BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL

EASTERN ZONE BENCH, KOLKATA

ORIGINAL APPLICATION NO 65 OF 2023

IN THE MATTER OF:

Sachin Mohapatra APPLICANT

Versus

Bhubaneswar Development Authority & Ors. Respondents

INDEX

SlNo	Description of Documents	Page
1	Response Affidavit on behalf of applicant to committee report	1-13
2	Copy of Sabik Record is annexed here with as ANNEXURE-1	14-15
3	Copy of report published on 14th May 2015 is annexed here with as ANNEXURE-2	16-27
4	Copy of times of India Report 23/06/2023 is annexed here with as ANNEXURE-3	28-31
5	Photographs of the site as ANNEXURE-4	32-78

PLACE: BHUBANESWAR SANKAR PRASAD PANI

DATE- 25/07/2023 ADVOCATE

PLOT NO 2132/4814, NAGESWARTANGI, BHUBANESWAR, 751002, CELL9437279278, **Email:**sankarprasadpani@gmail.com

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RESPONSE **AFFIDAVIT ON BEHALF OF APPLICANT TO THE COMMITTEE REPORT**

I, Sachin@Sachinmay Mohapatra, S/o Late Abhilas Mohapatra, aged about 35 years, Daruthenga, Khotdha BHUBANESWAR, 751005 - do hereby solemnly affirm, and declare as under:

1. That I am the applicant in the abovementioned application and competent to swear this affidavit. That I have read over the contents of the Joint Committee Report and the present response affidavit is drafted on my instruction.
2. That the Hoonble NGT vide order dated 12/06/2023 passed the following order and same is reproduced as follows

5."Considering the above material, **it does prima facie appear that the project may be in violation of Forest (Conservation) Act, 1980 and may result in damage to the bio-diversity, particularly, rare and endangered medicinal and wild plant species and overall integrity of the hill.** Thus, intervention of this Tribunal may be necessary under section 15 of the NGT Act to prevent further damage and to restore the damage already done after independent verification of facts.

6. Accordingly, with a view to independently ascertain the factual position, we constitute a four-member joint Committee to be headed by the Chief Conservator of Forest (CCF), Regional Office, MoEF&CC, Bhubaneswar with other members being representatives of CPCB, State PCB and District Magistrate, Khurda. The Committee may meet within one week, undertake visit to the site, interact with the concerned stakeholders including WATCO and after ascertaining factual position**, particularly with regard to illegal felling of trees, loss of bio-diversity and other damage to environment, including cutting of the hill and submit a factual and action taken report to this Tribunal within three weeks,** i.e. on or before 03.07.2023 by email at registrarngt-kolkata@gov.in in the form of searchable PDF/ OCR supported PDF and not in the form of Image PDF. Concerned State Authorities may provide logistical support to the Committee.

The Committee may also get broad demarcation of the hill to determine permissible and non-permissible activities. Having regard to the irreversible consequences of the on-going project, we direct that the project, in question, may be **held in abeyance till next date of hearing**.

3. That pursuant to the order dated **6/12/2023**, the Committee had submitted a report saying The Sikharchandi Hill is famous for temple Sikharchandi and located on the outskirt of Bhubaneswar and is **near to the boundary of Chandaka Wildlife sanctuary**. The area of Sikharchandi hill is about **247.656 acre (100.222 ha.)** and comprises of two Mouza (village) as Pathargadia 2239, 5731 (Pahad Kisam) and Patia 1(p) 474/1607, (Parbat Kisam)

4. It is humbly submitted that as per the **Sabik Record finally** published on 7th March 1931 of **Patia Mouza** suggests the plot is of **Jhati Jungle Kisam** The certified copy of Sabik Record obtained from Record Room,

District Collectorate Office, Puri the erstwhile district prior to 1991, the creation of Khurdha District. Copy of Sabik Record is annexed here with as **ANNEXURE-1**

5. That plot no 1287, Khata no 2247 Mouza Pathar Gadia suggests **Jungle Kisam Land** and same is showing in KYFL application developed by Government of Odisha. Hence land in question is forest land

6. That the site in question is **a repository of rich biodiversity.** The studies conducted and the research paper published in photon the journal of biodiversity and the research report is titled as "***Documentation of medicinal plants in Sikharchandi hills, Odisha, India – A priority agenda for action"*** clearly suggests there are **110 different varieties of medicinal plants including 32 different tree species**. Hence the committee referring one species "Nothopegia racemosa" is also found in Eastern Ghat region and **not endemic cannot undermine the importance of the site with at least 110medicinal plants**. Copy of report published on 14th May 2015 is annexed here with as **ANNEXURE-2**

7. The same study report further reveals that a total of **220 angiosperms and 4 pteridophytes were collected belonging to 180 genera and distributed under 69 different families. 110 species of medicinal plants under 103 genera and 53 families were recorded and information about their uses in the management of primary healthcare was documented.** Among them, 39 were herbs followed by 32 trees, 19 climbers, 15 shrubs, 3 grasses and 2 parasites. Euphorbiaceae was the dominant family with 11 species followed by Fabaceae (8), Rutaceae (6) and Lamiaceae (5). Phyllanthus and Ocimum were the dominant genera with 3 species each. The present study revealed that many valuable medicinal plants and wild relatives of cultivated species are present in Sikharchandi hills played a significant role in the

conservation of biodiversity of this region. Further studies on the potential medicinal plants identified during the investigation may result in isolation and formulation of herbal drugs after scientific authentication

8. The report further emphasizes that, today **many medicinal plants face extinction or severe genetic loss**. Lack of complete inventory of medicinal plants in most of the countries, overexploitation of medicinal plants and disappearance of ethnomedicinal or traditional knowledge poses immense threat to the genetic stock of the medicinal plant species. This alarming situation has resulted in short supply, high prices and adulteration of crude drug. Moreover, now much emphasis has been put on the potential for discovering new wonder drugs and little effort on the issues related to rarity and endangerment of many valued plant species. Therefore, documentation, conservation and bioprospection of medicinal plants are highly essential.

9. The same report in its conclusion highlighted that **Sikharchandi not only harbours a rich floral diversity, but also a repository of wild germplasm, thereby supporting many critically dependent medicinal plants**. It was also observed that being a **natural sacred site it is maintained through traditional methods of community-based conservation without governmental involvement.** Incorporating these sites into conservation networks could enhance the effectiveness of the protected areas by covering a wider variety of habitats and by harnessing the support of local people. However, with the passage of time, considerable changes have taken place under various pressures which are mostly human induced. Pressures include fragmentation, area shrinkage and degradation, habitat alternation, pollution, alien species invasion, cattle grazing, overexploitation of plant resources etc. The **documented medicinal plant resources of the area need immediate conservation in order to avoid their disappearance.** Their cultivation and domestication

should be encouraged to prevent the extinction of potentially valuable species.

10. That considering the rich biodiversity on the site, **Section 37 of the Biological Diversity Act 2002 has provision for the declaration of Biodiversity Heritage Sites (BHS) in the state.** Biodiversity Heritage Sites (BHSs) are well defined areas specifically unique and fragile ecosystems in terms of biological and ecological significance. They may spread over terrestrial, aquatic, coastal and inland and marine ecosystems having rich biodiversity. The **BHSs** are endowed with wild as well as domesticated species, high endemism and occurrence of rare & threatened species, keystone species and species of evolutionary significance. Hence the State Biodiversity Board may be directed for a detailed study to document the rich flora fauna.

11. **Presence of Tree:** The site in question is a physical forest and continues to be a forest on record from 1931 as Jhati Jungle. The physical status even in the Hal settlement remains unchanged though classification changed to Pahad (Hill). The site is full greenery including the tree species. Hence the committee report saying only **shrubs** were found there is contrary to the scientific report published in Photon highlighting 32 **tree species** of medicinal plants

12. The **committee has not considered any alternate site** and there are many place in and around Bhubaneswar to accommodate a project while requires a maximum of 10acres. Hence the committee has taken into account the importance of this place and did not try to get information from IDCO/ General Administration Department regarding the alternative sites. In fact in all projects at least three alternative sites were chosen and there after the impact on the site are studied and lesser impact sites are chosen for different developmental works. **Here no alternate sites have been explored and Sikharchandi has been chosen as the**

ultimate site, thereby damaging a precious ecosystem and a prospective biological heritage site.

13. That unlike mining **this project is not a site specific** one hence a Water Store Tank project can be accommodated in other places too. Hence this project can avoidable at this place and this site is not the last resort for the project.

14. That the Sikharchandi Hill is single block rock. As per the report the area is **spread over 247.6Acres and any kind of construction on the top of the hill with road and amenities from foot of the hill to the top will have an impact over the whole of the Hill Ecosystem and will not be limited to 10acres of land that will be used for the water tank purpose. As such for the purpose of construction blasting and drilling activities had taken place that has damaged the hill in toto.**

15. It is further submitted that area require to be inviolate and preserved in it's entirety and any puncture in the ecosystem will lead to more damage to the whole system gradually. More proposals will be floated on the said site once this project is allowed. Hence this project many not be allowed till all alternatives are explored and exhausted

16. The report further states that DFO, Chandaka Wildlife Sanctuary has reported that WATCO has not taken permission for felling of trees. **Clearing of vegetation will make the soil vulnerable for erosion and this activity has resulted in removal of vegetation which** was present in the site prior to clearing of the site. This need to be compensated by plantation and soil conservation measures. This makes it amply clear that the clearing of the trees and vegetation has already caused an impact and requires to be restored to its original status. This is contrary to the report saying construction of water tank may be allowed with bare minimum areas.

17. The report further says no approval has been obtained from DFO for felling of trees.
18. The site is emotionally connected to millions of devotees and any kind of damage will hurt the sentiments of local people who have been preserving the site for generations. Once deforestation and damage takes place that will demotivate the people from conservation and will have serious consequence on the local ecology.
19. That from an aesthetic point of view the site is one of the healing spot and stress relief center for the urban mass and same is being now attempted to be spoiled by allocating for a water tank project
20. The site is **a Debasthali (Sacred Groves)** and these are community conserved site which need to be respected by the state.
21. That recently on 22ndJuly 2023, the local villagers and leading personalities of the city have strongly opposed the on-going project and plantation wok were done at the site. Copy of times of India Report 23/06/2023 is annexed here with as **ANNEXURE-3**
22. Comparative images of googleearth clearly suggest the extent of damage because of the project and prior to the project the site was full ogf vegetation and greenery. So also the photographs of the site clearly suggests the density of vegetation.The removal of trees using JCB machine is to destroy the evidence of presence of large tree species and same is evident from the site. Photographs of the site is annexed here with as ANNEXURE-4

PUBLIC DISCONENTENTMENT AND OUTRAGE AGAINST DAMAGE TO SIKHARCHANDI

23. The protest against the proposed project at Sikharchandi is all across political parties, intellectuals and local residents of Bhubaneswar. There is wider hue and cry regarding damage to the Sikharchandi Hill and same has been covered in vernacular and English Print Media, Electronic. One

such news report covered in OTV , the leading TV channel of the state is reproduced as follows.

"A four-member team of the National Green Tribunal (NGT) arrived in Bhubaneswar on Saturday to inspect the construction activities on Sikharchandi hills being undertaken by the State government as part of its plan to transform the hills into a tourist spot.

The team has been constituted following the NGT's order on June 12 to look into the reports of violation of the Forest Act, 1980 by the Sikharchandi Hills project undertaken in Bhubaneswar. The project has been facing stiff opposition from locals who alleged that the construction activities would damage the bio-diversity.

Venting his anger, a local, Prafulla Samantray said, "The way the government has cut down trees on this hill is preposterous. They say, the hill will be used for drinking water supply. But why this hill? They have ample space for government offices, MLA and officers quarters. They should have eyed other places for water supply."

"While we do not oppose water supply project, I am sure they will be using this space for business and sell this hill to corporate for peanuts," he alleged.

"We will never allow them to enter this area and fell trees again. My demand is to demarcate Patia and Pathragadia villages and construct boundary walls," said **Jatni MLA Suresh Routray.**

It is pertinent to mention here that the Tribunal issued orders while hearing a plea made by one Sachin Mohapatra alleging damage to the

environment by construction works on the hilltop including earth moving, blasting of rocks and felling of trees.

> "It does prima facie appear that the project may be in violation of the Forest (Conservation) Act, 1980 and may result in damage to the bio-diversity, particularly, rare and endangered medicinal and wild plant species and overall integrity of the hill. Thus, the intervention of this Tribunal may be necessary under section 15 of the NGT Act to prevent further damage and to restore the damage already done after independent verification of facts," the Tribunal had said in its June 12 order.". https://odishatv.in/news/odisha/amid-protest-ngt-team-arrives-in-bhubaneswar-to-review-sikharchandi-project-207823#google_vignette

24. PRESENCE OF WILDLIFE AND ELEPHANT AT SIKHARCHANDI

Forest fire disturbs wildlife settlement; **elephant spotted at Sikharchandi hills in Bhubaneswar, 13TH March 2023, OTV**

> "The soaring cases of forest fire seem to have immensely disturbed the wildlife settlement in Odisha as an elephant was spotted in the forest on Sikharchandi hills near Bhubaneswar on Sunday.
>
> Though it is unclear from where the elephant has come from, it is believed that the pachyderm might have strayed into the city from nearby Chandaka forest. Till the last report came in, the exact location of the elephant could not be ascertained. While some believe the animal might have returned to Chandaka forest, others suspect that the jumbo might have got stranded on the hills due to the wildfire.

Though various developmental works are being carried out on the Sikharchandi hills, the exact cause of the fire is yet to be ascertained.

Meanwhile, panic gripped the local residents after the lone jumbo, believed to have separated from its herd, was sighted near the human settlement.

"Sikharchandi is a tourist spot which witnesses footfalls of hundreds of visitors daily. The government should take necessary steps to ensure the safety of the tourists and control the forest fire. Besides, the elephant should be driven away from the human settlement as it may pose threat to human lives," said a local.

"The **elephant was first spotted on March 11 night**. Forest department officials had tried to drive away the animal last night. The fire was also doused by the Fire Services personnel," said a shop owner at the Sikharchandi hill.

"Elephants often stray into human settlements fearing forest fire and it results in human-animal conflict. The forest fire is not new. The government should initiate necessary steps to curtail the forest fire which is happening every year," said Biswajit Mohanty, wildlife expert. **https://odishatv.in/news/odisha/forest-fire-disturbs-wildlife-settlement-elephant-spotted-at-sikharchandi-hills-in-bhubaneswar-199060**

CLEARED MORE VEGETATION THAT THE ALLOTTED AREA

25. The committee report states that during field inspection it was observed that an area of about **7.5 acre (3.0 ha.) has been cleared and a road has been constructed clearing vegetation though IDCO has allotted 4.00**

acres of land to WATCO for the said project. **No permission for cutting of trees has been taken from the local DFO.** The clearing of vegetation is illegal and the erring officer need to be punished.

