

**Quality Audits: 1. Green Audit, 2. Environmental
Audit, 3. Clean and Green Campus
Recognitions/Awards, and 4. Beyond The Campus
Environmental Promotional Activities
(2020-21)**



Maharaja Ganga Singh University

A State University of Higher Education for Dignity and Self-Reliance

Approved by UGC under Section 12B of the UGC Act 1956

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<https://mgsubikaner.ac.in/>

1. Green Audit Report

Green Audit is a process of systematic identification, quantification, recording, reporting and analysis of components of environmental diversity of various establishments. It aims to analyze environmental practices within and outside of the concerned sites, which will have an impact on the eco-friendly ambience. Green audit can be a useful tool for university to determine how and where they are using the most energy or water or resources; the university can then consider how to implement changes and make savings. It can also be used to determine the type and volume of waste, which can be used for a recycling project or to improve waste minimization plan. It can create health consciousness and promote environmental awareness, values and ethics. It provides staff and students better understanding of Green impact on campus. If self enquiry is a natural and necessary outgrowth of a quality education, it could also be stated that institutional self enquiry is a natural and necessary outgrowth of a quality educational institution. Thus it is imperative that the university evaluate its own contributions toward a sustainable future. As environmental sustainability is becoming an increasingly important issue for the nation, the role of higher educational institutions in relation to environmental sustainability is more prevalent. The rapid urbanization and economic development at local, regional and global level has led to several environmental and ecological crises. On this background it becomes essential to adopt the system of the Green Campus for the institutes which will lead for sustainable development and at the same time reduce a sizable amount of atmospheric carbon-di-oxide from the environment. The National Assessment and Accreditation Council, New Delhi (NAAC) has made it mandatory that all Higher Educational Institutions should submit an annual Green Audit Report. Moreover, it is part of Corporate Social Responsibility of the Higher Educational Institutions to ensure that they contribute towards the reduction of global warming through Carbon Footprint reduction measures.

OBJECTIVES:

In recent time, the Green Audit of an institution has been becoming a paramount important for self assessment of the institution which reflects the role of the institution in mitigating the present environmental problems. The university has been putting efforts to keep our environment clean since its inception. But the auditing of this non-scholastic effort of the university has not been documented. Therefore, the purpose of the present green audit is to identify, quantify, describe and prioritize framework of Environment Sustainability in compliance with the applicable regulations, policies and standards. The main objectives of carrying out Green Audit are:

1. To map the Geographical Location of the university
2. To document the floral and faunal diversity of the university.

3. To record the meteorological parameter of Bikaner where university is situated.
4. To estimate the Energy requirements of the university Green Audit Report, IQAC, Maharaja Ganga Singh University, Bikaner.
5. To document the Waste disposal system
6. To document the ambient environmental condition of air, water and noise of the university
7. To introduce and aware students to real concerns of environment and its sustainability

METHODOLOGY:

The purpose of the green audit of Maharaja Ganga Singh University is to ensure that the practices followed in the campus are in accordance with the Green Policy adopted by the institution. The methodology include: preparation and filling up of questionnaire, physical inspection of the campus, observation and review of the documentation, interviewing key persons and data analysis, measurements and recommendations. Some data have also been taken from the students' research works carried out by the environmental science department of the university.

GREEN AUDITING:

The university has adopted the 'Green Campus' system for environmental conservation and sustainability. There are main three pillars i.e. zero environmental foot print, positive impact on occupant health and performance and 100% graduates demonstrating environmental literacy. The goal is to reduce CO2 emission, energy and water use, while creating atmosphere where students can learn and be healthy. For audit purpose and suitability of analysis of data the study area i.e. campus is divided into eight sections and detailed description of areas included shown in following table:

