leopard / Panther	<ul style="list-style-type: none"> <li>• Deciduous and evergreen forests</li> <li>• Near Habitation</li> <li>• Dry scrubland and grasslands</li> <li>• Rugged hills and deep valleys</li> </ul>	<ul style="list-style-type: none"> <li>• Feeds on a greater diversity of prey-monkey, reptiles, amphibians, birds, Cattle, Dogs</li> </ul>	<ul style="list-style-type: none"> <li>• Territory varies between 30 and 78 km<sup>2</sup></li> </ul>	<ul style="list-style-type: none"> <li>• Habitat Loss</li> <li>• Poaching</li> <li>• Human animal conflict</li> <li>• Decline in prey species</li> </ul>	W.P.A. Schedule I
					<ul style="list-style-type: none"> <li>• Feeds on moose, deer, wild boar, caribou, elk (mammals) birds</li> <li>• Also eats smaller prey, livestock, carrion and garbage</li> </ul>
Wolf	<ul style="list-style-type: none"> <li>• Habitats where there is suitable food, densities being highest where prey biomass is highest</li> <li>• Dry open Country</li> <li>• Desert and barren uplands</li> </ul>	<ul style="list-style-type: none"> <li>• Feeds on moose, deer, wild boar, caribou, elk (mammals) birds</li> <li>• Also eats smaller prey, livestock, carrion and garbage</li> </ul>			W.P.A. Schedule I
Jungle Cat	<ul style="list-style-type: none"> <li>• Habitats with water and dense vegetable cover</li> </ul>	<ul style="list-style-type: none"> <li>• Feeds on small animals,</li> </ul>	<ul style="list-style-type: none"> <li>• Inhabits carves that can extend over a distance</li> </ul>	<ul style="list-style-type: none"> <li>• Poaching</li> </ul>	I.U.C.N. Near Threatened

MAMMALS (HERBIVORES)

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SPECIES NAME AND CODE	HABIT CHARACTERISTIC	FOOD HABITS	OTHER CHARACTERISTICS	THREATS	STATUS
	<ul style="list-style-type: none"> <li>• Reed swamps, marsh</li> <li>• Along riverbeds in grasslands and deciduous forests</li> <li>• Near Villages</li> </ul>	<ul style="list-style-type: none"> <li>• Insects, fruits and dates</li> <li>• Regularly scavenge carrion and remains of another animals kill</li> </ul>	<ul style="list-style-type: none"> <li>• of 4 to 5 m.</li> </ul>		W.P.A Schedule II
Hyena	<ul style="list-style-type: none"> <li>• Dense thickets and scrub forests</li> <li>• Woodlands and grasslands</li> <li>• Rocky terrain</li> <li>• Near human habitation</li> </ul>	<ul style="list-style-type: none"> <li>• Feeds on small animals, insects, fruits and dates</li> <li>• Regularly scavenge carrion and remains of another animals kill</li> </ul>	<ul style="list-style-type: none"> <li>• Inhabits caves that can extend over a distance of 4 to 5 km.</li> </ul>	<ul style="list-style-type: none"> <li>• Poaching</li> </ul>	I.U.C.N. Near Threatened W.P.A. Schedule III
Sloth Bear	<ul style="list-style-type: none"> <li>• Wet or dry tropical and deciduous forests</li> <li>• Scrublands and grasslands</li> <li>• Rugged hills and deep valleys</li> </ul>	<ul style="list-style-type: none"> <li>• Subsid primarily on termites, ants and fruits</li> <li>• Rarely prey on mammals</li> <li>• Fruits, Honey</li> <li>• Vegetation</li> </ul>	<ul style="list-style-type: none"> <li>• Avoid areas where human disturbance is high</li> </ul>	<ul style="list-style-type: none"> <li>• Habitat Loss</li> <li>• Poaching</li> </ul>	I.U.C.N. Vulnerable W.P.A. Schedule I
Ratel	<ul style="list-style-type: none"> <li>• A wide variety of habitat types-</li> <li>• Montane Forests</li> <li>• Arid grasslands and semi-deserts</li> <li>• Moist Savannas</li> </ul>	<ul style="list-style-type: none"> <li>• Feeds on fish, birds, reptiles</li> <li>• Particularly snakes.</li> <li>• Invertebrates and insects</li> </ul>	<ul style="list-style-type: none"> <li>• Adapted to survive in both wet and dry habitats</li> <li>• Range over areas upto 500 km<sup>2</sup></li> </ul>		I.U.C.N. Vulnerable W.P.A. Schedule I W.P.A. Schedule III

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SPECIES NAME AND CODE	HABIT CHARACTERISTIC	FOOD HABITS	OTHER CHARACTERISTICS	THREATS	STATUS
Palm Civet	<ul style="list-style-type: none"> <li>Evergreen and deciduous forest</li> <li>Agricultural areas</li> <li>Around human habitations</li> </ul>	<ul style="list-style-type: none"> <li>Food of honey</li> <li>Feeds on fruits like mango, chiku</li> <li>Feeds on mice, inserts small vertebrates and rodents</li> </ul>		<ul style="list-style-type: none"> <li>Poaching</li> </ul>	I.U.C.N. Least Concern (Lower Risk) W.P.A. Schedule III
Jackal	<ul style="list-style-type: none"> <li>A wide variety of habitat types- Forests and mangroves</li> <li>Agricultural areas</li> <li>Rural and Semi urban habitats</li> </ul>	<ul style="list-style-type: none"> <li>Feeds on birds, reptiles, amphibians and small mammals</li> <li>Also intake fruits and other wastes</li> <li>Carrion, insects</li> </ul>	<ul style="list-style-type: none"> <li>Tolerance of dry habitats</li> </ul>	<ul style="list-style-type: none"> <li>Poaching</li> </ul>	I.U.C.N. Least Concern (Lower Risk) W.P.A. Schedule III
Wild Box	<ul style="list-style-type: none"> <li>Tropical rain forests</li> <li>Temperate woodlands grasslands</li> <li>Reed Jungles</li> </ul>	<ul style="list-style-type: none"> <li>Feeds on fruit seeds, roots and tubers</li> <li>Feeds on earthworms and fishes</li> </ul>	<ul style="list-style-type: none"> <li>Often venture on to agricultural land to forage</li> </ul>		I.U.C.N. Least Concern (Lower Risk) W.P.A. Schedule III

**NOTE: I.U.C.N. Red List Category**

The international Union for Conservation of Name provides a global approach for evaluating the conservation status of plant and animal species. The Categories being: Least Concern <Near Treated <Vulnerable <Endangered <Critically Endangered <Extinct in the wild <Extinct. W.P.A. Wildlife Protection Act, 1972 categories wildlife into various Schedules from I to IV- according to the protection status, with Schedule I species having maximum protection to schedule IV having the least.