26. That the Sikharchandi Temple is one of the **protected monuments as per records of Archaeological Survey of India** AND any construction requires prior approval of ASI which has not been obtained in the present case.

27. That in view of no demarcation has been made as per the order of Honble NGT, the site in question being a potential biodiversity heritage site, the land is having tree cover, site being a protected monument under ASI, the sabik record showing Jhati jungle, no alternative site explored prior to the present site, project not a site a specific project, popular discontent in the locality, a site of Sacred Groves, a signature site to be preserved for future generation, the applicant prays before the Honble Tribunal to restore the area to its original condition and direct the state authorities relocate the project to any other alternative sites.

28. Honble Tribunal may direct the State Biodiversity Board Odisha to take steps for declaration of the site as Biodiversity Heritage Site and IDCO/GA Department to find alternative site for water tank project

29. Honble Tribunal may please to direct the Respondents to restore the land to its original condition and impose an exemplary cost against the violators.

APPLICANT THROUGH

ADVOCATE

BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL

EASTERN ZONE BENCH, KOLKATA

ORIGINAL APPLICATION NO 65 OF 2023

IN THE MATTER OF:

Sachin Mohapatra — APPLICANT

Versus

Bhubaneswar Development Authority & Ors. — Respondents

AFFIDAVIT

25 JUL 2023

I, Sachin@Sachinmay Mohapatra, S/o Late Abhilas Mohapatra, aged about 35 years, Daruthenga, Khofdha BHUBANESWAR, 751005 - do hereby solemnly affirm, and declare as under:

1. That I am the applicant in the abovementioned application and competent to swear this affidavit
2. That I have read over the contents of the accompanying affidavit and annexure and the same is true and correct and is drafted on my instruction.

Sachin Mohapatra

DEPONENT

VERIFICATION:-

Verified on this the 25 JUL of 2023 2023 at ----------.that the contents of the above affidavit are true and correct. No part of it is false and nothing material has been concealed there from.

Sachin Mohapatra

DEPONENT

Identified By

Advocate

NOTARY ★ JANMEJAYA RAUTRAY BHUBANESWAR REGD. NO-ON-86/2012 EXPIRY DATE-25/7/2027 ★ GOVT. OF ODISHA (INDIA)

The above named deponent(s) being duly identified by Sri S.P. Jana Advocate, Bhubaneswar

Appears before me at ..... States on oath that this affidavit are true to his/her/their knowledge and belief.

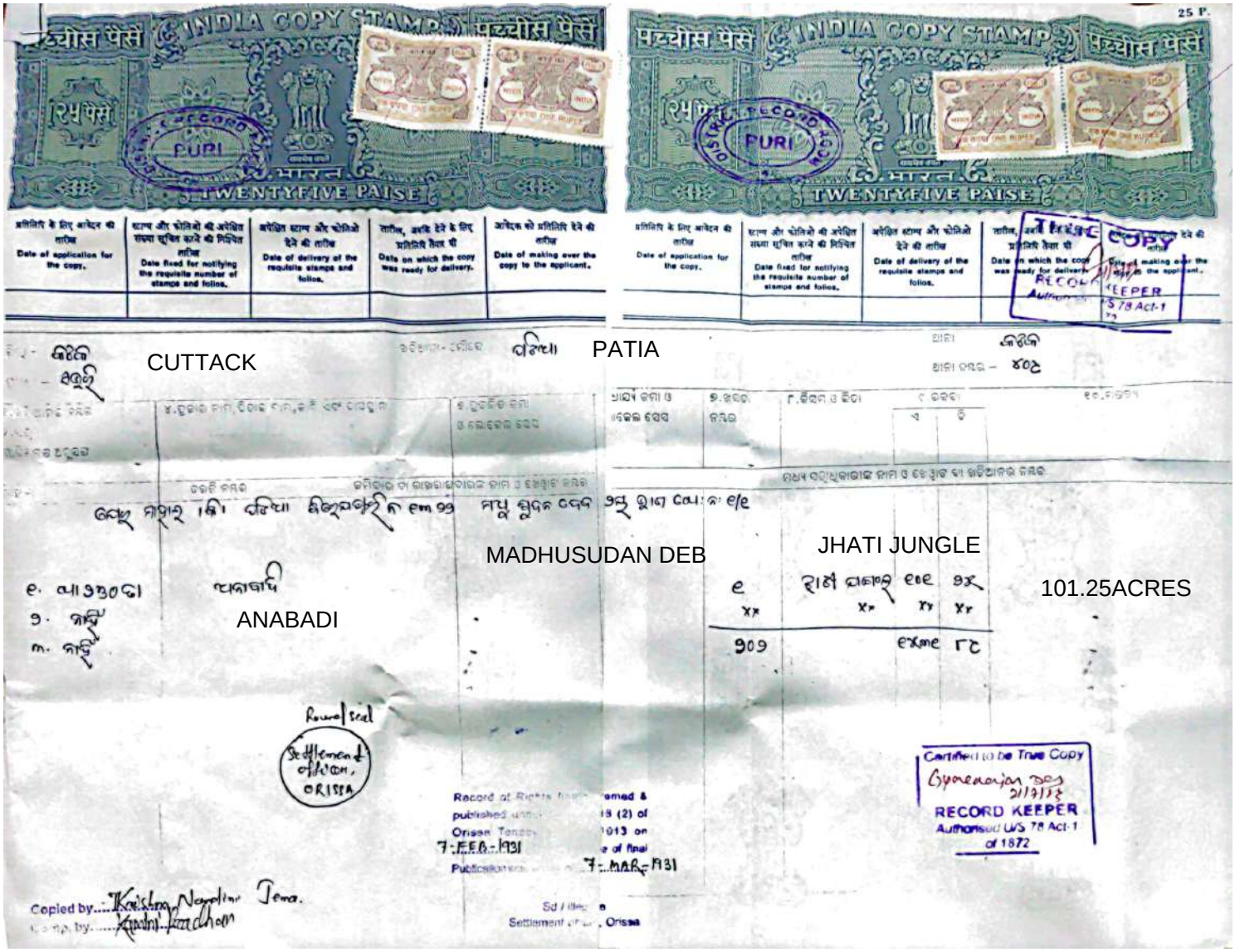
25 JUL 2023

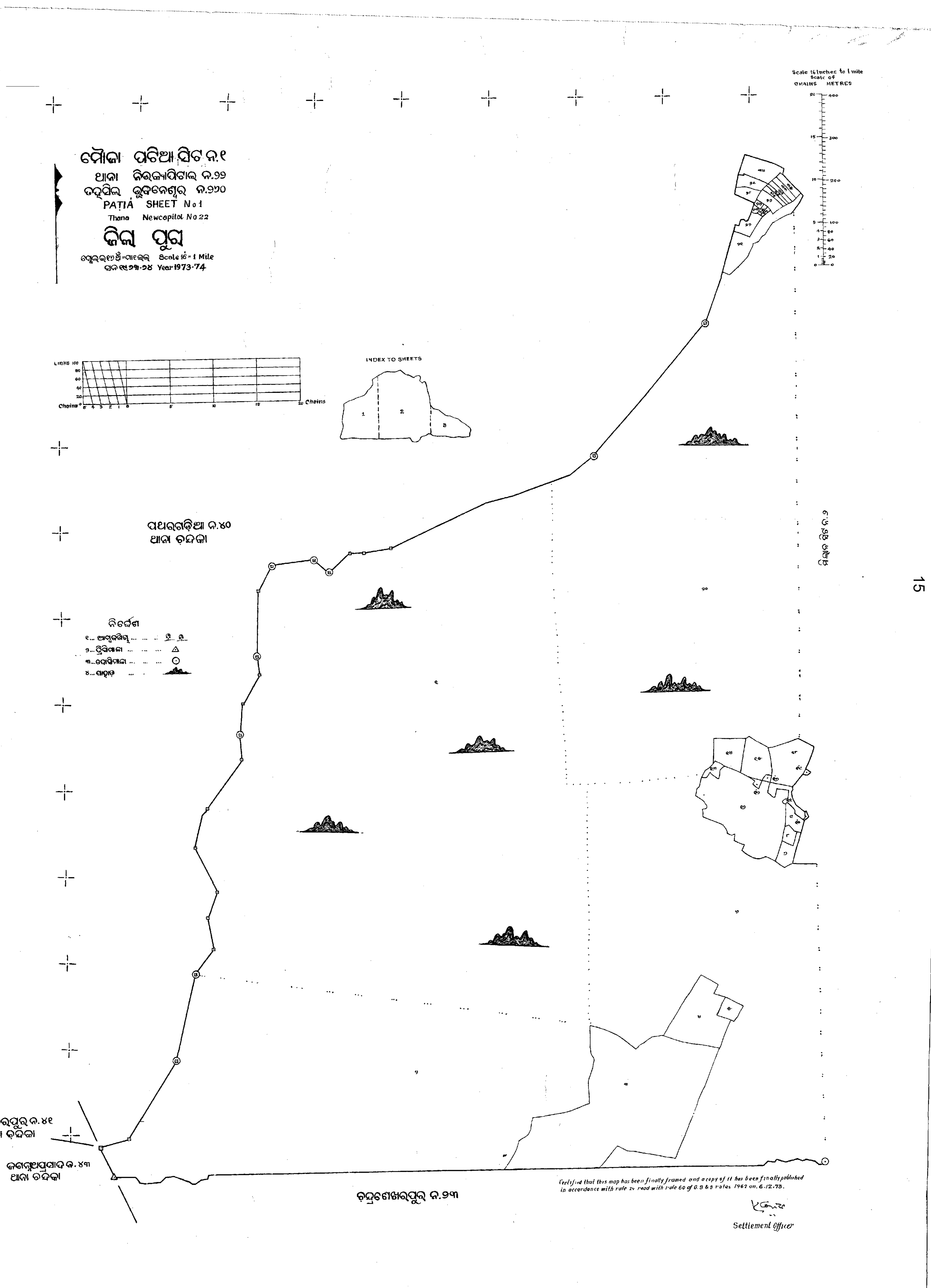
Deponent(s) Notary, Bhubaneswar

JANMEJAYA RAUTRAY NOTARY, GOVT. OF ODISHA BHUBANESWAR Regd. No-ON-86/2012 Mob N 9337121273

ANNEXURE-1

SABIK RECORD OF YEAR 1931, PLOT NO 1 KISAM JHATI JUNGLE AREA 101.25 ACRES





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Settlement Officer

The Journal of Biodiversity. Photon 115 (2015) 441-452
https://sites.google.com/site/photonfoundationorganization/home/the-journal-of-biodiversity
Original Research Article. ISJN: 8359-6193: Impact Index: 5.28

The Journal of Biodiversity Photon

Documentation of medicinal plants in Sikharchandi hills, Odisha, India – A priority agenda for action

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Abbreviations:
AC: Acanthaceae, AL: Asclepiadaceae, AM: Amaranthaceae, AN: Anacardiaceae, AP: Apocynaceae, AR: Arecaceae, AS: Asteraceae, CB: Combretaceae, CM: Commelinaceae, CP: Capparidaceae, CS: Caesalpiniaceae, CU: Cucurbitaceae, CV: Convolvulaceae, CY: Cyperaceae, DS: Dioscoreaceae, EP: Euphorbiaceae, FB: Fabaceae, LG: Loganiaceae, LL: Liliaceae, LM: Lamiaceae, LY: Lygodiaceae, ML: Meliaceae, MM: Mimosaceae, MR: Moraceae, MS: Menispermaceae, MV: Malvaceae, PO: Poaceae, RB: Rubiaceae, RH: Rhamnaceae, RT: Rutaceae, SC: Scrophulariaceae, SP: Sapotaceae, ST: Sterculiaceae, TL: Tiliaceae, VB: Verbenaceae, O: Others

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Abstract
The floristic diversity is the natural resource and wealth of a region and acquiring knowledge of it is of immense scientific and commercial importance. An extensive field survey was conducted in order to assess the floristic composition with special reference to the medicinal plant diversity, the distributional pattern of the plant species and their present status of vulnerability in Sikharchandi hills, Odisha, India during 2012-13. A total of 220 angiosperms and 4 pteridophytes were collected belonging to 180 genera and distributed under 69 different families. 110 species of medicinal plants under 103 genera and 53 families were recorded and information about their uses in the management of primary healthcare was documented. Among them, 39 were herbs followed by 32 trees, 19 climbers, 15 shrubs, 3 grasses and 2 parasites. Euphorbiaceae was the dominant family with 11 species followed by Fabaceae (8), Rutaceae (6) and Lamiaceae (5). *Phyllanthus* and *Ocimum* were the dominant genera with 3 species each. The present study revealed that many valuable medicinal plants and wild relatives of cultivated species are present in Sikharchandi hills played a significant role in the conservation of biodiversity of this region. Further studies on the potential medicinal plants identified during the investigation may result in isolation and formulation of herbal drugs after scientific authentication.

Citation:
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Photon Ignitor: ISJN83596193D761614052015

1. Introduction

Plants have been a major source of therapeutic agents since the dawn of time. From a longer period of time medicinal plants or their secondary metabolites have been directly or indirectly playing an important role in the human system to combat diseases (Wink et al., 2005). The indiscriminate use of antibiotics has resulted in many bacterial pathogens rapidly becoming resistant to a number of originally discovered antimicrobial drugs (Barbour et al., 2004). There is, thus, a continuous search for new antibiotics, and medicinal plants may offer a new source of antimicrobial agents.

Besides use of medicinal plants in disease management, the plants have the potential to serve as an inexhaustible reservoir for the identification and isolation of useful chemical compounds against diseases for which there is no known cure.

However, today many medicinal plants face extinction or severe genetic loss. Lack of complete inventory of medicinal plants in most of the countries, overexploitation of medicinal plants and disappearance of ethnomedicinal or traditional knowledge poses immense threat to the genetic stock of the medicinal plant species. This alarming

situation has resulted in short supply, high prices and adulteration of crude drug. Moreover, now much emphasis has been put on the potential for discovering new wonder drugs and little effort on the issues related to rarity and endangerment of many valued plant species. Therefore, documentation, conservation and bioprospection of medicinal plants are highly essential.