S. No.	Section	Units
1	Vice Chancellor Secretariat	Ground Floor : Vice Chancellor Cabin, PS/PA Office, Pantry, Proctorial board office, IQAC office, Meeting hall for Board of Management/ Academic council and Board of Studies, Building Store Room, Gent' s and Ladies toilets for Staff, Water Cooler.
2	Administrative block	Registrar office, Comptroller of Finance office, Director research office, Central store/GAD and Establishment section, Academic section and accounts office, Pantry, Gent' s and Ladies toilets for Staff, Water Cooler.
3	Examination Block	Office to COE, Secrecy, Enrollment, Student help desk, Underground warehouse for examination related material,

		Gent' s and Ladies toilets for Staff, Water Cooler.
4	University Guest House	Guest house manager office, Waiting lounge, Mess and Kitchen, dormitory, ten furnished rooms, three store rooms, Gent' s and Ladies toilets for Staff, Water Cooler.
5	Canteen	Pantry, refreshment zone and sitting area, Gent' s and Ladies toilets for Staff, Water Cooler.
6	Academic Block-1	Department of Environmental Science, Microbiology and Computer Science, Central Laboratory, six laboratories (two for each department), server room, classrooms, auditorium, Museum, faculty chambers, Gent' s and Ladies toilets for Staff, Water Cooler.
7	Academic block-2	Department of English, History and School of Law, classrooms, auditorium, Examination control room, faculty chambers, Gent' s and Ladies toilets for Staff, Water Cooler.
8	Central Library	Office to librarian, Reference section, Faculty reading room, Computer room, Reprographic section, Circulation section, Research section, Thesis depository section, Gent' s and Ladies toilets for Staff, Water Cooler.

1. Solid Waste and management:

This indicator of auditing is deals with, waste production and its disposal: paper waste, food waste, plastic waste, biodegradable waste, construction waste, glass waste, dust etc and recycling. Solid waste generation and management is a burning issue. Unscientific handling of solid waste can create threats. The solid waste audit focused on volume, type of solid waste generated in university campus. The solid waste collected was paper waste, plastic waste, biodegradable waste, construction waste, glass waste and other waste. The total solid waste collected in the campus is 150 tonnes/Year. Paper waste is a major, also single sided used papers reused for writing and printing in office and in other departments. Important and confidential reports/ papers are stored in office store, can't send for recycling after completion of their preservation period. Very less plastic waste is generated in university campus but it is neither categorized at point source nor sent for recycling. Metal waste and wooden waste is neither segregated not given to authorized Scrap agents. Few glass bottles are reused in the laboratories and small glass waste is thrown on site. Small paper piece waste, classroom waste, biodegradable waste is used for composting but some biodegradable, office and classroom waste burn on site near academic block-1 building. Food waste, dinning waste etc. of common canteen is thrown on site.

2. Electricity and energy audit:

This indicator addresses energy consumption, energy sources, energy monitoring, and electricity consumption on lighting appliances / instruments and natural gas. Energy sources utilized by all wings and common facility centers include electricity and LPG. Major use of energy is in Science building, office, canteen and laboratories for lighting, cooking and laboratory work. Energy consumption by major energy consuming Equipments is 200 units / day, Energy consumption by less energy consuming Equipments is 150 units / day and Energy consumption by Lightning Equipments is 100 units / day . Thus total Electric energy consumption in university campus is 13500 units / Month. In large extent use of CFL and LED lamps decreases the consumption of electricity while use of incandescent lamp is observed at some places which increasing consumption. The use of 250 solar street lights and 100KW solar energy plant installed in year 2017-18 for lighting the campus at night is one the green practices deployed by university. The surplus units generated by 100KW solar plant are transferred to national grid, which reduces the net electricity bill of the campus. The adequate ventilation and natural light survey of whole infrastructure is essential to less the more consumption of electricity on air and light appliances. In science laboratory at some places exhausts fans are not used at proper locations. It is essential to be monitoring the use of windows in science Laboratory. Also high consumption of electricity is observed at office in duration of admission and examination. Major electricity is required for water fetching, drip irrigation for watering the gardens, lawns, Plants, trees and new plantations in campus. Auditing shows that teaching as well as non-teaching staff has residence out off the campus and mass numbers of students are come from nearby villages and the city. As our university is situated in outskirts of the city so the large number of students are using university transportation vehicles, while some of the students make use of private transportation like bikes, scooters and cars. Staff members who lived out campus are using the vehicles in sharing for daily transportation. Also private transportation vehicles are restricted in university from gate. Study tours, collection tours, visits, treks, save environment and clean environment and no vehicle day etc abhiyan are followed by university which gives the message of importance of walking. Consumption of LPG for education or practical purpose as well as the LPG consumption at canteen is observed to be much less. The LPG connection in name of the university and LPG is handled by departments of environmental Science and Microbiology etc for heating purpose at the time of practical, no leakages and off mode regulators are seen at time of verification.