*Atal*

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Leopard and Sloth Bear are distributed throughout the sanctuary. Panther is the top most predator. Tiger was reported up to 1970 and lions were present up to 1872. Crocodiles, pythons and several snakes are also found. Among invertebrates, crustaceans and insects are common. Butterflies, beetles and moths are also of common occurrence. Out of the 22 animal species, five (Leopard, Pangolin, Sloth bear, Hyena and Sambar) falls under threatened or vulnerable category as per IUCN Red List Data.

Places where these animals are frequently seen: Gaumukh, Palanpur point, Sunset point, Anadra point, Trevor tank, Salgaon, Achalgarh, Gurushikhar, Shergaon.

#### **INVENTORY OF AVI-FAUNAL DIVERSITY of Wild Life Sanctuary**

Avifauna of the area consists of 121 species of terrestrial and water birds which offers great opportunity for bird watching. The common birds of Abu hills are brown-headed Barbets, Jungle Babblers, Red vented Bulbuls, Red-whiskered Bulbuls, Peafowl, Black-rumped Flameback, Common Iora, Coucal, White-throated Kingfishers, Plum-headed Parakeet, Spotted Dove, Treepie, Jungle Crow, Brahminy Starling, grey Tits, Black-lored Tits, Ashy Wren Warblers, Franklin's Prinia, Yellow-eyed Babbler etc.

Endemic species: The White-browed Scimitar Babbler and The Euraisan Black Bird are unique to Mount Abu area.

The best bird trials in Abu hills are Kulgarh nullah trail, tiger trail, Bailey's walk, Trevor's tank to Mini Nakki lake trail, Gurushikhar to oriya trek, Gaumukh to Gautum rishi trail (6 kms), Ganesh point to Anadra trail, Arna to Rishikesh trail. Sunset point area is an ideal place for watching birds.

#### **Spatial location of few bird species:**

Upper and lower Kodra dam, Nakki lake, wetland near the Alwar Palace, wetland near Safari cottages on the way to Achalgarh and many small check dams support a few species of Ducks and waders. The resident Red-wattled lapwing is omnipresent. River Terris can be seen some times at Nakki lake.

The Crested Serpent Eagle and Honey Buzzards are seen near Chippaberi to Achalgarh and mini Nakki lake area. Flocks of Eurasian Hobby enter the Abu hill in October and can be seen commonly all over the Abu. Shikra is also seen in dense groves of Gaumukh to Achalgarh and Chippaberi.

The Treepies, Pigmy Woodpeckers, loras, White-eye, White-bellied Drongos. Honey Buzzard, Shikra, Jungle Crows,( Koel not seen at Mt. Abu heights), Common Wood-shrike, Alexandrine Parakeet are a few species to be seen at Chippaberi and surrounding areas.

Tiger path is a place where Jungle Fowls and Red Spur Fowls, Treepies, Shikra, Hobby, Crested Serpent Eagle are found, in winters a variety of Warblers and Flycatchers are seen including the Tickell's Blue Flycatcher and Rufous morph of paradise Flycatcher. The Vultures have almost disappeared from Mt. Abu, the hills near Trevor's tank used to be the best haunt for the Longbilled Vultures nesting.

Threats to birds: Human and vehicular disturbance from tourist inflow and growing traffic on road. List of Avifauna is given in table below.

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Table 20 LIST OF AVIFAUNA :WILD LIFE SANCTUARY , MOUNT ABU

S.No.	English Name	Latin Name
1.	Babbler common	Turdoides caudatus
2.	Babbler Jungle	Turdoides striatus
3.	Coppersmith Barbet	Megalaima haemacephala
4.	White Checked Barbet	Megalaima viridis
5.	Blue tailed bee eater	Merops philippinus
6.	Bee eater/blue checked	Merops superciliosus
7.	Bee eater little green	Merops orientalis
8.	Brain fever bird/howkuckoo	Cuculus varius
9.	Bulbul Red vented	Pyenonotus cafer
10.	Bulbul Red Whiskered	Pyenonotus ecosus
11.	Oriental Honey Buzzard	Pernis ptilorhynchus
12.	Bunting Crested	Melophus lathani
13.	Brown rock chat	Cercomela fusca
14.	Coot-Common	Fulica atra
15.	Common large	Phalacrocorax carbo
16.	Cormorant little	Phalacrocorax niger
17.	Greater Coucal	Centurus sinensis
18.	Crane Sarus	Grus Antigone
19.	Crow house	Corvus splendens
20.	Crow large billed	Corvus macrorhynchos
21.	Cuckoo	Euchynamis scolopaceus
22.	Cuckoo pied	Clamator jacobinus
23.	Little grebe Dab chick	Podiceps ruficollis
24.	Dove Laughing	Streptopelis senegalensis
25.	Dove Red Collared	Streptopelis tranquarica
26.	Dove Spotted	Streptopelis chinensis
27.	Black Drongo or king Crow	Discurus macrocerous
28.	Hawk Eagle	Spizaetus
29.	Crested serpent Eagle	Spliornis cheel
30.	Eagle short toed snake	Circaetus gallicus
31.	Egret Cattle	Bubulcus ibis
32.	Egret Little	Egret Garzette
33.	Egret Median	Egret intermedia
34.	Falcon Larger	Falco Biarmicus
35.	Fly Catcher grey headed	Cullalapa ceylonensis
36.	Flycatcher whitebrowed	Rhepadura aureula
37.	Flycatcher Paradise Asian	Terisphone paradise
38.	Flower Pecker thick billed	Dicaeum agile
39.	Flower pecker pale-billed	Dicaeidae erythrorhynchos