Earlier reports on floristic composition of Bhubaneswar and its adjoining regions estimated 934 angiosperm species (Choudhary, 1980) whereas in the religious centres of Khurda district 357 angiosperm species were recorded (Das, 2001). In spite of rich and diverse floristic composition of Khurda region, the past floristic exploration of this region was fragmentary except for some sporadic references reported by several workers. Considering these cardinal points, Sikharchandi hill harbouring a good number of medicinal plant species was selected for the present study which was little explored earlier. In fact, the survey and documentation of floristic wealth of the region is necessary for conservation and restoration of biological diversity. The present study was undertaken to build up a scientific database on medicinal plant diversity and their uses on local claims in Sikharchandi hills which will play a definite role in the conservation of biodiversity.

2. Materials and Methods

2.1 Study sites

The study area is situated between 20° 21′ 30″ N and 85° 49′ 40″ E in Khurda district, Odisha. Sikharchandi is famous for Hindu temple dedicated to Goddess 'Chandi' and the deity is named "Sikharchandi" as it is situated at the top of the hills. It is also one of the oldest temples of Bhubaneswar, the capital of Odisha. Sikharchandi being a natural sacred site and rich in biodiversity for which it attracts ecotourism. The hill is covered with dry deciduous forest situated along the Chandaka sanctuary. The climate is mainly tropical, wet and dry. The South-west monsoon is the main source of rainfall and the average rainfall is around 154 cm. The average temperature ranges 12° C in winter and 42° C - 45° C during summer. Generally humidity is high especially in south west monsoon and post monsoon months. In the summer afternoons the relative humidity varies between 25 - 40%. The soils of this region are red-brown in colour, laterite type with sandy loam texture.

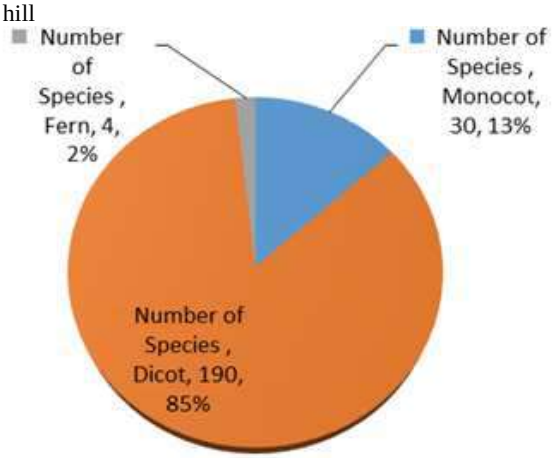
2.2 Methodology

Extensive and intensive field surveys were conducted during 2011-2013 in different seasons to explore the floristic composition and to collect ethnobotanical information. The plant specimens were collected and photographs were also taken from the study area. During this period, interviews with temple priest and local inhabitants were conducted to collect information about the medicinal use of different plant specimens with their vernacular names. Sikharchandi hills being a natural sacred site, religious beliefs, spirituality and the participation of locals on conservation of this site were also documented. The collected species were pressed, dried, preserved and properly identified with the help of available literature, monographs and confirmed from the authentic regional floras (Saxena and Brahmam, 1994-1996; Haines, 1921-1925; Mooney, 1950). To get authenticity, the response of the people regarding the use of medicinal plants were cross checked based on the reports and books published by several workers (Prajapati et al., 2003; Chopra et al., 1956; Yoganararasimahan, 2000).

3. Results and Discussion

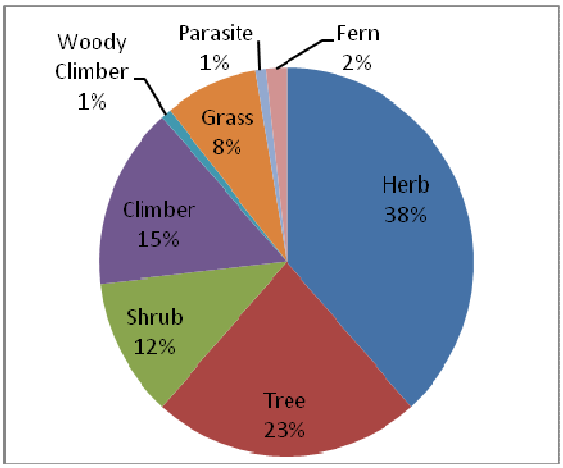
During the investigation, 220 angiosperms (190 dicotyledonous species under 152 genera included in 58 families; 30 monocotyledonous species under 25 genera included in 8 families) and 4 pteridophytes were recorded from the study area (Figure 1). Habit wise analysis of the available species indicated that 86 (38%) were herbs followed by 52 (23%) trees, 34 (15%) climbers, 26 (12%) shrubs, 18 (8%) grasses, 4 (2%) ferns, 2 (1%) woody climbers and 2 (1%) parasites (Figure 2). Family-wise trend in diversity of species dominance followed a pattern of family Fabaceae (19), Poaceae (15), Euphorbiaceae (13), Rubiaceae (11) and Convolvulaceae (9) (Figure 3). *Cassia*, *Crotalaria* and *Ziziphus* with 4 species each were found to be the dominant genera (Figure 4).

Figure 1: Distribution of plant species in Sikharchandi hill



A total of 39 invasive alien plant species belonging to 35 genera under 21 families were recorded. Family-wise distribution of genera revealed that family Asteraceae was dominant as compared to

Figure 2: Habit-wise distribution of plant species (%) in Sikharchandi hills



Convolvulaceae and Fabaceae (Figure 5). From 224 plant species documented during the present investigation, a total of 110 plants belonging to 103 genera under 53 families were important in phytopharmaceuticals. Habit-wise, herbs were dominant with 39 species followed by 32 trees, 19 climbers, 15 shrubs, 3 grasses and 2 parasites. *Phyllanthus* and *Ocimum* were the dominant genera among medicinal plants represented with 3 species each (Figure 7). Families such as Euphorbiaceae, Fabaceae, Rutaceae and Lamiaceae were seen to be the important ones as regards to the family-wise distribution of species and genera of medicinal plants (Figure 8). Some of the important medicinal plant species observed during the study include *Gloriosa superba*, *Smilax zeylanica*, *Centella asiatica*, *Gymnema sylvestre*, *Hemidesmus indicus*, *Andrographis paniculata*, *Biophytum sensitivum*, *Cissampelos pareira*, *Tinospora cordifolia*, *Plumbago zeylanica*, *Acorus calamus*, *Evolvulus alsinoides*, *Paederia foetida*, and *Costus speciosus*.

Figure 3: Family wise distribution of plant species in Sikharchandi hills

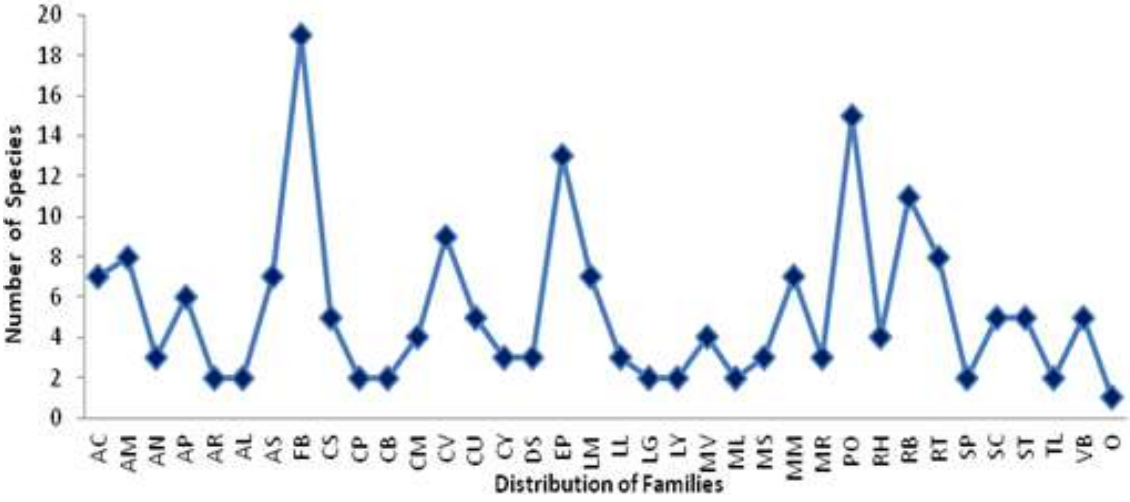


Figure 4: Genus wise distribution of plant species in Sikharchandi hills

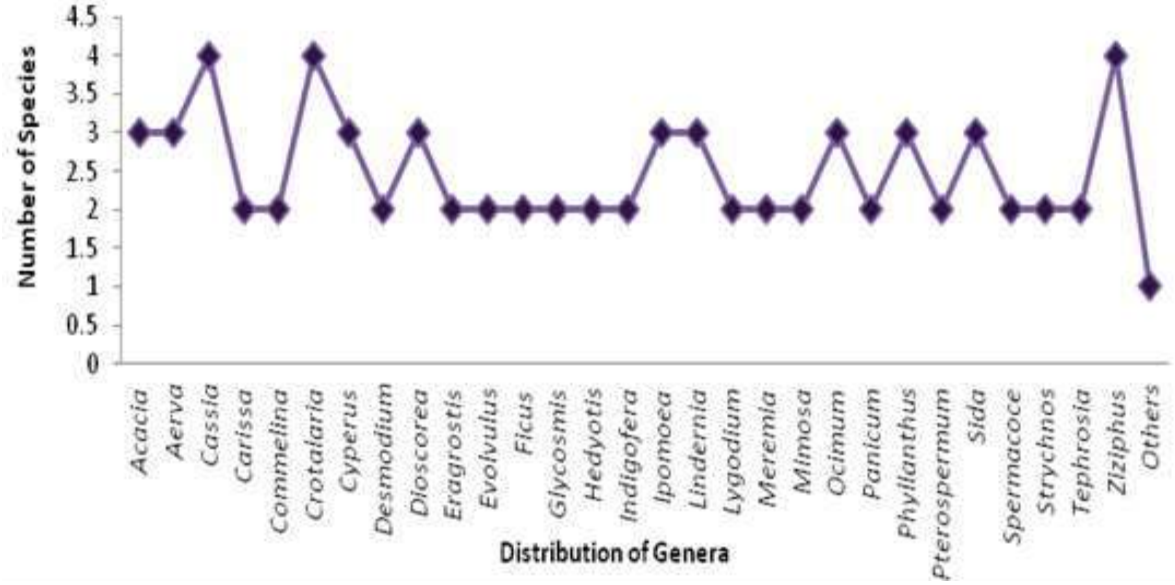


Figure 5: Family wise distribution of genera and species of invasive alien species in Sikharchandi hills