3. Water and waste water audit:

This auditing indicator addresses water consumption, water sources, appliances and fixtures. In survey water used at bathrooms, toilets, laboratory, canteen, garden, shower and as well as

leakages and over flow of water from overhead tanks is also been evaluated. The data collected from all the sections is examined and verified. For monitoring of water use, number of times of filling of tanks per day, time for overflowing, rate of flow, water wasted in liters per day due to overflowing is periodically supervised. Data submitted by the sections it examined according to leakages, rate of flow of leakages, use for washing, use of water for cleaning etc by expert committee. On an average the total use of water in the university is 15-18 Kiloliters/day, 2000Liter/day water is loosed through overflow of tanks and it is observed that about 100 Liters /day water losses due to leakages in different sites of water use. The major use of water is in office administrative building, science building and at exteriors. Roof top rain water harvesting is also been practiced in some extent. There are six rainwater harvesting tanks with having capacity of storage 600000 liters and the total storage capacity through all modes is 1050000 liters are available in the campus. Less numbers of leakages are observed while conduction of verification and site inspection of infrastructure still plumbing survey of water supply line is necessary to stop water supply after occupancy time and to use pressure valves / sensor valves to make control on overflow. Need of monitoring, controlling overflow is essential and periodically supervision drills should be arranged by authority. No water recycling plant in campus, small scale / medium scale reuse and recycle of water system is necessary.

4. Hazardous waste audit:

A. Chemical waste:

This is hazardous waste of laboratories, medical waste from health center, colors, dies and chemicals used in campus maintenance. Hazardous materials represent significant risks to human health and ecological integrity. Only in the department of Environmental science, Micro-biology the laboratories generate the chemical waste. Survey and data collection shows that chemical waste generated on the campus through Science laboratories is very less and majorly generated by the department of environmental science and micro-biology. At time of site inspection it is observed that in the department of environmental and microbiology hazardous chemicals are handled for practical purpose and these hazardous chemical wastes are drain out with basin water directly to the campus. In some extent it produces an air, soil, water pollution. Hence drainage of chemical laboratory should be collected in air tight cement chamber and frequently the chemical waste from chamber is sent for recycle or for scientifically destroy process. The study data reveals that solid hazardous waste 05 Kg and liquid hazardous waste 20 liters are generated, it drained with making 100 times dilution. Usually there is a practice in the laboratories to store these hazardous chemicals in the containers and cans for safe disposal. The stoppers of all the bottles are regularly checked. The exhaust fans are not provided in some laboratory to expel

gaseous waste. No separate dust bins for wet solid waste or for chemical precipitation are seen in laboratory.