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S.No.	English Name	Latine Name
40.	Geese Bar headed	Anser indicus
41.	Heron Indian Reef	Egretta gularis
42.	Black crowned Night-Heron	Nyotirax nycticobx
43.	Heron pond Indian	Ardeola grayii
44.	Eurassin Hoopoe	Upupa epops
45.	Black headed ibis	Threskiorhis aethiopica
46.	Iora Common	Aegithine tiphia
47.	Jacana Bronze Winged	Metopedium indicus
48.	Jacana Pheasanttated	Hydrophassainus Chirurgus
49.	Jungle Fow Red Spur	Galloparidix spadicea
50.	Jungle Fow Grey	Callus sonneratii
51.	Kestral	Falco timunculus
52.	King Fisher Little Blue	Alcedo atthis
53.	King Fisher Pied	Ceryle rudis
54.	King Fisher with Throated	Halcyon smurnesis
55.	Kite Black Winged	Elanus careuleus
56.	Kite Balck	Milvus Migrans
57.	Lapwing Rad Watted	Venellus indicus
58.	Lapwing Yello Watted	Vanelus melabarica
59.	Lark Ashycrowned Finch	Eremopterix grisea
60.	Lark Black Crowned Finch	Eremopterix nigriceps
61.	Minivet Scarlet	Percrocotus fimmeus
62.	Minivet small	Percrocotus cinnamomeus
63.	Munia Black Headed	Lonchura Malacca
64.	Munia spotted	Lonchura punctulata
65.	Bharmani Starling	Sturnus pagadarum
66.	Myna Common	Acridetheres tristes
67.	Myna Bank	Acridetheres gingimemus
68.	Myna Hill	Gracula religiosa
69.	Night Jar Indian	Caprimulgus asiaticus
70.	Oriole Golden Eurasian	Oriolus orolus
71.	Owlet Spotted	Athene Brama
72.	Parakeet Rose ringed	Psittacula Krameri
73.	Parakeet Plumheaded	Psittacula cyanocephala
74.	Grey Francolin	Francolinus pondicerainus
75.	Painted Francolin	Francolinus pictus
76.	Indian Peafowl	Pavo Cristatus
77.	Pigeon rock	Columba Livia
78.	Pigeon Mountain Imperial	Ducula badia
79.	Quail Common or grey	Cournix coturnix
80.	Robin Indian	Saxecoloides Fulcate

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S.No.	English Name	Latine Name
81.	Roller Indian	Coracias benghalensis
82.	Robin Magpie	Copysychnus saularis
83.	Sandgrouse Chestnut bellied	Pterocies exustus
84.	Sand piper common	Tringa htpoleucos
85.	Shikra	Accpiter badius
86.	Northern Shoveller	Ahas clyoata
87.	Shrike Long-tailed	Lanius schach
88.	Shrike Wood common	Tephrodornis pondicertianus
89.	Chestnut tailed Minla	Minla strigula
90.	Sparrow House	Passer domesticus
91.	Sparrow Yellow Throated	Petroniaxanthocollis
92.	Sun bird purple	Nectarinia asiatica
93.	Sun bird Crimson	Aethopyga siparaja
94.	Stilt Black winged	Himantopus himantipus
95.	Earasian Thick-knee	Burthinus oedianemus
96.	Stork white necked	Cicornia epicopus
97.	Swallow Barr	Hirundo rustica
98.	Swallow Wiretailed	Hirundo smithii
99.	Tailor bird-common	Orthotomus sutorius
100.	Tit Yellow cheeked	Parus xanthogenys
101.	Tern river	Sterna aurantia
102.	Tree pie Rufcus	Dendrocitta vagabunda
103.	Vulture white rumped	Gyps benghalensis
104.	Vulture Egyptian	Neophron peronopterus
105.	Wagtail White or pied	Montacilla alba
106.	Wagtail large pied	Montacilla maderaspatensis
107.	Golden-headed cristicola	Cristicola juncidis
108.	Water hen white breasted	Amanronnis phoenicurus
109.	Weaver bird common	Ploceys philippinus
110.	Common Flameback	Dionpium benghalensis
111.	Yellow crowned /wood pecker	Picoides maharattensis
112.	Eurasian Wigeon	Anas penelope
113.	White bellied Drongo	Dicrurus caerulescens
114.	Spotted Eagle	Aquila clanga
115.	Flycatcher Red breasted	Musclicapa parva
116.	Indian Grey Hornbill	Tockus blrostris
117.	White eyed Buzzard	Butastur teesa
118.	Pled Bush Chat	Saxicola leucura
119.	Grey Tit	Parus major
120.	Oriental white eye	Zostreops- palperbrosa