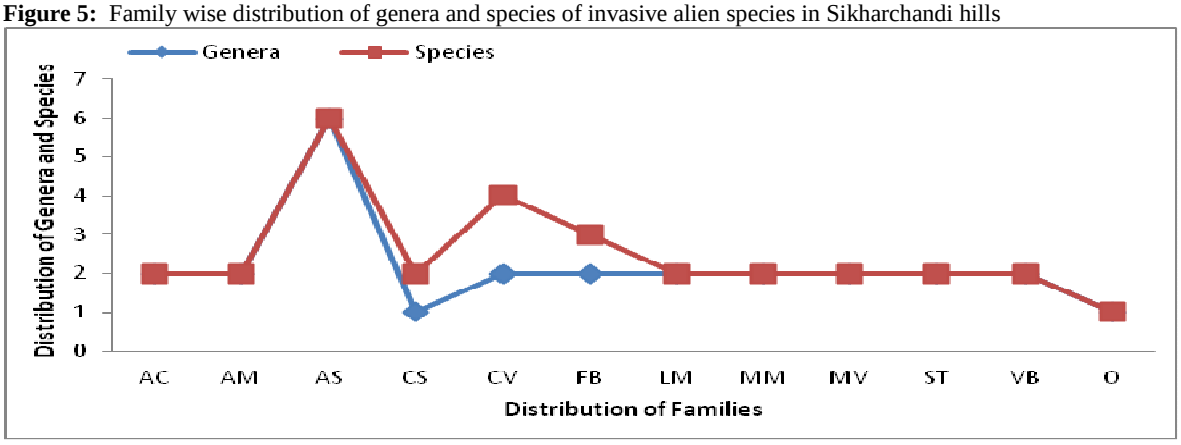


Figure 6: Habit wise distribution of medicinal plant species

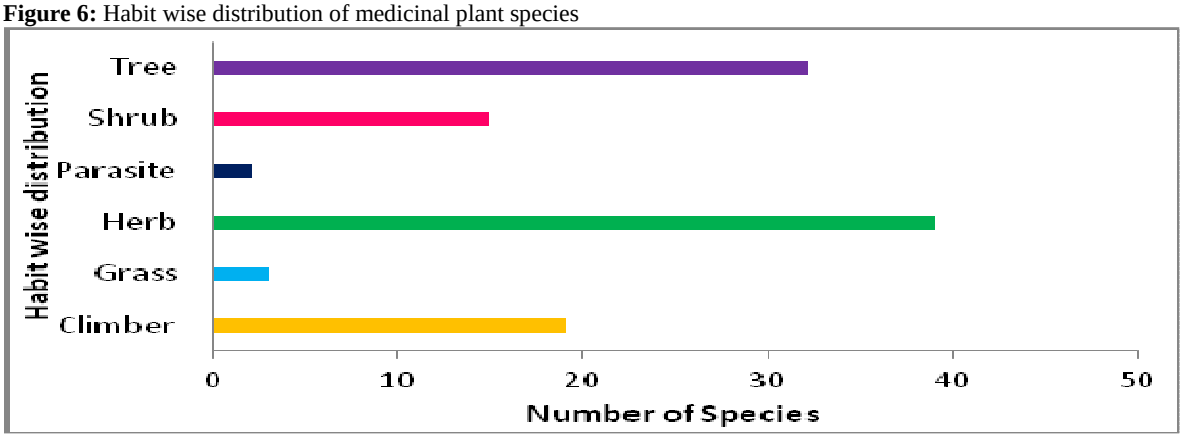


Figure 7: Genera wise distribution of medicinal plant species

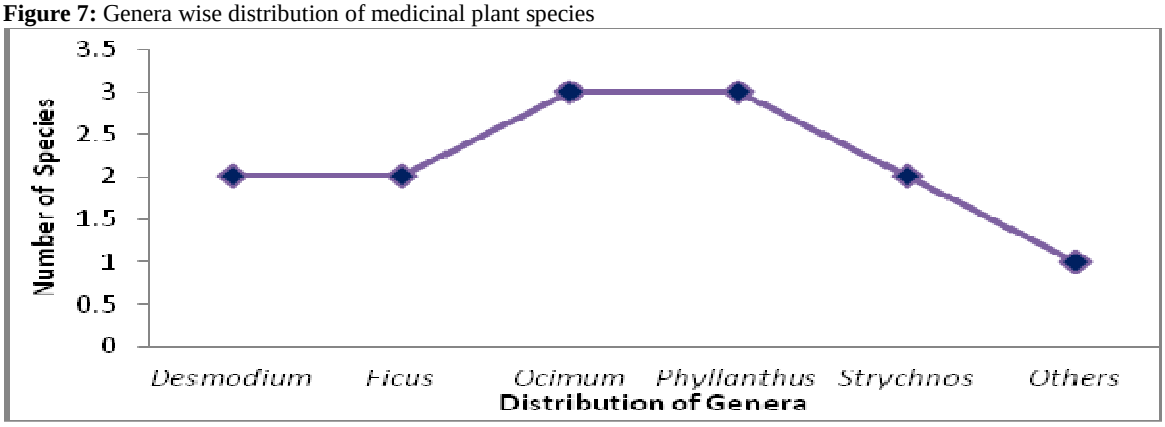


Figure 8: Family wise diversity of genera and species of medicinal plant

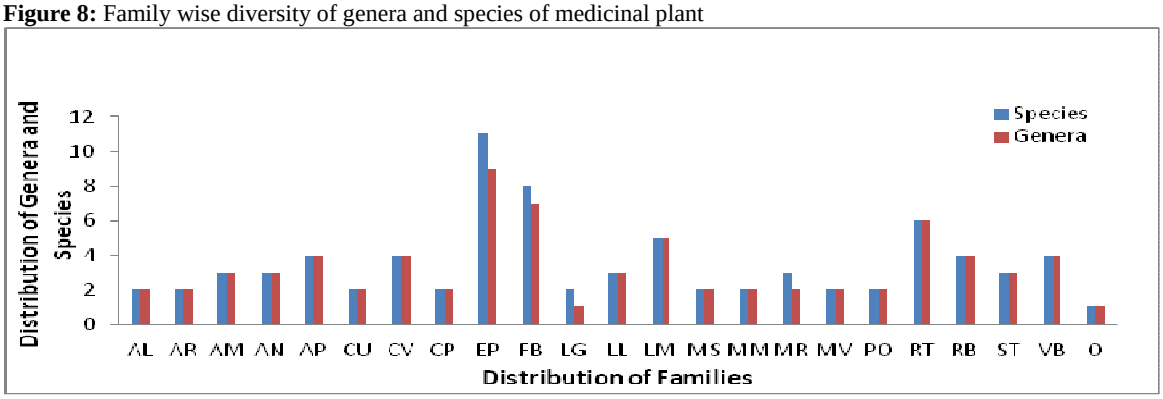


Table 1: Medicinal plants with botanical and local name, family and medicinal use at the Sikharchandi hills in Bhubaneswar (Odisha), India

Sl. No.	Botanical name	Family	Local name	Part (s) used	Ailments
Tree species					
1.	*Acacia catechu* (L.f.) Willd.	Mimosaceae	Khaira	Bark gum	Diarrhoea, leprosy and ulcers
2.	*Aegle marmelos* (L.) Corr.	Rutaceae	Bela	Roots	Dysentery, vomiting, intermittent fever & gastric irritability
				Leaves	Diabetes
				Unripe fruits	Diarrhoea & stomachalgia
				Ripe fruits	Dyspepsia
3.	*Alangium salvifolium* (L.f.) Wang.	Alangiaceae	Aankula	Roots	Rheumatism, leprosy, inflammation, bites of rabid dogs
4.	*Anacardium occidentale* L.	Anacardiaceae	Kaju	Bark & inflorescence	Snakebite
				Gum from bark	Leprosy, ringworm, corns and ulcers
				Fruits	Dysentery & haemorrhoids
5.	*Atalantia monophylla* (L.) Corr.	Rutaceae	Narguni	Berries	Rheumatism & paralysis
				Leaves	Snake-bite
6.	*Azadirachta indica* A. Juss.	Meliaceae	Nimba	Bark and leaves	Leprosy, intestinal worms, ulcers, tuberculosis, boils, eczema and malarial & intermittent fevers
7.	*Bombax ceiba* L.	Bombacaceae	Simili	Roots	Dysentery
				Bark	Wounds
				Leaves	Strangury and skin eruptions
				Flowers	Skin troubles
				Young fruits	Ulcer
				Seeds	Gonorrhea and cystitis
8.	*Borassus flabellifer* L.	Arecaceae	Tala	Roots	Strangury
				Fruits	Constipation, intestinal worms and leprosy
9.	*Butea monosperma* (Lam.) Taub.	Fabaceae	Palasha	Bark	Bone fractures, gonorrhea, ulcers & diabetes
				Leaves	Boils & worm infestations
				Flowers	Leprosy & arthritis
				Seeds	Herpes & epilepsy
10.	*Cassia fistula* L.	Caesalpiniaceae	Sunari	Roots	Skin diseases, syphilis
				Bark	Pustules, leprosy, ringworm, fever, diabetes & strangury
				Leaves	Ulcers & fevers
				Flowers	Skin diseases & bronchitis
				Fruits	Rheumatism, jaundice, intermittent fever & strangury
11.	*Catunaregum spinosa* (Thunb.) Tiruv.	Rubiaceae	Mahana	Bark	Diarrhoea
				Fruits	Pains, helminthiasis, leprosy, wounds, ulcers, amenorrhoea, dysmenorrhoea, asthma, bronchitis, and fever
12.	*Cleistanthus collinus* (Roxb.) Benth.ex Hook.f.	Euphorbiaceae	Karada	Roots & fruits	Gastrointestinal irritant
				Leaves	Abortifacient
13.	*Crateva magna* (Lour) DC.	Capparidaceae	Baruna	Bark	Gout, urinary calculi, rheumatoid arthritis & worm infestation
14.	*Dalbergia sissoo* Roxb.	Fabaceae	Sisoo	Roots	Diarrhoea
				Leaves	Gonorrhoea & vomiting
				Bark & heartwood	Leprosy, leucoderma, syphilis, helminthiasis, bronchitis, gout & fevers

15.	*Drypetes roxburghii*(Wall.) Hurasawa	Euphorbiaceae	Poichan-dia	Leaf decoction	Fever & rheumatism
				Leaves & seeds	Constipation, filiariasis & abortifacient
16.	*Ficus benghalensis* L.	Moraceae	Bara	Aerial roots	Vomiting, leucorrhoea & Osteomalacia
				Bark	Diarrhoea, diabetes, gonorrhea & leucorrhoea
				Leaves	Ulcers & leprosy
				Latex	Neuralgia, rheumatism, bruises, gonorrhoea and cracks of the sole
17.	*Ficus religiosa* L.	Moraceae	Pipala	Bark	Swellings and burns
				Leaves	Wounds and skin
				Dried fruit	Asthma
				Latex	Neuralgia and haemorrhages
18.	*Gmelina arborea* Roxb.	Verbenaceae	Gam-bhari	Leaves	Gonorrhoea, cough and ulcers
				Fruit	Fevers & bilious affections
				Root and bark	Nervous disorders, piles and oedema
19.	*Holarrhena pubescens* (Buch.-Ham.) Wall. ex G. Don.	Apocynaceae	Korei	Bark / leaves	Scabies
				Bark & seed	Piles, leprosy, worm infestation and dysentery
20.	*Lannea coromandelica* (Houtt.) Merr.	Anacardiaceae	Moi	Bark	Wounds, ulcers, gouts & dysentery
				Leaves	Elephantiasis, neuralgia, sprains & bruises
21.	*Limonia acidissima* L.	Rutaceae	Kaitha	Leaves	Diarrhoea, vomiting and bronchitis
				Unripe fruit	Diarrhoea, asthma, vomiting, gingivitis, ulcers & strangury
				Gum	Diarrhoea & diabetes
22.	*Mimusops elengi* L.	Sapotaceae	Baula	Tender stems	Cystorrhoea and dysentery
				Flower	Ulcers
				Unripe fruits	Fix loose teeth
				Bark	Used as a gargle for odontopathy
23.	*Morinda pubescens* Sm.	Rubiaceae	Achhu	Root	Haemorrhages, dysentery, boils and general debility.
				Leaves	Gastropathy, dyspepsia, diarrhoea, wounds, gout, hernia and fever.
24.	*Naringi crenulata* (Roxb.) Nicols	Rutaceae	Benta	Fruit	Malignant and pestilent fevers
25.	*Phyllanthus emblica* L.	Euphorbiaceae	Aenla	Bark	Gonorrhea & diarrhoea.
				Leaves	Conjunctivitis & dysentery
				Fruits	Diabetes, asthma, bronchitis, peptic ulcer, leprosy, haematemesis, anaemia, jaundice, strangury, diarrhoea, fevers & greyness of hair
26.	*Pterospermum acerifolium* (L.) Willd.	Sterculiaceae	Muchu-kunda	Flowers	Ulcers, leprosy, hoarseness of voice and haemorrhoids
27.	*Semecarpus anacardium* L.f.	Anacardiaceae	Bhaliya	Fruits	Beriberi, asthma, dyspepsia, helminthiasis, leprosy, leucoderma, scaly skin eruption, diabetes, amenorrhoea & ulcers
28.	*Streblus asper* Lour.	Moraceae	Sahada	Roots	Ulcers, elephantiasis, bronchitis, diarrhoea, dysentery, fever & syphilis
				Bark	Ulcers, diarrhoea and fever
				Leaves	Sore heels
29.	*Strychnos*	Loganiaceae	Kochila	Leaves	Ulcers

	nux-vomica L.			Ripe fruit pulp & Seeds	Asthma, bronchitis, diabetes, intermittent and malarial fevers, paralysis and weakness of limbs
30.	*Strychnos potatorum* L.f.	Loganiaceae	Nirmali	Seeds	Eye diseases, dysentery, diabetes and gonorrhoea
31.	*Syzygium cumini* (L.) Skeels.	Myrtaceae	Jammun	Leaves	Strengthening of teeth and gums
				Tender shoots	Vomiting
				Fruits and seeds	Diabetes, diarrhoea, pharyngitis and ringworm
32.	*Tectona grandis* L.f.	Verbenaceae	Shagwan	Bark	Bronchitis, dysentery & diabetes
				Leaves	Leprosy & ulcers.
				Fruits	Vesical calculi.
				Flowers	Leprosy, strangury & diabetes
				Wood	Neuralgia, arthritis, swelling of the eye lids, leprosy, leucoderma, leucorrhoea & dysentery
				Oil from seeds, flowers & wood.	Eczema & ringworm
Shrubs					
33.	*Breynia vitis-idaea* (Burm.f.) Fischer.	Euphorbiaceae	Jajhangi	Leaf	Heamorrhages, tonsillitis
				Bark	Heamorrhages
34.	*Calamus rotang* L.	Arecaceae	Betta	Root	Chronic fevers, snake venom
				Leaves	Biliousness
35.	*Carissa carandas* L.	Apocynaceae	Kerenda-koli	Roots	Stomachic & anthelmintic
				Leaves	Fever
36.	*Clerodendrum viscosum* Vent.	Verbenaceae	Kharakhari	Leaves	Tumours
				Roots	Remove ascarids
37.	*Glycosmis pentaphylla* (Retz.) DC.	Rutaceae	Chaula-dhua	Leaf juice	Fever, vermifuge & eczema.
				Wood	Snake-bites.
38.	*Helicteres isora* L.	Sterculiaceae	Modi-modika	Roots & bark	Colic, scabies, emphysema, gastropathy, dysentery
				Fruits	Colic, dysentery, ulcers & diabetes.
39.	*Hugonia mystax* L.	Linaceae	Chulijhinka	Roots	Swellings, snake-bite & anthelmintic
40.	*Jatropha gossypifolia* L.	Euphorbiaceae	Baigaba	Roots	Leprosy
				Latex	Ulcers
				Leaves	Fevers, boils, eczema & itches
41.	*Nyctanthes arbor-tristis* L.	Oleaceae	Gangasiuli	Leaves	Sciatica, asthma, cough & strangury
				Flowers	Dyspepsia, greyness of hair & baldness
				Seeds	Scurvy and affection of the scalp
42.	*Ocimum sanctum* L.	Lamiaceae	Tulasi	Whole Plant	Leucoderma, asthma, bronchitis, vomiting & ringworm
43.	*Ocimum gratissimum* L.	Lamiaceae	Ganga- Tulasi	Whole Plant	Treating sunstroke, headache, and influenza
44.	*Phyllanthus reticulatus* Poir.	Euphorbiaceae	Jajanga	Whole Plant	Strangury, sores, diarrhoea & obesity
				Leaves	Bleeding gums, smallpox, asthma & syphilis
45.	*Rauwolfia tetraphylla* L.	Apocynaceae	Patala-garuda	Whole plant	Skin ailments
46.	*Ricinus communis* L.	Euphorbiaceae	Jadda	Seed oil	Warts, lacteal tumors, corns & moles
				Seeds	Scorpion-sting, fish poison
				Leaves	Headache & boils
47.	*Ziziphus mauritiana*	Rhamnaceae	Bara koli	Roots	Fever & cephalalgia