B. E-waste:

E-waste can be described as electronic equipment that is near or at the end of its useful life. E-waste is much more hazardous than other waste because electronic components contain cadmium, lead, mercury, and Polychlorinated biphenyls (PCBs) that can damage human health and the environment. E-waste generated in university campus is of schedule III and is generated is very less but not disposed in scientific way. Now institute has some e-waste like chips, bulbs, circuit boards, mother boards, computers, batteries, and switches. The university is not using paperless office work administration due to which in campus there is carbon emission due to printers, filing of cartridge inside the office and in several section Xeroxing and printing facility is observed. The non-working computer spare and other non-working electrical equipments like bulbs, tubes, PCB components, pieces of wires, computer hardware“ s, and old instrument“ s are dumped in different sections at several places. Buy back policy is not available. University does conduct the awareness programmes regarding -E-waste Management with the help of Department of environmental science for how to handle and dispose the E-Waste. There is no separate method to dispose the e waste through authorized vendors.

5. Air quality audit:

Air quality in the academic university is very important for producing good educational atmosphere as well as for the health of the students, faculty, staff and other stake holder of the institute. The no air pollution sources other than natural dust are observed in the university campus. The university campus is situated in outskirts of the city of Bikaner district and it is far from major transporting roads. University has green campus of seven acres, efforts have been made on to bring part of land under cultivation of trees, plants through plantation drive by NSS ,communities, students, teaching and nonteaching staff in university. In campus more than 5000 trees through plantation and also having in natural capacity because university campus still has more virgin area with their indigenous species which comprises of herbs , shrubs and grasses with their medicinal and economic value. University campus has a lot of open area and all buildings are discrete hence airy, clean atmosphere is seen. University created a green zone in university campus. The university has planted different types of large number of trees in the campus, this greenery in campus helps to neutralize the carbon products generated.

6. Noise Environment

The noise levels measurements were carried out using precision noise level meter. The noise level survey was carried in classroom, in study area it is averagely 62 dB. No major sources of noise are identified, the study area is quite no major vehicular movement and the transportation activities are seen.

Environmental Management Plan: Environmental Management Plan gives the strength, weaknesses and suggestions on the environmental issues of Maharaja Ganga Singh University Bikaner campus. It also suggests about which area is to be given priority. The green audit of Maharaja Ganga Singh University campus reveals that the administration should take care of solid waste, waste water, chemical waste and e-waste management on high priority as the ignorance to these will deteriorate the environment on the campus. The entire exercise of green audit concluded that the university administration is keen on all the environmental issues and starts steps for environmental sustainability. Students, staff, faculty and administration working together will produce the best results in raising awareness and help for environmental friendly campus.

2. Environmental Audit

Environmental audit is a useful tool for a university to implement the sustainable practices and wise use of its energy or water resources. It helps the decision makers to adapt adequate changes in the campus to enhance the savings of these resources. It promotes the recycling of the degradable wastes and helps to improve waste minimization plan. It can create health consciousness and promote environmental awareness, values and ethics. The Environmental Audit of an institution is becoming a paramount important these days for self-assessment of the institution, which reflects the role of the institution in mitigating the present environmental problems. The university has been putting efforts to keep the environment clean since its inception. But the auditing of this non-scholastic effort of the campus has not been documented. Therefore, the purpose of the present environmental audit is to identify, quantify, describe and prioritize framework of Environment Sustainability in compliance with the applicable regulations, policies and standards. The main aim objectives of the environmental audit are to assess the environmental quality and the management strategies being implemented in the MGS university campus.

The specific objectives of Environmental Audit are:

- i. To assess the source and quantity and of the water in the MGS university campus
- ii. To know and monitor the energy consumption pattern in the campus
- iii. To quantify the liquid and solid waste generation and management plans in the campus.
- iv. To assess the carbon foot print of the Campus
- v. To impart environment management plans to the campus

Benefits of Environmental Audit to the university: There are many advantages of environmental audit to an Educational Institute:

- i. It would help to protect the environment in and around the campus.
- ii. Recognize the cost saving methods through waste minimization and energy conservation.
- iii. Find out the prevailing and forthcoming complications.
- iv. Empower the organization to frame a better environmental performance.
- v. It portrays good image of institution through its clean and green campus

- vi. To undertake extra moral studies, extension programs and field outreach activities to contribute to the development of Society.