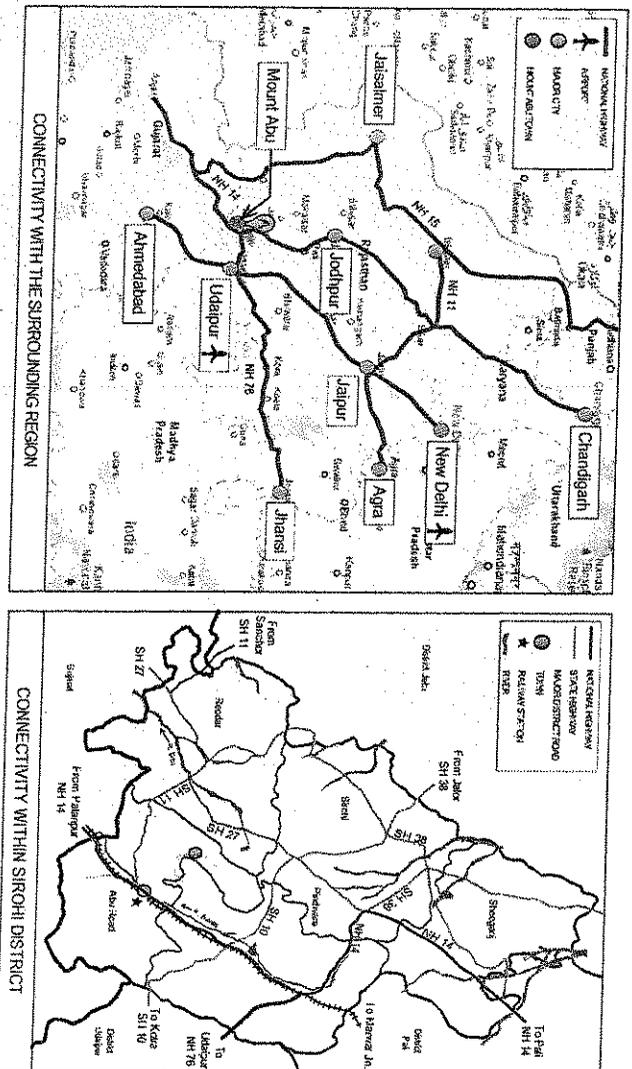
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2.12 Road, infrastructure networking & Traffic movement

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Road and Transport infrastructure forms a backbone of any economy and plays an important role in the development of a region. Mt. Abu is well connected by Air, Rail and Bus Transport system. In term of air connectivity Udaipur is the nearest airport which is served by major stations such as Delhi, Mumbai, Ahmadabad and Jaipur. Bus transport is available on daily basis from Jaipur, Ahmadabad, Udaipur and Abu Road to Mount Abu.



Nearest Railway station is in Abu road which is located at a distance of 22 km from the city centre. The said station is on the main railways line between Delhi, Palanpur and Ahmadabad and has regular trains from various parts of the country.

The total length of roads in Mt. Abu is 34.5 km. The total percentage of area to total land use is 3.34%. Besides Abu road which connects the town there are 17 km of village roads also. The existing primary town road network includes:

- Major District Road with 15 m right of way acting as major arterial road.
- Pilgrim Road with 7m right of way acting as the bye pass route to tourists going to Dilwara Temple.

The vehicle count of the Mount abu is as below:

*Attended*

Table 21  
Vehicle Details - 2016-17 to 2019-20

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S.N o.	Vehicle Name	2016-17 Form Oct. 2016			2017-18			2018-19 Form 20 Sep 2018			2019-20 (31-08-2019)		
		Number	Board Decide Amount	Total Amount	Number	Board Decide Amount	Total Amount	Number	Board Decide Amount	Total Amount	Number	Board Decide Amount	Total Amount
1	35 Seater Bus	4580	50	229000	8908	50	445400	5550	50	277500	154	50	7700
2	25 Seater Bus	1469	50	73450	3037	50	151850	1715	50	85750	61	50	3050
3	Tempo Traveller	2715	50	135750	6638	50	331900	3837	50	191850	269	50	13450
4	LMV (5 Seat Amove)	32789	30	983670	80373	30	2411190	42196	30	126588 0	712	30	21360
5	LMV (5 Seat)	77466	30	2323980	183179	30	5495370	88666	30	265998 0	9279	30	278370
6	Local Taxi	24030	30	720900	54375	30	1631250	29607	30	888210	1810	30	54300
7	Three Wheeler	144	5	720	415	5	2075	505	5	2525	10	5	50
8	Two Wheller	4952	5	24760	26108	5	130540	4192	5	20960	281	5	1405
	<b>TOTAL</b>	<b>148145</b>		<b>4492230</b>	<b>363033</b>		<b>10599575</b>	<b>176268</b>		<b>5392655</b>	<b>12576</b>		<b>379685</b>

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ARTS/10/10/10

2.13 Parking Spaces Road Length

Table 22  
Parking spaces

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S.no	Parking Location Name	Address	No. of Vehicles for Parking
1.	Kitchen Garden Parking	Nearby M.K Circle Mount Abu	145
2.	Delwara Parking	Delwara Mount Abu	125
3.	Ashok Vatika Parking	Sunset Road Mount Abu	250
4.	Shivaji Nagar Garden	Shivaji Road Mount Abu	25
5.	Arya Samaj Garden	Nearby Daatda Sea World Mount Abu	75
6.	Skating Ring Park	Nearby B.K Museum	40
7.	Roadways Bus Stand Parking	Roadways Bus Stand Mount Abu	75
8.	Herbal Garden Parking	Nearby Paandav Bhawan Mount Abu	100
	Total		835

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### Recommendations of the Expert Committee

#### 3.1 Introduction

The Committee was directed by Hon'ble NGT to provide its recommendations on the following issues:

1. The Committee will undertake comparison of ZMP 2030, in terms of letter of MoEF&CC dated 28.09.2015 and ESZ Notification dated 25.06.2009 and point out the aberrations in the same, besides comparing ZMP 2030 map with reference to pre-existing 2010 map in the light of ESZ notification.
2. Thirteen (13) locations noted above must also be specifically looked into.
3. The Expert Committee may also look into the suggestions relating to
  - (a) Prohibiting use of plastics, burning of garbage/ or any other waste,
  - (b) Proper laying of high tension lines for protecting animals and birds life, particularly in Salim Ali Bird Sanctuary area,
  - (c) Preventing forest fire,
  - (d) Conservation of Nakki lake and water quality management,
  - (e) Siting and operation of Solid Waste Processing Plant in accordance with Solid Waste Management Rules, 2016 (with reference to the sanctuary area),
  - (f) Any other issues relating to environment management which may become a part of ZMP 2030, including observations of this Tribunal in Kasuali case.
4. The Committee will also look into the points of concern raised by the applicant in reference to
  - (a) Conversion of green areas to non-green areas,
  - (b) Permissibility of construction on higher degree slopes,
  - (c) Conservation of rocks, water bodies and wildlife and other heritage sites,
  - (d) The issue of water scarcity,
  - (e) Carrying capacity of Mount Abu with regard to number of tourists and vehicles to be permitted having regard to the availability of the infrastructure without relying upon future projection, as required in terms of ESZ notification.