	Lam.			Bark	Dysentery, gingivitis & boils
				Leaves	Wounds, asthma, typhoid fever, diarrhoea & obesity
				Fruits	Vomiting, nausea & leprosy.
				Seed	Asthma, diarrhoea, leucorrhoea and insomnia
Climbers					
48.	*Abrus precatorius* L.	Fabaceae	Kaincha	Seeds	Nervous disorders, stiffness of shoulder joints, sciatica and paralysis
				Leaves	Cough, skin diseases
				Root	Gonorrhoea & jaundice
49.	*Aristolochia indica* L.	Aristolochiaceae	Hansa lata	Root	Emmenagogue, fevers, leucoderma
				Leaves	Snake-bite
50.	*Argyreia nervosa* (Burm.f.) Boj.	Convolvulaceae	Brudha-jaraka	Roots	Ulcers, cough, bronchitis, strangury, nervous weakness, obesity, syphilis, hoarseness, diabetes, tuberculosis, arthritis & leucorrhoea
51.	*Asparagus racemosus* Willd.	Liliaceae	Satabari	Roots	Nervous disorders, diarrhoea, strangury, throat infections, leprosy, tuberculosis, bronchitis, gonorrhoea, leucorrhoea & epilepsy
52.	*Cissampelos pareira* L.var. *hirsuta* (Buch-Ham ex DC.) Forman	Menispermaceae	Akanabindi	Roots	Dyspepsia, diarrhoea, dropsy, cough, cystitis & snakebite
53.	*Clitoria ternatea* L.	Fabaceae	Aparajita	Roots	Helminthiasis, leprosy, asthma, leucoderma, elephantiasis, bronchitis, tuberculosis, ulcers & fevers
				Leaves	Otalgia & hepatopathy
54.	*Diplocyclos palmatus* (L.) Jeffrey.	Cucurbitaceae	Shivalingi	Whole plant	Cough & skin diseases
55.	*Dioscorea oppositifolia* L.	Dioscoreaceae	Pitli kanda	Tubers	Swellings, scorpion sting & snake-bite
56.	*Gymnema sylvestre* (Retz.) R.Br.	Asclepiadaceae	Gudamari	Leaves	Diabetes
				Whole plant.	Jaundice, helminthiasis, cough, asthma, bronchitis, intermittent fever, amenorrhoea, conjunctivitis & leucoderma
57.	*Hemidesmus indicus* (L.)R Br. var *indicus*	Asclepiadaceae	Anant-mula	Roots	Leucoderma, leprosy, asthma, bronchitis, epileptic fits, syphilis helminthiasis, diarrhoea, leucorrhoea & fever
				Leaves	Vomiting, wounds & leucoderma
				Stems	Leucoderma, cough & asthma
				Latex	Conjunctivitis
58.	*Ichnocarpus frutescens* (L.) R.Br.	Apocynaceae	Shyama lata	Roots	Hyperdipsia, fever, leprosy, vomiting, diabetes & cephalalgia
59.	*Merremia tridentata* (L.) Hall.f. subsp. *hastata* (Hall.f.) Ooststr.	Convolvulaceae	Pani-lai	Root	Toothache
				Whole plant	Rheumatism, piles & urinary disorders
60.	*Mucuna pruriens* (L.)DC.	Fabaceae	Baidanka	Roots	Diuretic, emmenagogue, nervous diseases, elephantiasis, renal affections & dropsy
				Seed	Tonic & aphrodisiac.
61.	*Operculina turpethum* (L.)	Convolvulaceae	Dudha-lomo	Root.	Purgative, scorpion-sting & snake-bite

	Silva-Manso.				
62.	*Paederia foetida* L.	Rubiaceae	Prasaruni	Leaves	Bacillary dysentery, urinary lithiasis, dysuria, rheumatism, dyspepsia, gastritis & enteritis
63.	*Smilax zeylanica* L.	Smilacaceae	Muturi	Roots	Venereal diseases, sores & abscess
				Whole plant -	Insanity, diarrhoea, syphilis, gonorrhea, fever, arthritis, leucorrhoea & impotency
64.	*Tinospora cordifolia* (Willd.) Hook.f. & Thoms.	Menispermaceae	Guluchi	Whole plant	Helminthiasis, gout, intermittent & chronic fevers, vomiting, leprosy, erysipelas, anaemia, cough, asthma, jaundice & splenopathy.
65.	*Toddalia asiatica* (L.)Lam.	Rutaceae	Tunda-poda	Roots	Paralysis, malarial and intermittent fevers, dyspepsia, diarrhoea, bronchitis, nausea, ulcers, epilepsy & gonorrhea
				Flowers	Wasp-stings
66.	*Tragia involucrata* L.	Euphorbiaceae	Bichhuati	Root	Fever, pains, skin itching & leprosy
Herbs					
67.	*Acalypha indica* L.	Euphorbiaceae	Indramarisha	Whole Plant	Bronchitis, pneumonia & asthma
				Leaves	Scabies & snake-bite.
68.	*Achyranthes aspera* L.	Amaranthaceae	Apamaranga	Roots	Rheumatism, dysuria, wounds & stomach troubles
69.	*Acorus calamus* L.	Araceae	Bacha	Rhizome	Hoarseness, gout, calculi, helminthiasis, amenorrhoea, epilepsy, amentia dysmenorrhoea, bronchitis, odontalgia & fevers
70.	*Aerva lanata* (L.) Juss. ex Sch.	Amaranthaceae	Paunsia	Whole Plant	Boils, diabetes, catarrh of bladder
				Flowers	Kidney stone
71.	*Aloe barbadensis* Mill.	Liliaceae	Ghee-kuanri	Leaf juice	Dyspepsia, amenorrhoea, burns, colic, dropsy, sciatica, carbuncles, helminthiasis, painful inflammation & chronic ulcers
72.	*Amaranthus spinosus* L.	Amaranthaceae	Kanta-marisha	Whole Plant	Hallucination, leprosy, eczema, bronchitis, leucorrhoea, boils, strangury & intermittent fever
				Roots	Haemoptysis & leucorrhoea
73.	*Andrographis paniculata* (Burm.f.) Wall ex Nees	Acanthaceae	Bhuin-nimba	Leaves	Diarrhoea, fever, coryza, cough, tonsillitis, bronchitis, arthralgia, hypertension & snake-bite
74.	*Biophytum sensitivum* (L.) DC.	Oxalidaceae	Chota-lajkuli	Whole Plant	Strangury, urinary calculi, bilious fever, abscesses, gonorrhea, asthma & snake-bite
75.	*Boerhavia diffusa* L.	Nyctaginaceae	Ghoda puruni	Whole Plant	Strangury, leucorrhoea, scabies, anaemia, cardiac disorders, jaundice, dyspepsia & bronchitis
76.	*Canscora decussata* (Roxb.) Schult. & Schult.f.	Gentianaceae	Sankha-puspi	Fresh plant juice	Insanity, epilepsy & nervous debility
77.	*Centella asiatica* (L.) Urb.	Apiaceae	Thalkudi	Whole plant	Fever, measles, epistaxis, diarrhoea, leucorrhoea, jaundice, dysuria, furunculosis, dysmenorrhoea, fractures & sprains
78.	*Cleome viscosa* L.	Capparidaceae	Anasorisa	Leaf	Otalgia
				Seeds	Diarrhoea, worm infestations & cardiac disorders
79.	*Commelina benghalensis* L.	Commelinaceae	Kansiri	Whole Plant	Leprosy
80.	*Costus speciosus*	Zingiberaceae	Gaigobara	Rhizome	Helminthiasis, leprosy, fever,

	(Koenig) Sm.				asthma, bronchitis & anaemia
81.	*Crotalaria verrucosa* L.	Fabaceae	Junjunka	Leaves	Scabies & skin diseases
				Root& leaves	Leprosy & blood disorders
82.	*Cucumis trigonus* Roxb.	Cucurbitaceae	Kainchi-ka-kudi	Fruit pulp	Helminthiasis, leprosy, fever, diabetes, anaemia, constipation & amentia
				Seeds	Bilious disorders
				Roots & leaves	snake-bite
83.	*Desmodium gangeticum* (L.) DC.	Fabaceae	Salaparni	Roots	Dysentery, strangury, fever, gout, cough, asthma & bronchitis
84.	*Desmodium triflorum*(L.) DC.	Fabaceae	Kuradia	Whole Plant	Cough, bronchitis, sores & dysentery
85.	*Euphorbia hirta* L.	Euphorbiaceae	Chitakuti	Whole Plant-	Relaxes bronchial tubes & eases breathing. dysentery & colic
				Latex	Warts.
86.	*Evolvulus alsinoides* (L.) L.	Convolvulaceae	Bichhamalia	Whole plant	Piles, sterility in female, haematemesis, insomnia, epilepsy, psychosis, loss of memory & rejuvenator
				Whole plant with oil	Hair growth
87.	*Gloriosa superba* L.	Liliaceae	Pancha angulia	Tuberous roots	Ulcers, bleeding piles, white discharge, leprosy, indigestion, helminthiasis, snake bites, baldness, intermittent fever & helps in promoting labour & expulsion of the placenta
				Seeds	Rheumatic pain
88.	*Hedyotis corymbosa* (L.) Lam.	Rubiaceae	Gharapodia	Whole Plant	Fevers, depression, jaundice, dyspepsia, helminthiasis, strangury, leprosy, skin diseases, cough, bronchitis and hepatopathy
89.	*Heliotropium indicum* L.	Boraginaceae	Hathisundha	Leaves	Boils, ulcers & stings of insects & reptiles
90.	*Hybanthus enneaspermus* (L.) F.V. Muell.	Violaceae	Madanamastaka	Root	Bowel complaints
				Fruit	Scorpion-sting
91.	*Leucas cephalotes* Spreng.	Lamiaceae	Badagaisa	Fresh plant juice	Scabies
				Flowers	Cough & colds
92.	*Ludwigia perennis* L.	Onagraceae	Bila-labanga	Leaf	Dropsy, pain & swelling
93.	*Mentha arvensis* L.	Lamiaceae	Podina	Whole Plant	Fever, headache, sore throats, neuralgia, vomiting & diarrhoea
94.	*Mimosa pudica* L.	Mimosaceae	Lajakulilata	Leaves & root	Piles, hydrocele, fistula, urinary infections & scorpion sting
95.	*Mollugo cerviana* (L.) Ser.	Molluginaceae	Pitagahama	Whole Plant	Gonorrhoea
96.	*Ocimum canum* Sims.	Lamiaceae	Ganga-tulasi	Leaves	Helminthiasis, dyspepsia, dysentery, leprosy, vomiting, strangury, migraine, malaria & fever
				Seeds	Malaria, hyperdipsia & migraine
97.	*Phyllanthus urinaria* L.	Euphorbiaceae	Badi anla	Whole Plant	Sore throat, eczema, tongue thrush, snake & centipede bites & fever
98.	*Plumbago zeylanica* L.	Plumbaginaceae	Chita paru	Root	Diarrhoea, piles & skin diseases
				Milky juice	Scabies & ulcers
99.	*Portulaca quadrifida* L.	Portulacaceae	Duldulia	Leaves	Erysipelas & dysuria
				Seeds	Vermifuge
100.	*Sansevieria*	Agavaceae	Murga	Root	Coughs

	roxburghiana Sch. & Schult.f.			Juice of tender shoots	Clear throats of viscid phlegm
101.	*Sida acuta* Burm.f.	Malvaceae	Bajramuli	Roots	Nervous & urinary disorders
				Leaves	Elephantiasis
				Root & leaf	Fever, ear diseases, tuberculosis, diarrhoea, worm infestation & arthritis
102.	*Stachytarpheta jamaicensis* (L.) Vahl.	Verbenaceae	Jalajali	Whole Plant	Intestinal worms, venereal diseases, ulcers, dropsy & cataract
				Bark	Diarrhoea & dysentery
				Leaves	Ulceration of the nose
103.	*Tridax procumbens* L.	Asteraceae	Bisalyakarani	Leave	Bronchial catarrh & diarrhoea
				Leaf juice	Heamorrhages/wounds
104.	*Urena lobata* L. var *sinuata*	Malvaceae	Lotelotti	Root	Diuretic & rheumatism
				Flowers	Aphthae
105.	*Waltheria indica* L.	Sterculiaceae	Sisi	Roots	Haemorrhages & fecundity in women
				Flowers & root-bark	Thrush
Grasses					
106.	*Bambusa arundinacea* (Retz.) Willd.	Poaceae	Baunsa	Roots	Leprosy, strangury, ringworm & arthralgia
				Leaves	Diarrhoea, gonorrhea, amenorrhoea & dysmenorrhoea
				Bamboo manna	Syphilis, vomiting, jaundice, haematemesis, bronchitis, asthma, tuberculosis & fever
107.	*Cynodon dactylon* (L.) Pers	Poaceae	Duba ghasa	Whole Plant	Haematuria, haemorrhages, wounds, conjunctivitis, cephalalgia, leprosy, vomiting, diarrhoea, strangury & abortion
108.	*Cyperus rotundus* L. var. *rotundus* Kern	Cyperaceae	Mutha	Tuber	Intermittent fever, pain, worm infestation & dysentery
Parasites					
109.	*Cuscuta reflexa* Roxb. (Total parasite)	Cuscutaceae	Nirmuli	Whole Plant	Jaundice, cough, bronchitis, strangury, cephalalgia, fever & paralysis
110.	*Cassytha filiformis* L. (Semi-parasite)	Lauraceae	Akashbel	Stem	Dysmenorrhoea and postpartum bleeding in women
				Whole Plant	Jellyfish stings & haemorrhoids

A list of 110 medicinal plants along with their botanical names, family, local names, part(s) used and disease for which used are given (Table 1). During the field survey the authors are also encountered with endangered species like *Gloriosa superba* and vulnerable species like *Crateva magna*, *Paederia foetida*, *Strychnos potatorum* and *Operculina turpethum*. The other prominent plant species of the area include *Glycosmis mauritiana*, *Strychnos nux-vomica*, *Xylia xylocarpa*, *Glycosmis pentaphylla*, *Naringi crenulata*, *Toddalia asiatica*, *Dioscorea wallichi*, *Pterospermum canescens*, *Pennisetum pedicellatum*.

Conclusion

The present investigations highlighted that Sikharchandi not only harbours a rich floral diversity, but also a repository of wild germplasm, thereby supporting many critically dependent medicinal plants. It was also observed that being a natural sacred site it is maintained through traditional methods of community-based conservation without governmental involvement. Incorporating these sites into conservation networks could enhance the effectiveness of the protected areas by covering a wider variety of habitats and by harnessing the support of local people. However, with the passage of time, considerable changes have taken place under various pressures which are mostly human induced. Pressures include fragmentation, area shrinkage and degradation, habitat alternation, pollution, alien species invasion, cattle grazing, overexploitation of plant resources etc. The documented medicinal plant resources of the area need immediate conservation in order to avoid their disappearance. Their cultivation and domestication should be encouraged to prevent the extinction of potentially valuable species. The need of the hour is to aware

people about its importance, involvement of people in its conservation and management and exploration of its potential in livelihood generation. Results of the present study are expected to create awareness among the present and future generations on the need and importance of conservation and management of the sacred sites as a treasure of biodiversity, hub of medicinal plants and floral gene pool of the state as well as the country.

Recommendations

The present study was an attempt to study the floristic diversity of a sacred hill with special reference to the medicinal plant resources by collecting the plant specimens, which were identified with authenticity and documentation of the information on their medicinal uses. Conservation of these plant resources need immediate attention since some of the potential plants used in pharmaceuticals are found to be ecologically vulnerable as regards to their declined population. Furthermore the information documented on disease-specific local uses of some selected plant species upon phyto-chemical screening may lead to discovery of new bio-active compounds for drug formulations.

Research Highlights

Recently sacred hills are considered for their impact on conservation of biodiversity.

The present study is an attempt to popularize the traditional knowledge of using native plants or their parts for the cure of different diseases.

Efforts were taken to assess the level of threat in the medicinal plants in the sacred hill.

Some of the potential plants documented during the present study which are used in ISM have got commercial significance.

Acknowledgement

The authors are thankful to the Head, Department of Botany, Utkal University, Bhubaneswar and the University Grants Commission, New Delhi for providing the facilities and financial assistance respectively.