Methodology adopted for Environmental Audit:

The audit process was carried out in two phases. At first, all the secondary data required for the study was collected from various sources, like concerned departments, administrative block, VC Secretariat, Examination block, guest house, canteen etc. Different case studies and methodologies were studied and the following methodology was adopted for present audit. The methodology of present study is based on onsite visits, the personal observations and questionnaires survey tool. Initially, based on data requirement, sets of questionnaires were prepared. The surveyors then visited all the departments of the university and the questionnaires were filled. The generated data is subsequently gathered and used for further analysis. From the outcome of the overall study, a final report is prepared.



Survey by Questionnaire:

Baseline data for green audit report preparation was collected by questionnaire survey method. Questionnaires prepared to conduct the environmental audit in the university campus is based on

the guidelines, rules, acts and formats prepared by Ministry of Environment, Forest and Climate Change, New Delhi, Central Pollution Control Board and other statutory organizations. Most of the guidelines and formats are based on broad aspects and some of the issues or formats were not applicable for University campus. Therefore, using these guidelines and formats, combinations, modifications and restructuring was done and sets of questionnaires were prepared as solid waste, energy, water, hazardous waste, and e-waste. All the questionnaires comprise of group of modules. The first module is related to the general information of the concerned department, which broadly includes name of the department, month and year, total number of students and employees, visitors of the department, average working days and office timings etc. The next module is related to the present consumption of resources like water, energy, or the handling of solid and hazardous waste. Maintaining records of the handling of solid and hazardous waste is much important in environmental audit. There are possibilities of loss of resources like water, energy due to improper maintenances and assessment of this kind of probability is necessary in the environmental audit. One separate module is based on the questions related to this aspect. Another module is related to maintaining records, like records of disposal of solid waste, records of solid waste recovery etc. For better convenience of the surveyor, some statistics like, basic energy consumption characteristics for electrical equipment etc. was provided with the questionnaires itself.

Onsite visit and observations:

The MGS University has vast built-up area comprising of various departments, administrative building, Estate office, Central library, guest house and sports complex. All these amenities have different kind of infrastructure as per their requirement. All these buildings were visited by the surveyors and the present condition is checked with the help of the questionnaires. Interviews were conducted with the staff members, faculties and students. Personal observations were made during the onsite visit. All the amenities were clubbed in as per their similarities and differences, which makes the survey and further analysis easier.

Data analysis and final report preparation:

A proper analysis and presentation of data produced from work is a vital element. In case of environmental audit, the filled questionnaires of the survey from each group, were tabulated as per their modules, in Excel spreadsheets. The tabulated data is then used for further analysis. For

better understanding of the results and to avoid complications, averages and percentages of the tables were calculated. Graphical representation of these results was made to give a quick idea of the status. Interpretation of the overall outcomes was made which incorporates all the primary and secondary data, references and interrelations within. Final report preparation was done using this interpretation.

List of Students and Staff Involved in Environmental Auditing

S.No.	Name of auditor	Designation
1	Prof. Anil Kumar Chhangani	Head, Department of Environmental Science
2	Prof. Rajaram Choyal	Director, Thar Desert Research Centre
3	Dr. Anil Kumar Dular	Asst. Prof., Department of Env. Science
4	Dr. P.D. Charan	Asst. Prof., Department of Env. Science
5	Dr. Leela Kaur	Asst. Prof., Department of Env. Science
6	Mr. Mahendra Singh	Student, Dept. of Environmental Sc.
7	Mr. Radhakishan Saran	Student, Dept. of Environmental Sc.
8	Mr. Yash Sharma	Student, Dept. of Environmental Sc.
9	Ms. Pratibha	Student, Dept. of Environmental Sc.
10	Ms. Nupur	Student, Dept. of Environmental Sc.