#### 3.2 Meetings, Site Visits and Stakeholder Consultations Undertaken by the Committee

The committee had three meetings, which were held on 16.12.2019, 16-17.01.2020 and 24.01.2020. The second meeting of the committee was held at Mount Abu on 16.01.2020

*Attested*

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and 17.01.2020 during which, extensive field visits and stakeholder consultations were also undertaken. Details of the discussions held and field visits undertaken, are as below.

### 3-2.2 First Meeting dated 16.12.2019

First meeting of committee constituted by Hon'ble National Green Tribunal vide OA no 312/2016, Dr. Arun Kumar Sharma V/s MOEF was held on 16.12.2019, at meeting hall of Rajasthan State Pollution Control Board, Jaipur in presence of Nodal Officer cum Member Secretary (RSPCB).

Attendees:

- Nodal Officer cum Member Secretary (RSPCB)
- Chief Town Planner- GOR
- Assistant chief town planner- GOR
- Dr. G.S. negi- G.B. Panth Institute
- Dr K. Luirei- Wadia Institute
- Shri Ajay Agarwal –CPCB
- Dr. Bilas Singh-AFRI
- Shri Pankaj Verma- MOEF
- Meenakshi, School of Planning & Architecture, New Delhi

The minutes of committee meeting are enclosed herewith as Annexure 3A.

At the onset, Nodal Officer cum Member Secretary, RSPCB briefed the committee about various directions issued by Hon'ble NGT in the matter and the compliance desired from various stakeholders Department. Chief Town planner, GOR explained the sequence of events since beginning of formation of ESZ in year 2009 to final ZMP -2030 Notification in year 2015 to make committee familiar with the issue.

The committee deliberated upon various issues and the committee took following decisions.

1. In compliance of the Hon'ble NGT order, the requirement of any other expert from any other institution / field was deliberated and it was decided that one specialized person from the field of GIS and remote sensing shall be made part of the committee. The committee finalized that Nodal officer should seek nomination of expert from the Regional Remote Sensing Centre (RRSC) - West, Indian Space Research Organization (ISRO), Jodhpur.

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2. Second meeting of the committee should be held at Mount Abu for visiting disputed sites and meeting the stakeholders.
3. A responsibility matrix based on area of expertise & discussions during the meeting shall be drawn and circulated among the members.
4. Chief Town Planner should provide a list of stakeholders.
5. Chief Town Planner should provide revenue maps and land records of 10 impugned land parcels available to the committee.

**3.2.3** Second Meeting dated 16.01.2020 & 17.01.2020:

Second meeting of the Special Expert Committee was held on 16.01.2020 to 17.01.2020 at Mount Abu, Rajasthan under Nodal Officer cum Member Secretary (RSPCB). A separate meeting was also held with stakeholders on date 17.01.2020 at conference hall of Hotel Shikhar to know the views of all the stakeholders. The minutes of committee meeting are enclosed herewith as **Annexure 3B**. The Nodal Officer Smt. Shailja Derval, MS, RSPCB presided over the meeting and deliberated item-wise mandate and scope of the Committee. At the end, the Nodal Officer requested each member to sketch out their finding and shall share with the committee during next meeting scheduled on 24.01.2020 at Rajasthan House, New Delhi for the preparation of report in view of certain data gap in the report. She further requested each participating department to supply the requisite information to the members at the earliest since the report belonged to the Hon'ble NGT. The committee member deliberated upon various issues and following decisions were taken:

1. Hard copy of Study Report carried out by School of Planning and Architecture, New Delhi, ZMP-2030 and building by – laws shall be provided to committee. (Action by – Chief Town Planner, GOR)
2. Data regarding vehicular movement and vehicles in the town for last three years shall be provided to committee. (Action by Nagar-Palika, Mount Abu)
3. Data regarding tourist inflow in the town for last three years shall be provided to committee. (Action by Nagar-Palika, Mount Abu)
4. KML files of 10 impugned polygons with area marked on Google maps and AutoCAD files shall be provided to the committee. Constructible area of each polygon after application of building by laws of impugned site shall also be provided. (Action by- Chief Town Planner, Jaipur)
5. Authenticated maps of nearby forest land of 10 impugned site shall be provided to committee. (Action By- Forest Department)

*Attended*

*RS*  
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CIC (Legal)

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6. Data regarding position of ground water and bore wells in Mount Abu shall be provided to committee. (Action by – GWD).
  7. Detailed report on factual status of sunrise housing land shall be provided to committee. (Action by- forest department)
  8. Maps, details of site and proposed plan and the proposed colony located behind Maganji, shall be provided to committee. (Action by- Nagar Palika, Mount Abu)
  9. The next meeting shall be held on 24.01.2020 in New Delhi for further discussions and report preparation. Meeting notice would be issued separately. (Action by- MS, RSPCB)

Field visits and Stakeholder Consultations

In addition to the above meeting, the Committee members visited all impugned sites on date 16.01.2020 to know the ground realities. This is to be noted that on ground, there are only 10 sites which are marked as impugned, as there is repetition of areas in Salim Ali Bird Sanctuary and Takhtawala Area, which has already been left with certain condition vide Hon'ble NGT order dated 31.01.2018. Photographs of the impugned sites taken during the visits are given at section 2.1.5.