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Residents oppose construction on Sikharchandi Hill

Jun 23, 2023, 08.19 AM IST

Bhubaneswar: Residents of Daruthenga and nearby villages are up in arms against construction on the Sikharchandi Hill terming it completely illegal with an intention to destroy the rich biodiversity of the area, which is a part of the Chandaka-Dampara Wildlife Sanctuary.

The locals, under the banner of Sikharchandi Achalika Surakhya Samiti, on Thursday reached out to the district collector of Khurda and submitted a memorandum seeking immediate action on the alleged illegal construction on the hill.

The housing and urban development department, which is executing a mega piped water project in the area, took to Twitter to give out a clarification. The department said news about medicinal plants being cut on the hill for the project is misleading.

“It is clarified that WATCO is implementing Drink from Tap 24x7 Water Supply in Bhubaneswar and as a part of that an elevated reservoir is being built on the hilltop of Sikharchandi to reduce the construction cost and time,” it said.

The department added that as part of the construction, the area is being cleared of wild bushes. It is untrue medicinal plants are being removed. This project will benefit 10 lakh people of the city, it said.

“We have raised the matter with the National Green Tribunal and received an order in our favour on June 12. The NGT has not only stayed the construction but has also mentioned that a team will come to inspect the site on June 24,” said samiti member Sachin Mohapatra.

The members said the construction has resulted in destruction of the natural habitats of the elephants of the sanctuary, which have strayed into residential areas several times recently.

“In the past month, elephants have strayed twice into populous areas. It is because the government is destroying their natural habitat,” Daruthenga sarpanch Tapan Chakrabarty said.

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Campaign begins to save hill from 'destruction'

TNN | Jul 9, 2023, 12.39 PM IST

BHUBANESWAR: Local residents-turned-volunteers under the banner of Sikharchandi Anchalika Surakhya Samiti has launched a unique campaign to garner support for Sikharchandi Hill, whose flora and fauna are on the verge of extinction due to an urban development project.

The volunteers now have been visiting all villages of the hill and collecting a handful of grain from households as part of the campaign and sensitising the people on the situation on the hill, which is currently standing on the verge of destruction, according to them.

"The government authorities have literally razed the hill to execute a water supply project. They have cut down valuable and rare medicinal plants. They have violated all the environmental norms. We want to save the hill from destruction," samiti member Sachin Mohapatra said.

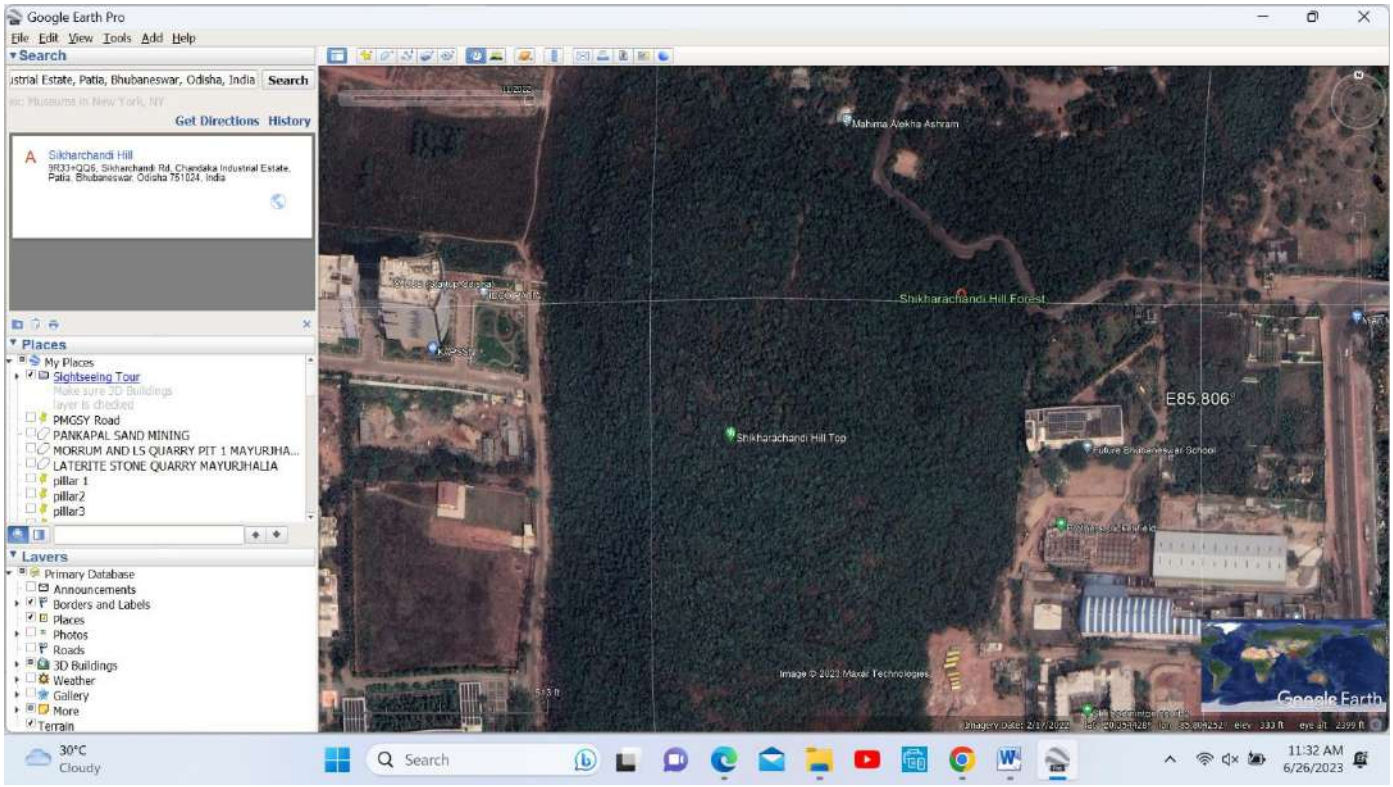
He said despite the order of the National Green Tribunal, the authorities did not stop the project, hence, the members have decided to intensify their protest in form of the campaign and stop the wrongful activities on the hill with the support of the local residents.

On Saturday, volunteers visited almost every household in Pathargadia area, collected the grains and sensitised the people.

"We are planning to gather large support for this cause and have decided to cover each and every village of

Khurda district," Mohapatra said.

The google earth Image depicting the dense vegetation at Sikharchandi (before and after clearing the site)

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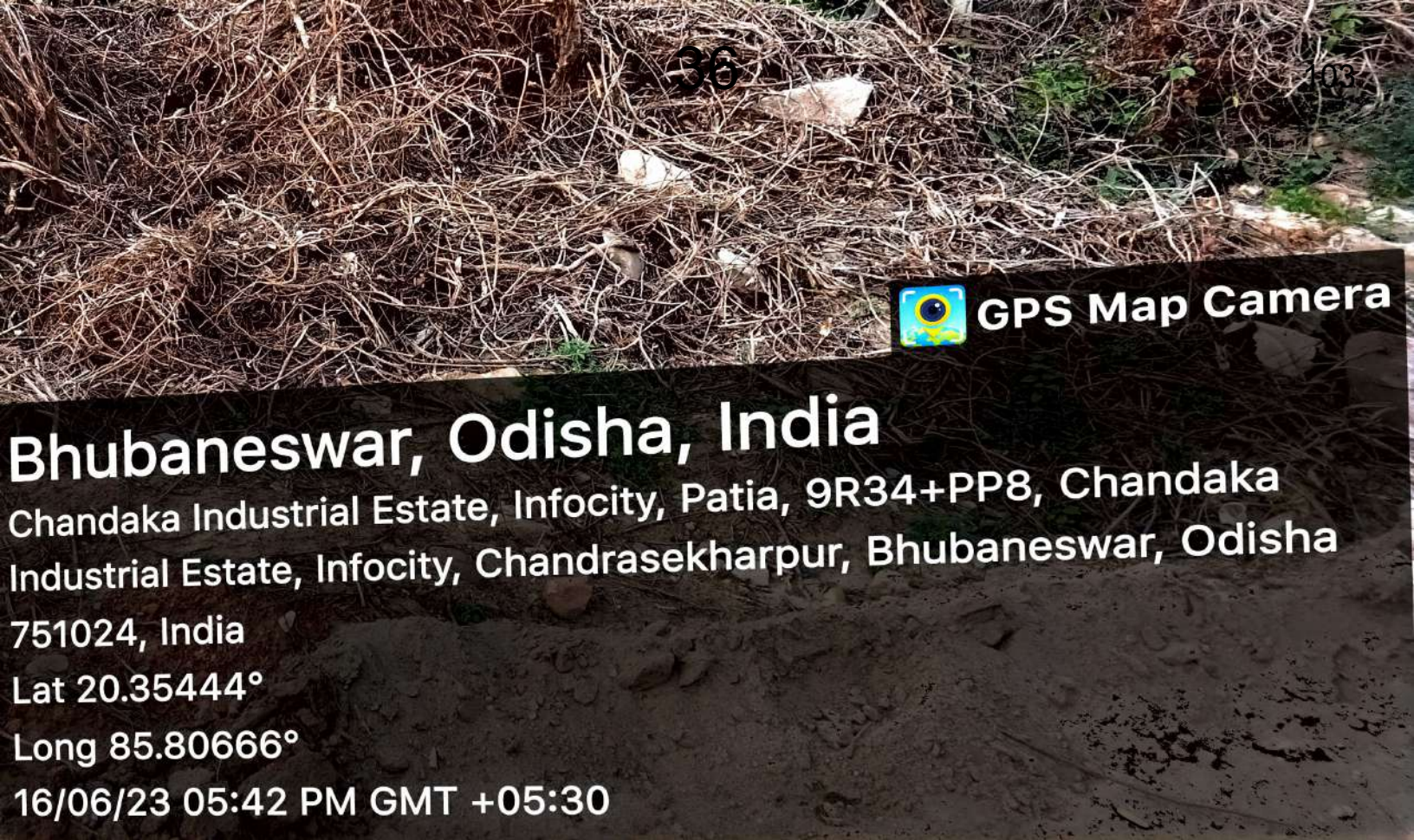
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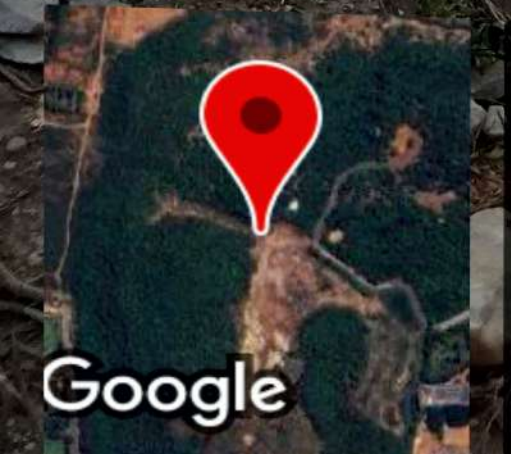

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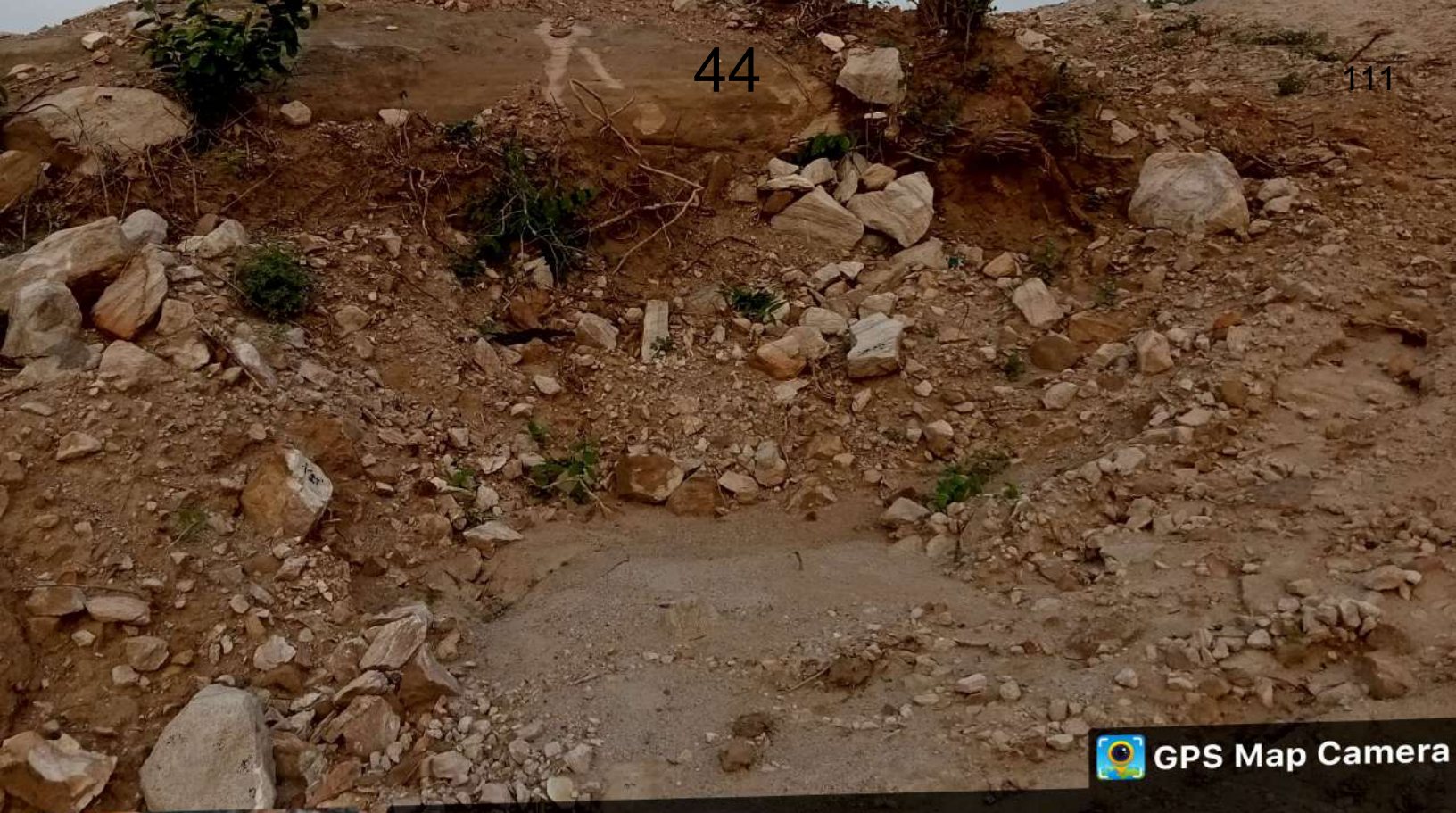