Energy Consumption:

This indicator addresses energy consumption, energy sources, energy monitoring, lighting, appliances and vehicles. Energy use is clearly an important aspect of campus sustainability and thus requires no explanation for its inclusion in the assessment. The survey carried out by the auditors and electricity bills of the campus showed that the campus consumes about 70000 to 80000 units per month. But due to installation of 750 KW solar plant in the campus, the campus has curtailed the significant amount of the electricity bill. The use of LED bulbs and solar powered road lights also exerts positive impact on the environment.

Water Audit:

The university campus is located in core area of Thar desert, where water scarcity is a common feature. Water audit can be defined as a qualitative and quantitative analysis of water

consumption to identify means of reducing, reusing and recycling of water. Water Audit is nothing but an effective measure for minimizing losses, optimizing various uses. A water audit is a technique or method which makes possible to identify ways of conserving water by determining any inefficiencies in the system of water distribution. The measurement of water losses due to different uses in the system or any utility is essential to implement water conservation measures in such an establishment. This indicator addresses water consumption, water sources, appliances and fixtures. It is therefore essential that any environmentally responsible institution should examine its water use practices.

It is observed that a number of factors like dry climate, culture, work and working conditions in this part of the western Rajasthan, the optimum use of water is become the habit of the residents of the region. As per the standards provided by WHO Regional office for South East Asia 10-15 liters per student if water-flushed toilets, Administration requires (Staff accommodation not included) 50 liters per person per day, Staff accommodation requires 30 liters per person per day and for sanitation purposes it depends on technology.

The ground water of the campus is not fit for drinking as well as irrigation purpose for plantation. The total water requirement for the University is about 200 KLD. Out of which, about 50-60 KLD water is used to irrigate the plants developed at the campus near roadsides and in different parks of the campus. Water quality of resources in the area has been studied for assessing the water environment. The campus is having rain water harvesting facility. It has about 8 lakh litre's storage capacity ground water tanks near all major building. These efforts by the campus show the commitment of the university to conserve the resources and make the campus as eco-friendly institution.

Ambient air quality monitoring:

The ambient air quality monitoring is regular practice of the students of the department of environmental science. It has been reported that the air quality of the campus is well below the maximum permissible limits of various air pollutants as per national ambient air quality standards (Charan and sahal, 2014; Saran and Charan, 2021).

Biodiversity Audit:

Biodiversity richness is very important for healthy ecosystem as well as the survival of the human being. It regulates the climate, keeps the water and air clean, and provides food, shelter, clothing, medicine and other useful products. The plant acts as the lungs of the earth as they keep the air clean. The plants are also playing a vital role in stabilizing the sand dunes, which is the common feature of the desert area.

The soil of the thar is very poor in nutrition profile which may be boosted by the presence of plants, as they impart the organic matter in the soil. The low and erratic precipitation, high temperature, low humidity and hostile climatic conditions are common in the region. Due to such conditions, the flora as well as fauna have many adaptations to sustain in the region. A complete list of the flora and fauna of the region is prepared by the department of Environmental science.

Tree flora of the MGSU campus

S.No.	Common Name	Botanical Name
1	Bakayan Tree	<i>Melia azedarach</i>
2	Babul	<i>Vachellia tortilis</i>
3	Deshi Babul	<i>Vachellia nilotica</i>
4	Saptparni	<i>Alstonia scholaris</i>
5	Neem	<i>Azadirachta indica</i>
6	Rohida	<i>Tecomella undulata</i>
7	Shisham/Tali	<i>Dalbergia sissoo</i>
8	Gulmohar	<i>Delonix regia</i>
9	Subabul	<i>Leucaena leucocephala</i>
10	Seemia / Kassod	<i>Senna siamea</i>
11	Senjna/Sahjan	<i>Moringa oleifera</i>
12	Khejri	<i>Prosopis cineraria</i>
13	Karanj	<i>Pongamia pinnata</i>
14	Gundi	<i>Cordia sinensis</i>