Besides the visits, various stakeholders were invited in the meeting and they were requested to provide their views / grievances on the issues listed in the matter. Dr. Arun Sharma, petitioner in the matter, was also invited in the meeting; however, he could not attend the meeting. Later on the petitioner was contacted telephonically and was requested to forward his objections / comments / suggestions /details on the issue through email. Copy of the reply mailed by the petitioner has been enclosed herewith as Annexure 4. In this issue, within the framework of the mandate given by the committee almost all the objections / comments / suggestions have been considered by the committee.

**3.2.4** Third meeting dated 24.01.2020:

The meeting was held at Rajasthan House New Delhi. The following issues were discussed:

1. To request Hon'ble NGT for the extension of time for compilation of the report as the deadline is 31.01.2020. (Action: by Nodal Officer)
2. To request Director, Wadia Institute of Himalayan Geology, Dehradun reg. continuation of Dr. Vikas as Expert Committee Member, since he was present during the site visit to Mount Abu. (Action by: Nodal officer)
3. The remaining data, documents and maps shall be sought from relevant

*Attended*

*RS*

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departments/ agencies. (Action by: Nodal officer)

The minutes of committee meeting are enclosed herewith as **Annexure 3C**.

The points wise recommendations of the Committee based on the discussions held, field visits and material available on record are as under:

1. The Committee will undertake comparison of ZMP 2030, in terms of letter of MOEF& CC dated 28.09.2015 and ESZ Notification dated 25.06.2009 and point out the aberrations in the same, besides comparing ZMP 2030 map with reference to pre-existing 2010 map in the light of ESZ notification.

Recommendation of the Committee: The committee undertook a detailed comparison of ESZ and ZMP-2030, considering natural population growth and the proposed expansion in residential area in the ZMP of Mount Abu is justifiable.

Further, as mentioned in ESZ notification, limited conversion of agricultural lands to meet the residential needs of the local residents only, should be permitted and conversion of land belonging to tribals must be dealt strictly in accordance with the relevant acts and policies of the State Government.

2. Thirteen (13) locations noted above must also be specifically looked into.

Recommendation of the Committee: This is to be noted that on ground there are only 10 sites which are marked as impugned as there is repetition of areas in Salim Ali Bird Sanctuary and Takhtawala area, which has already been left with certain condition vide Hon'ble NGT order dated 31.01.2018.

Out of 10 sites, 09 sites are fully justified as residential area under ZMP and 01 site is justified partially. However, the site must individually qualify the basic criteria as given under:

- (i) Degree of slope below 20 degree
- (ii) Distance of the site located 50 meters away from the forest boundary
- (iii) Located 50 meters away from drain/Nallah and 100 meters away from river.

Since the whole of Mt. Abu Municipality is included in ESZ, proposed land use change in some virgin lands needs to be re-considered such as site near Salim Ali Bird Watch Point.

The Committee held detailed discussions on the matter and compared the Vegetative Density Cover of all the sites for year 2009, 2015, 2019 and 2020, through the remote sensing data by applying GIS tools. It appears from the satellite images that the area has a good to very good vegetation cover during the study period (from year 2009 to 2020). Changes in land use are found to be insignificant after the notification issued by the Ministry of Environment, Forest and Climate Change dated 25.06.2009, which declared

Attended



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GIC (Legal)

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the Mount Abu, as the Eco-Sensitive Zone (ESZ). All the sites were also visited by the committee. Based on the above analysis, the committee makes following recommendations for each site:

### 3.2.5 Views of Expert Committee Members after Field Visit

Suitability of 10 identified sites within Mount Abu ESZ as reviewed by the expert committee based on the site visit / ground verification as well as interactions with the local residents, Mount Abu Municipality officials, Town Planning Department officials as well as other stakeholders during 16-17 January 2020 is given below:

*Attended*

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Table 23:

Suitability of 10 identified sites within Mount Abu ESZ as reviewed by the expert committee based on the site visit/ground verification as well as interactions with the local residents/ Mount Abu Municipality officials/Town Planning Department officials/other stakeholders during 16-17 January 2020

Name of Site	Location (Lat & long with Accuracy/Altitude)	Present land use	Slope (°)	Vegetation type/ Cover (%)	Biodiversity	Remarks
Inside Salim Ali Bird Sanctuary	24°36'40.50"N 72°43'59.61"E (+5m) 1183 m	Natural Forest	Mostly the site has slope >20°	Moderately Dense Forest (>40%)	<i>Anogeissus serecea</i> , <i>Ficus bengalensis</i> , <i>Mangifera indica</i> , <i>Syzigium cumini</i> , <i>Mallotus philippensis</i> , <i>Dendrocalamus stricuts</i> , <i>Erythrina suberosa</i>	Leopard, Sloth Bear, Sambhar, Wild Boar, Jungle Cat, Mongoose  • Land is fragile in terms of soil cover and rock strength thus prone to erosion • The site is adjoining the forest block and close to Mt. Abu Sanctuary and found to be a pristine forest • Site is far away from the main habitation and <u>may not serve the purpose or residential of the local residents.</u>
Next to Aranya Village	24°35'21.40"N 72°43'31.42"E (+3m) 1198 m	Vacant	Mostly the site has slope >20°	Open scrub/ isolated tress (<10%)	<i>Anogeissus sericea</i> , <i>Butea monosperma</i>	Leopard, Sloth Bear, Sambhar, Wild Boar  • Treacherous terrain with steep slopes poses threat of land destabilization to allow any construction • No scope for sewage and solid waste disposal • Non- availability of water at this site is a major issue.
Behind	24°34'53.79:N	Vacant	Mostly	Open scrub/	<i>Anogeissus sericea</i> , -	• No Forest patch in the vicinity