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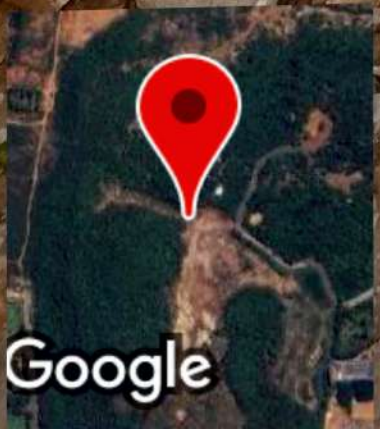

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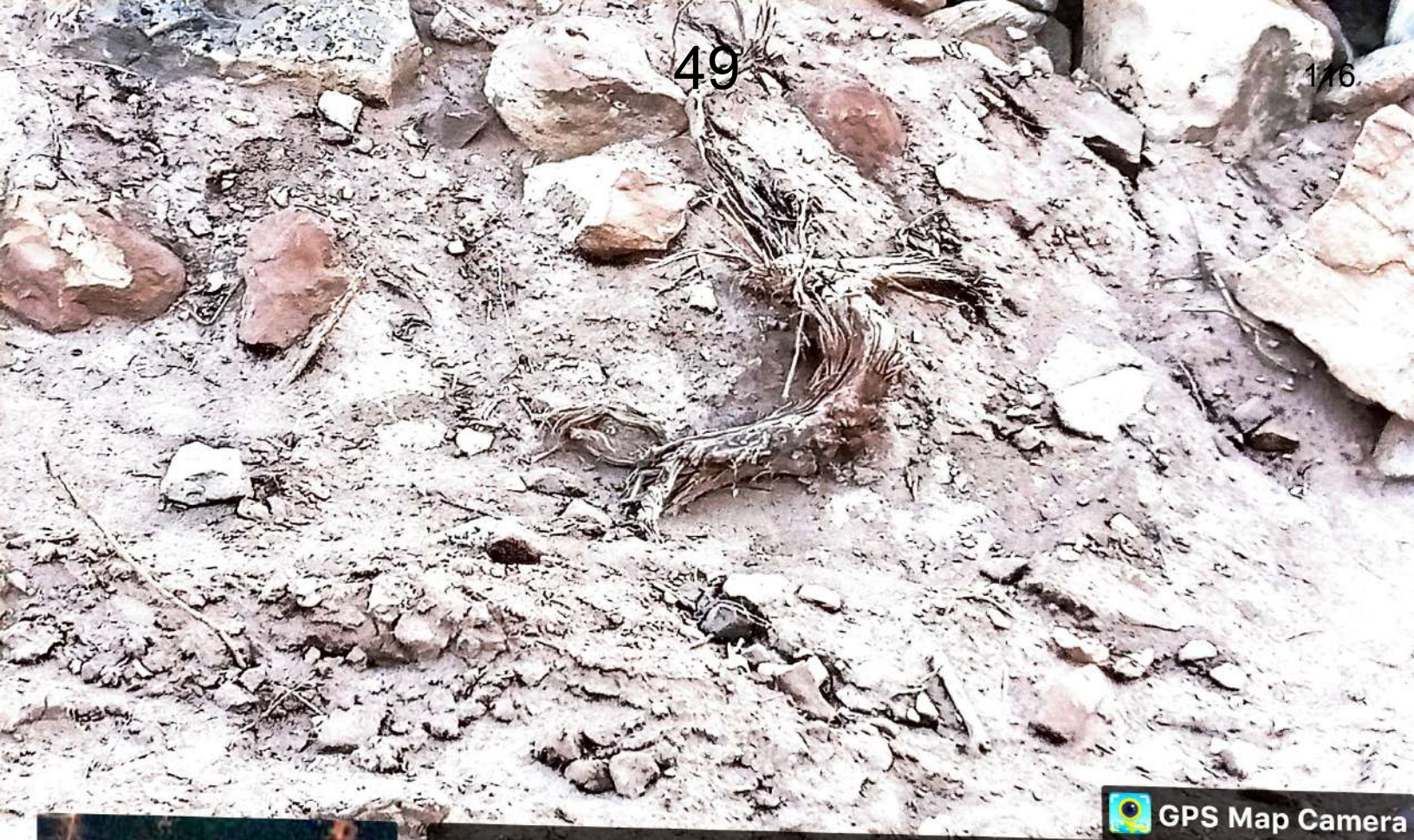

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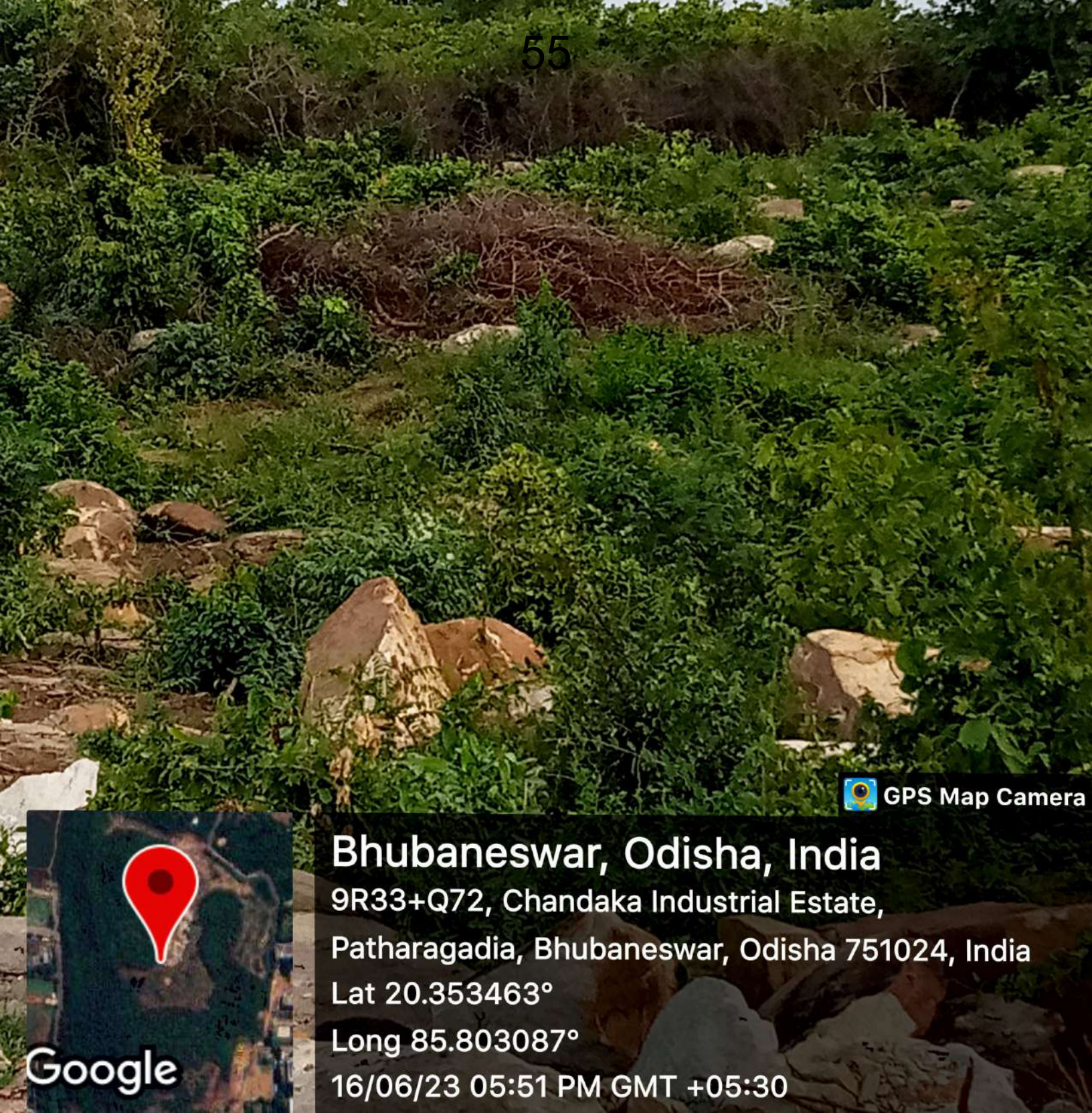
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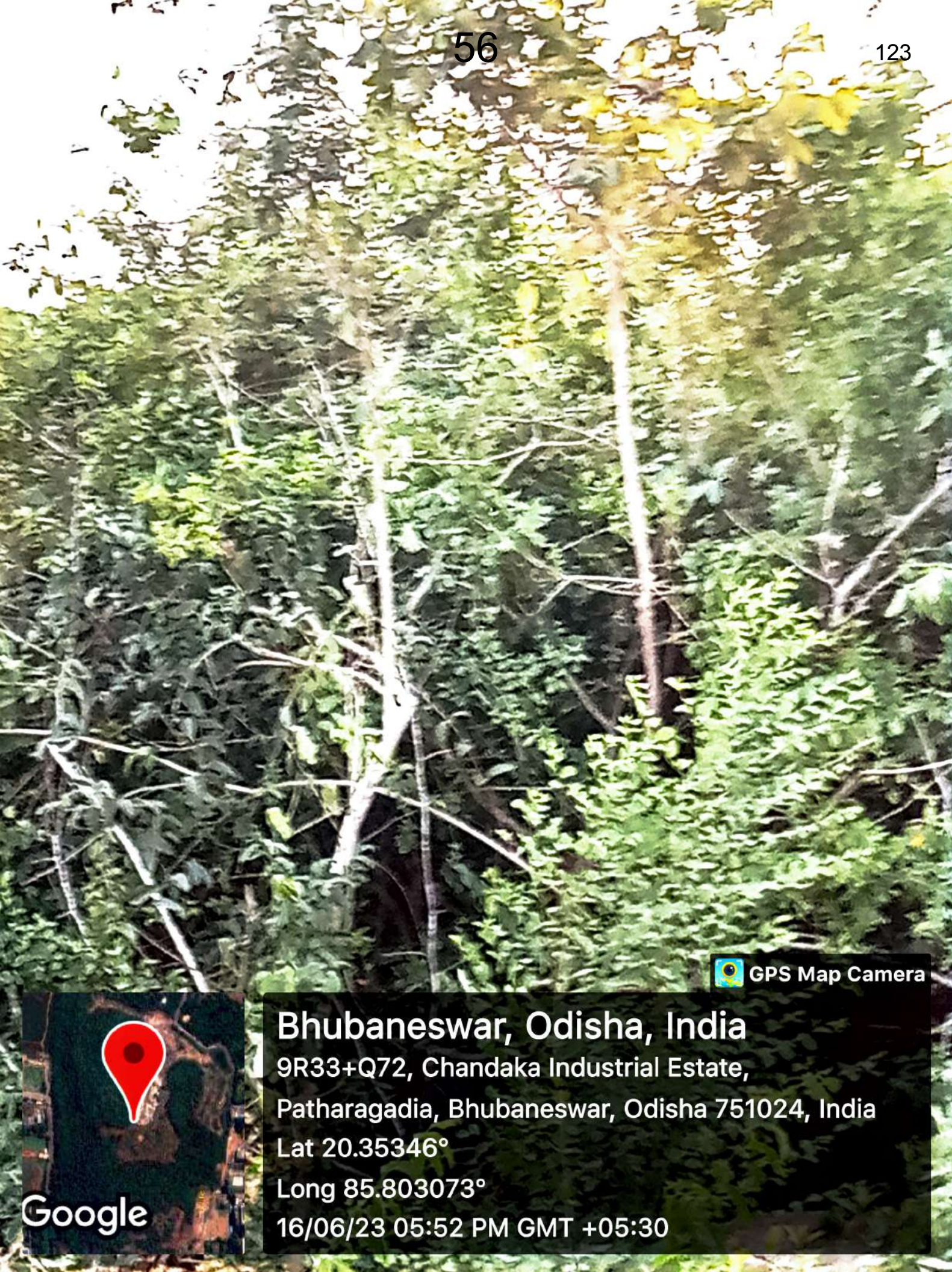
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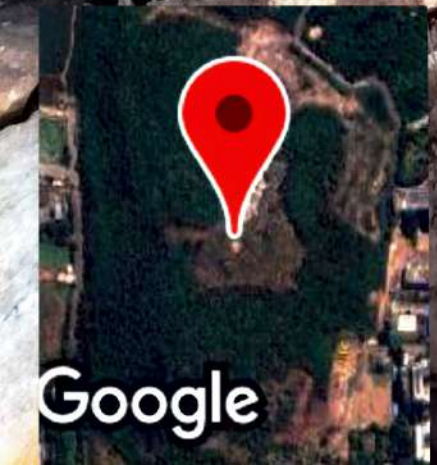