Common shrubs of the campus

S.No.	Common Name	Botanical Name
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1	Babul	<i>Vachelliatortilis</i>
2	Aak	<i>Calotropisprocera</i>
3	Ker	<i>Capparis decidua</i>
4	Jhadberi	<i>Zizyphusnummularia</i>
5	Dhatura	<i>Datura stramonium</i>
6	Vilayati babul	<i>Prosopisjulifera</i>
7	Ashwagandha	<i>Withaniasomnifera</i>

Common Herbs and grasses of the MGS University Campus

S.No.	Common Name	Botanical Name
1	Aghara	<i>Achyranthesaspera</i>
2	Adusa/Vasaka	<i>Adhatodavasica</i>
3	JangaliPudina	<i>Ageratum conyzoides</i>
4	Matsyaakshi	<i>Alternantherapungens</i>
5	JangaliChaulai	<i>Amaranthusviridis</i>
6	Needle Grass/ Lampdo	<i>Aristidafuniculata</i>
7	Chirchitta	<i>Bidensbiternata</i>
8	Utangan/ DudhiyaChoti	<i>Blepharisrepens</i>
9	Punarnava/ Santhi	<i>Boerhaviadiffusa</i>
10	Vasuka/Madanghanti	<i>Borreriahispidata</i>
11	Makra, Murat	<i>Bracheriaramosa</i>
12	Bharut	<i>Cenchrusbiflorus</i>
13	Anjan / Dhaman	<i>Cenchrusciliaris</i>
14	Bathua	<i>Chenopodium album</i>
15	Jargi	<i>Chloris barbata</i>
16	Bagra / Peelihulhul	<i>Cleome viscosa</i>
17	Shankhpushpi	<i>Convolvulus microphyllus</i>
18	Bahuphali/Cham Ghas	<i>Corchorusdepressus</i>
19	Kurighas	<i>Dactylocteniumaegypticum</i>

S.No.	Common Name	Botanical Name
20	Tantia, ganthio	<i>Dactyloctenium indicum</i>
21	Navananji	<i>Dicoma tomentosa</i>
22	Asian crabgrass	<i>Digitaria bicornis</i>
23	Unthkanto	<i>Echinopsechinatus</i>
24	Bharbhusi	<i>Eragrostis gangetica</i>
25	Eraghas	<i>Eragrostis minor</i>
26	Visnukrantha/Shyamkrantha	<i>Evolvulus sinoides</i>
27	Dhamasa	<i>Fagoniacretica</i>
28	HiranChaaba	<i>Farsetia hamiltonii</i>
29	Bekariya/ Bekar	<i>Indigofera cordifolia</i>
30	Bhangra / Bhurbhura	<i>Indigofera linifolia</i>
31	Leel / Lalahai	<i>Indigofera linnaei</i>
32	Kirayat, Kalpanath	<i>Justicia simplex</i>
33	Badaward / Sakaj	<i>Oligochaeta ramosa</i>
34	Gobraghas / Kutki	<i>Panicum antidotale</i>
35	Soneloghas/ DholaLijrughas	<i>Pulicaria crispata</i>
36	Nagadaminee / Undhobhurat/ Chirchitta	<i>Pupalialappacea</i>
37	ChotiKateri, Ringni	<i>Solanum surattense</i>
38	Sarpankha	<i>Tephrosia purpurea</i>
39	ChhotaGokharu, Kanti	<i>Tribulus terrestris</i>
40	Ashwagandha	<i>Withania somnifera</i>
41	Chhotadhatura	<i>Xanthium strumarium</i>
42	Bui	<i>Aerva lanata</i>
43	Kheemp	<i>Leptadenia pyrotechnica</i>
44	Chag/sania	<i>Crotalaria burhia</i>

Common Bird Species			
S. No.	Scientific Name	Common Name	Status According to WPA,1972