Not suitable

Not suitable

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CIC (Regd)  
Accepted

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Name of Site	Location (Lat & long with Accuracy/Altitude)	Present land use	Slope (o°)	Vegetation type/ Cover (%)	Biodiversity	Remarks
Maganji Mountain	72°43'14.15"E (+3m) 1188m		the site has slope >20°	isolated tress (<10%)		<ul style="list-style-type: none"> <li>No water body in the vicinity</li> <li>hard rock at this site will not lead to any damage to the landscape for construction</li> <li>Sewer line can easily be connected with the main line on the road.</li> <li>ESZ criteria (50 m away from forest boundary and water body needs to be complied upon).</li> </ul>
Hill Sahil	24°34'50.77"N 72°43'37.53"E (+3m) 1159 m	Natural Forest	Mostly the site has slope >30°	Moderately dense forest (>40%)	<i>Bauhinia Purpurea</i> , <i>Phoenix sylvestris</i> , <i>Anogeissus sericea</i> <i>A. pendula</i> , <i>Butea monosperma</i> , <i>Caesalpinia bonduc</i> , <i>Albizia procera</i> , <i>Mallotus philippensis</i> <i>Erythrina suberosa</i> , Orchids	<ul style="list-style-type: none"> <li>Leopard;</li> <li>Sloth bear;</li> <li>Sambhar;</li> <li>Wild boar;</li> </ul> <ul style="list-style-type: none"> <li>This is hilly site as implied by its name and the steep slope is not suitable for construction.</li> <li>Any type of construction will lead to destruction of this pristine forest patch and wildlife habitat.</li> </ul>
Sunset Road Scheme	24°35'11.49"N 72°42'13.79"E (+3m)	Residential (Partly built/partly)	Mostly the site has	Open scrub/isolated tress (<10%)	<i>Phoenix sylvestris</i> , <i>Erythrina Suberosa</i> , <i>Grevillea</i> , <i>Mangifera</i> ,	<ul style="list-style-type: none"> <li>Already existing provision for farm house in state of Rajasthan may be made applicable with</li> </ul>

→ OK

Not Sub

Attended

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Name of Site	Location (Lat & long with Accuracy/Altitude)	Present land use	Slope (°)	Vegetation type/ Cover (%)	Biodiversity		Remarks
	1169m	Vacant )	slope < 20°				allowance of 10% of total area of construction as built up area or 5000 sq ft. (whichever is less) subject to final diversion of land use from forest land to residential purpose.
Sunrise Housing Society	24°34'55.26"N 72°43'38.12"E (+3m) 1137m	Vacant	Mostly the site has slope < 20°	Open scrub/ isolated tress (>20%)	Anogeissus sericea, Butea Monosperma, Erythrina suberosa	Leopard; Sloth bear; Sambhar; Wild Boar	<ul style="list-style-type: none"> <li>Site is surrounded by habitation so it may cater to the residential needs of the local people</li> <li>Construction may be allowed following criteria of ESZ with regard to distance (50m) away from the nallah, employing enough safety measures avoiding slopes over 20°.</li> </ul>
Arna Village	24°34'21.32"N 72°45'14.37"E (+3m) 994m	Vacant	Mostly the site has slope < 20°	Open scrub/isolated trees/Agricultural Land (<10°)	Phoenix Sylvestris, Caesaria Tomentosa, Tomentosa, Albizia spp.	Leopard; Sloth bear; Sambhar; Wild Boar	<ul style="list-style-type: none"> <li>Site is close to Arna Village and may cater to the residential needs of the local people.</li> <li>ESZ criteria (50 m away from forest boundary and water body needs to be complied upon.)</li> </ul>
Mohanpura	24°34'59.21"N 72°43'08.25"E (+3m)	Vacant	Mostly the site has slope	Rocky terrain	-	-	<ul style="list-style-type: none"> <li>Site is suitable for construction to meet the residential needs of the local people.</li> </ul>

Condition  
OK

OK

OK

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Name of Site	Location (Lat & long with Accuracy/Altitude)	Present land use	Slope (°)	Vegetation type/ Cover (%)	Biodiversity		Remarks
	1161m		<20°				• ESZ criteria (50 m away from forest boundary and water body needs to be complied upon.) <span style="float: right;">ok</span>
Hitanji	24°34'35.72"N 72°43'36.81"E (+3m) 1139m	Vacant/partly built-up	Mostly the site has slope >20°	Isolated trees (>30%)	<i>Phoenix sylvestris</i> , <i>Erythrina suberosa</i> , <i>Boswellia Serrata</i>	Leopard, Wild Boar	• Most of the area falls over 20° slope and is more prone to erosion and should not be put under construction. • Gently sloping land towards the road side has a natural stand of phoenix Sylvester's (Khajoor tree) that should be protected while construction. <span style="float: right;">Not Suitable</span>
Near STP plant	24°34'38.14"N 72°43'57.77"E (+3m) 1139 m	Vacant/ agriculture	Mostly the site has	Open scrub/	<i>Phoenix Sylvestris</i> ,	Sloth Bear, Panther	• The proposed tourism facility centre is residents and some mechanism should be devised so that in future these residences are occupied by the local residents only. <span style="float: right;">Not Suitable</span>
<ul style="list-style-type: none"> <li>In all the above sites where residential buildings are built rooftop rainwater harvesting for consumptive use of the residents, environment-friendly treatment and disposal of household waste and sewerage and other criteria set in the ESZ notification need to be fulfilled mandatorily.</li> </ul>							

- In compliance to the GoI, Ministry of Environment & Forests Notification New Delhi June 25, 2009 Gazette Notification (Page 2) about regulations in the ESZ clause (iv), the following need to be fulfilled:
- "No change of land use from green uses to non-green uses shall be permitted in the ZMP, except that strictly limited conversion of

→ not for commercial  
→ <20° no construction

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agricultural lands may be permitted to meet the residential needs of the existing local residents together with natural growth of the existing local population, without the prior approval of the State Govt." For this purpose, the proponent will have to submit evidence of his/her being local residents as per the standard norms of the Rajasthan Govt.

- To accommodate the local people's residential needs for their natural growth house construction should be allowed on priority.