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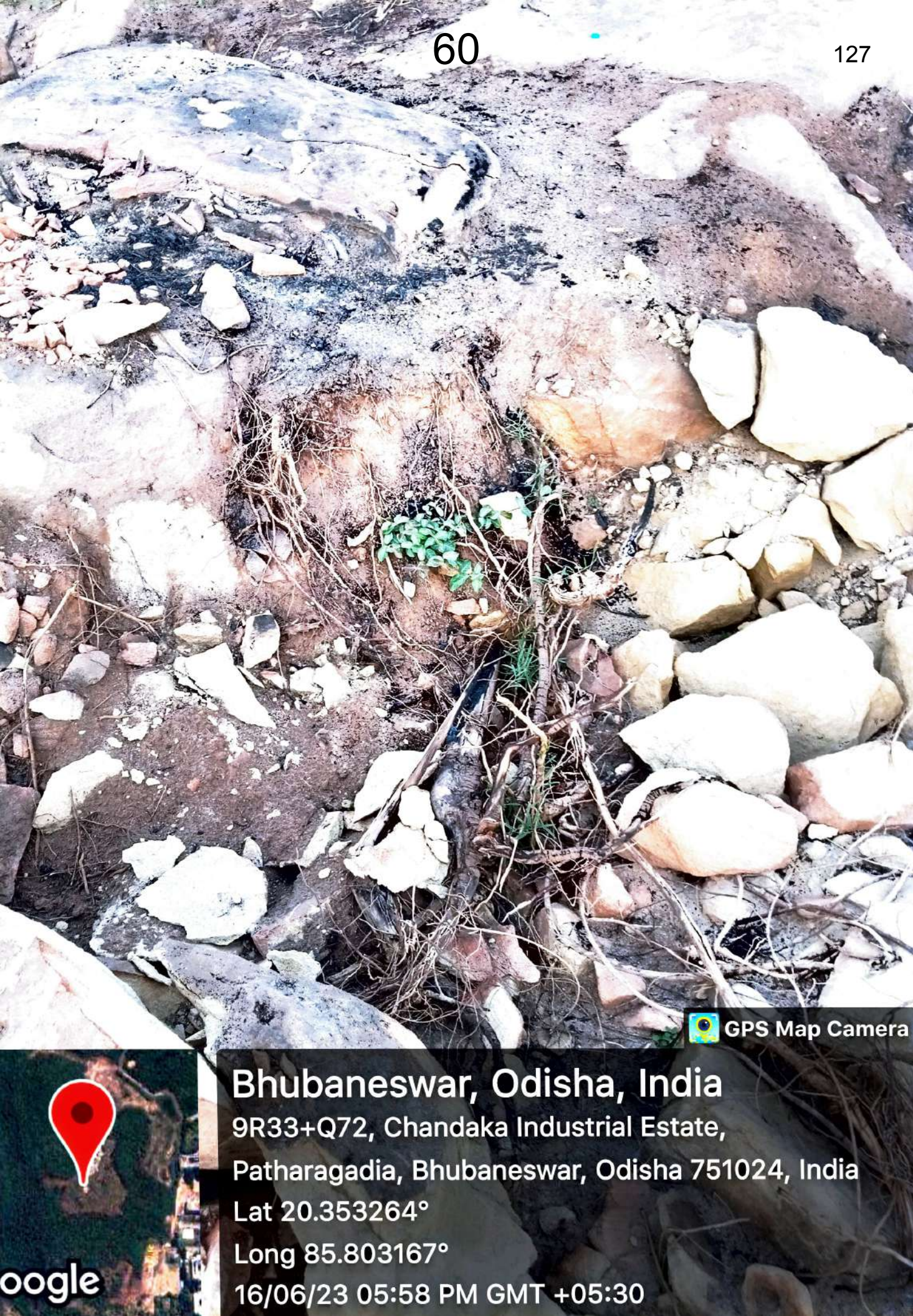
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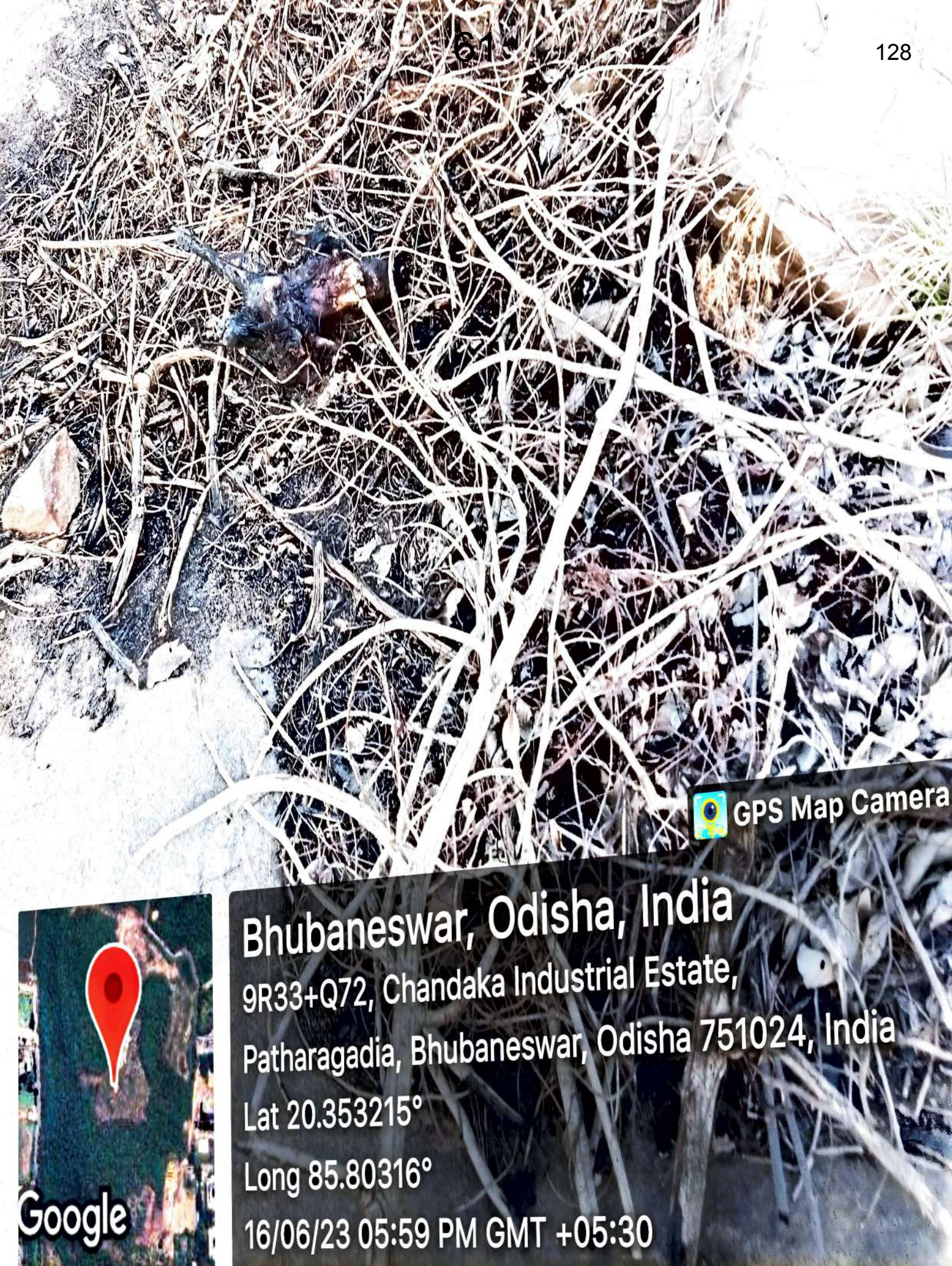
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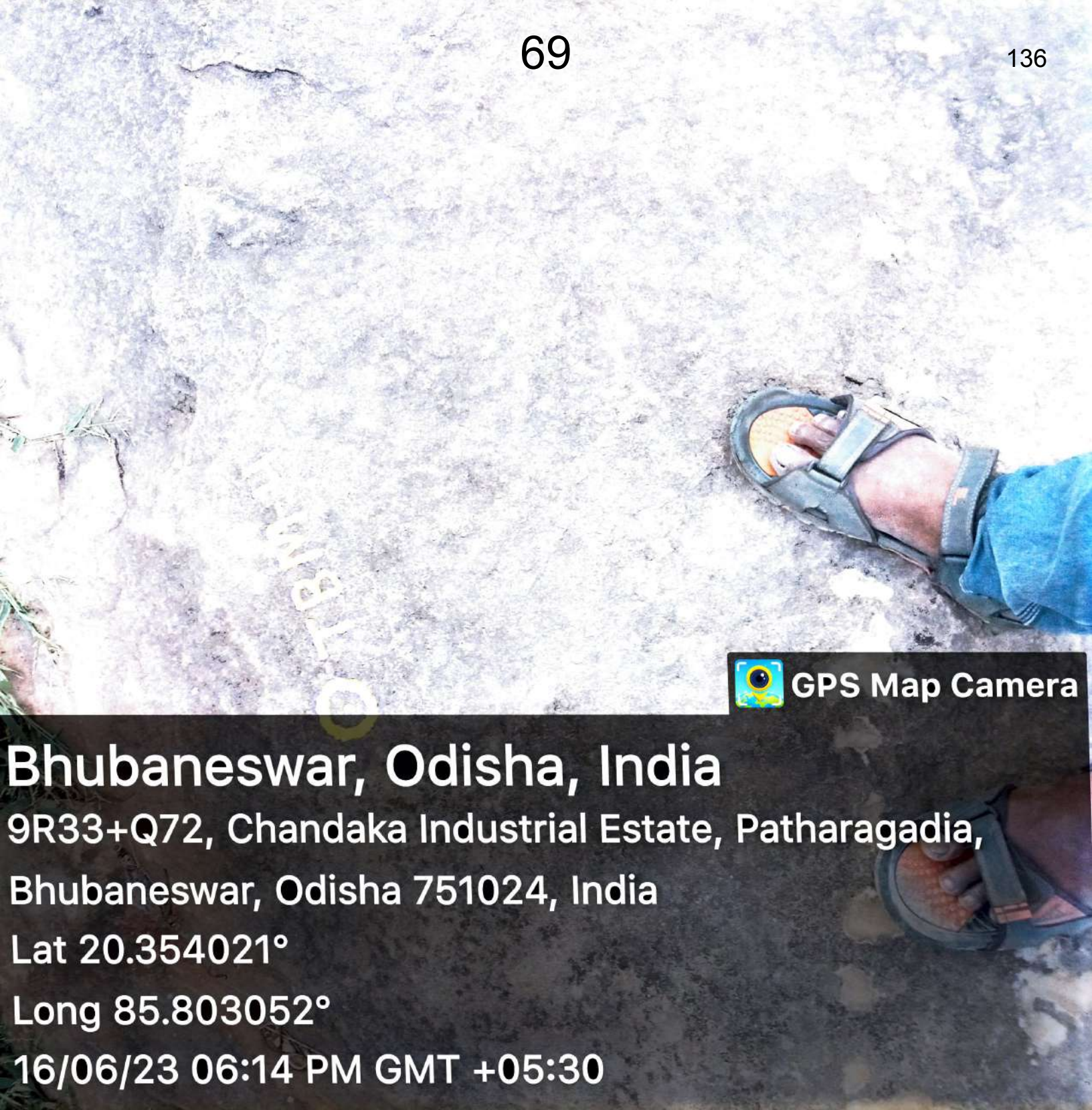
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18:02
Know Your Forest Locati...
ROAD MAP
Google

Revenue Details

District:	Khurda
Block:	Bhubaneswar
Gram Panchayat:	Chandaka
Village:	Pathara_Gadia-40
Tehsil:	Bhubaneswar
Khata No:	2242
Plot No:	1287

ROR Details

Owner:	ଆବାଦ ଯୋଗ୍ୟ ଅନାବାଦୀ
Land Type:	ଜଙ୍ଗଲ
Area(Ha):	0.040
Area(Acre):	0.100

Police Station Details

Thana Number:	24867012
Police Station:	CHANDAKA
Straight Line Police Station Distance(m):	3939.537

District:	Khurda
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Gram Panchayat:	Chandaka
Village:	Pathara_Gadia-40
Tehsil:	Bhubaneswar
Khata No:	2242
Plot No:	1287

ROR Details

Owner:	ଆବାଦ ଯୋଗ୍ୟ ଅନାବାଦୀ
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Area(Acre):	0.100

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Revenue Details

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Gram Panchayat:	Bhubaneswar (Mc)
Village:	Bhubaneswar (M Corp.) - Ward No.1
Tehsil:	Bhubaneswar
Khata No:	474/1607
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ROR Details

Owner:	ମ୍ୟାନେଜିଙ୍ଗ ଡାଇରେକ୍ଟର, I.D.C.O, ଭୁବନେଶ୍ୱର
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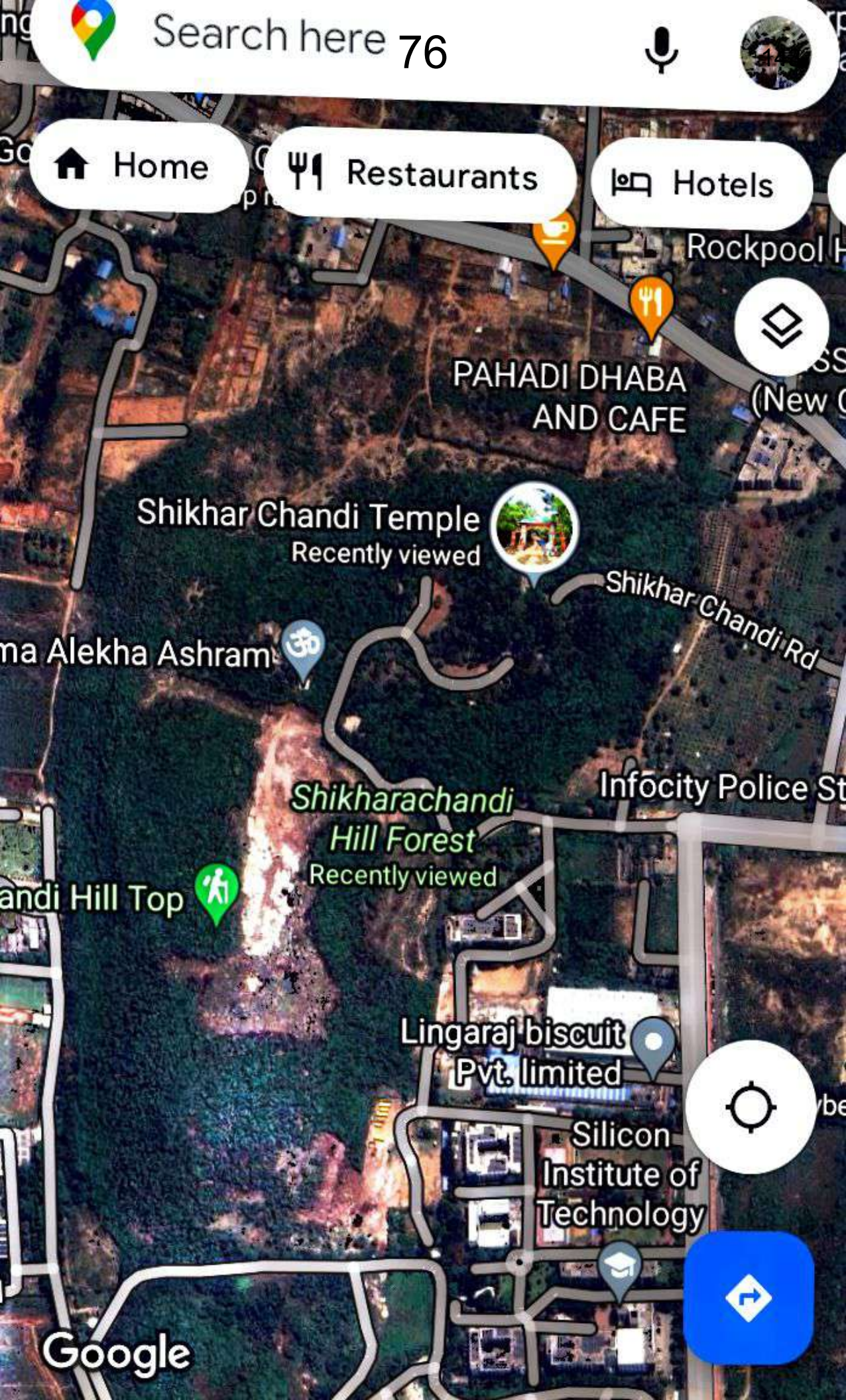
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