R. K. THAKURIA  
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3. The Expert Committee may also look into the suggestions relating to
- (a) **Prohibiting use of plastics, burning of garbage/ or any other waste**  
Recommendation of the Committee: The committee dwell on the issue and looking the fragile nature of eco-system of Mount Abu and being an important tourist destination, Committee hereby recommends imposing a ban on the use of the following single use plastic items in the ESZ of Mount Abu:
- Plastic / Thermocol (polystyrene) disposable cups, glasses, plates (dishes), bowls, forks and spoons.
  - Single use PET plastic water bottles.
  - Single use plastic banners & flags.
- It may be pointed out the manufacturing, transport, sale and use of plastic carry bags is already banned in the entire State of Rajasthan vide notification dated 21.07.2010.
- As far as the open burning of garbage is concerned, it is already prohibited under the Solid Waste Management Rules, 2016. However, The Municipal Council, Mount Abu should impose strict fines / penalties on the violators, as per the provisions of the Municipal Rules.
- (b) **Proper laying of high tension lines for protecting animals and birds life particularly in Salim Ali Bird Sanctuary area.**  
Recommendations to be given (Dr. Bilas Singh-AFRI)
- (c) **Preventing forest fire**  
Recommendations to be given (Dr. Bilas Singh-AFRI)
- (d) **Conservation of Nakki lake and water quality management**  
Recommendation of the Committee: Nakki Lake is a very important water body and tourist destination of Mount Abu. It is very important that the lake is protected from disposal of waste water and municipal solid waste and is conserved in its pristine form. Accordingly, as an immediate measure, there should be a complete ban on discharge of any treated / untreated sewage or industrial effluent into the lake directly or indirectly. Further, the leachates generated from the municipal solid waste dumping areas must be collected and treated separately by the Municipal Council, Mount Abu. Once the ban on use of single use plastics, as recommended above is implemented, it will also help in conservation of water quality of the lake. Further, Rajasthan State Pollution Control Board is already monitoring the lake water quality regularly, under National Water Quality Monitoring Program (NWMP).
- As a long term measure, the State Wetland Authority should get an Environmental Conservation Plan for Nakki lake and get it implemented through the concerned stakeholder departments.
- (e) **Sitting and operation of Solid Waste processing plant in accordance with Solid Waste Management Rules, 2016 (with reference to sanctuary area)**  
Recommendations to be given (Mr. Ajay Agrawal-CPCB)
- (f) Any other issues relating to environment management which may become a part of ZMP 2030, including observations of this Tribunal in Kasuali case.  
Recommendation of the Committee:

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- Mt. Abu ESZ comprises of twelve villages and a Municipal area. The solid waste management practices adopted by the Municipal body, are not extended to the villages. Therefore, State Government is advised to initiate awareness program for Gram Panchayats as well as villagers to achieve the goal of Clean Mt. Abu.
- Also, considering the air pollution aspect, the possibility of plying of CNG vehicles or electric vehicles may be explored inside Mt. Abu.
- To protect Mt. Abu Wildlife from broken glass pieces, lying even in forest areas, due to the tourist behavior of throwing Beer Bottles all along the roads leading to Mount Abu, till Gurushtakar, the DCF, Mt. Abu suggested replacement of alcohol bottles especially all brands of Beer by aluminum tins/cans to minimize the accidental injuries to the soft paws of Sloth Bear and Leopards and other wildlife in the sanctuary area. Any other Recommendations to be given (All members)

4. The Committee will also look into the points of concern raised by the applicant in reference to:

- (a) Conversion of green areas to non-green areas  
Recommendations to be given (Dr. Bhas Singh-AFRI)
- (b) Permissibility of construction on higher degree slopes  
Recommendation of the Committee: As per the provisions of ESZ Notification of Mt. Abu, no development shall be proposed on forest land, buffer areas along water channels and wetlands, lands having slopes more than 20 degree and lands having substantial tree cover. These have been adequately reflected in the ZMP.
- (c) Conservation of rocks, water bodies and wildlife and other heritage sites.  
Recommendation of the Committee: The Government of Rajasthan has proposed Adventure based tourism, adventure sports, adventure trails etc. in Zonal Master Plan. However, no specific location for sports / rock climbing has been proposed. The Committee recommends that a feasibility study for undertaking such projects be carried out considering environmental and other statutory provisions and necessary clearances shall be taken as per the prevailing legislation and guidelines.
- (d) The issue of water scarcity  
Recommendation of the Committee: There were 5 STPs in Mt. Abu, one big and four small. However, the big STP was not functional at the time of visit of the Committee. The State Government should re-vive the STP so that the waste water generated from Mt. Abu Municipal area can be treated and re-used.
- (e) Carrying capacity of Mount Abu with regard to number of tourists and vehicles to be permitted having regard to the availability of the infrastructure without relying upon future projection, as required in terms of ESZ notification.

Recommendation of the Committee: As there is only one double road leading to the hill, carrying capacity calculation based on number of vehicles to be allowed inside Mt. Abu. The Nagar Palika is already maintaining a record of number of vehicles entering per day in Mt. Abu Municipal limits. As a short term measure, the Nagar Palika can hold the tourist at entry point if it is exceeding the carrying capacity on a particular day.

Detailed carrying capacity of the hill station will depend on the water availability, sewage treatment capacity, present land use, tourist accommodation available and planned,

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Chambers of Nishit Agrawal &lt;chambers@nagrawal.in&gt;

**Service of Applications in O.A. No. 312 of 2016 filed before the Principal Bench, NGT**

1 message

**Chambers of Nishit Agrawal** <chambers@nagrawal.in>

Sun, Feb 7, 2021 at 3:11 PM

To: nina.r.nariman@gmail.com

Cc: balendushekhhar@gmail.com, adhiraj.advocate@gmail.com

This email is being sent to effect service of two applications to be filed on behalf of the Intervenor, Pragmesh Shah in the above-captioned matter wherein in the first application objections to the Report filed by the Expert Committee have been filed and the second application has been filed seeking Physical Hearing of this matter.

[Application for Seeking Physical Hearing.pdf](#)

With Regards

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 **Objections on behalf of the Sh. Pragmesh Shah.pdf**

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