Common Bird Species			
S. No.	Scientific Name	Common Name	Status According to WPA,1972
1	Common Babbler *	<i>Turdoidescaudata</i>	Sch. IV
2	Jungle Babbler *	<i>Turdoidesstriatus</i>	Sch. IV
3	Blue-tailed green bee-eater*	<i>Meropsphilippinus</i>	Sch. IV
4	Small Green Bee-eater	<i>Meropsorientalis</i>	Sch. IV
5	Red-Vented Bulbul*	<i>Pycnonotuscafer</i>	Sch. IV
6	House Crow *	<i>Corvussplendens</i>	Sch. V
7	Cattle Egret	<i>Bubulcus ibis</i>	Sch. IV
8	Egret little	<i>Egrettaagarzetta</i>	Sch. IV
9	Indian Pond Heron	<i>Ardeagravii</i>	Sch. IV
10	Hoopoe*	<i>Upupaepops</i>	Sch. IV
11	Black Ibis	<i>Pseudibispapillosa</i>	Sch. IV
12	White Ibis	<i>Threskiprismelanocephalus</i>	Sch. IV
13	Common Iora	<i>Aegithinatiphia</i>	Sch. IV
14	Asian Koel*	<i>Eudynamysscolopacea</i>	Sch. IV
15	Red-wattled Lapwing*	<i>Vanellusindicus</i>	Sch. IV
16	Yellow-wattled Lapwing*	<i>Vaneliusmalabaricus</i>	Sch. IV
17	Common Myna*	<i>Acridotherestrictis</i>	Sch. IV
18	Rose-ringed Parakeet	<i>Psittaculakrameri</i>	Sch. IV
19	Grey francolin / Partridge*	<i>Francolinuspondicerianus</i>	Sch. IV
20	Blue rock Pigeon	<i>Columba livia</i>	Sch. IV
21	Common Quail or Grey*	<i>Coturnixcoturnix</i>	Sch. IV
22	Indian Robin*	<i>Saxicoloidesfulicata</i>	Sch. IV
23	House Sparrow*	<i>Passer domesticus</i>	Sch. IV
24	Eurasian Collared-Dove*	<i>Streptopeliadecaocto</i>	Sch. IV
25	White-throated Kingfisher	<i>Halcyon smyrnensis</i>	Sch. IV
26	Black Drongo*	<i>Dicrurusmacrocerus</i>	Sch. IV
27	Common Kingfisher*	<i>Alcedoatthis</i>	Sch. IV

Common Bird Species			
S. No.	Scientific Name	Common Name	Status According to WPA,1972
28	Common Indian Nightjar	<i>Caprimulgus asiaticus</i>	Sch. IV
29	Indian Darter	<i>Oriental darter</i>	Sch. IV
30	Common Coot	<i>Fulica atra</i>	Sch. IV
31	Indian Bush Lark	<i>Mirafra erythroptera</i>	Sch. IV
32	Peafowl*	<i>Pavo Cristatus</i>	Sch. I
33	Common Kestrel	<i>Falco tinnunculus</i>	Sch. IV
34	Sandpiper*	<i>Tringa glareola</i>	Sch. IV
35	Spotted owl	<i>Athene brama</i>	Sch. IV
36	Indian Roller*	<i>Coracias benghalensis</i>	Sch. IV

* Encountered during the field survey

Common Mammals, Amphibian & Reptiles Species			
S. N.	Common Name	Scientific Name	Status as per IWPA,1972
Mammals			
1	House rat	<i>Rattus rattus</i>	Sch. V
2	Jungle cat	<i>Felis chaus</i>	Sch. II
3	Indian Hare	<i>Lepus nigricollis</i>	Sch. IV
4	Northern Palm squirrel	<i>Funambulus pennanti</i>	Sch. IV
5	Blue bull/ Nilgai	<i>Boselaphus tragocamelus</i>	Sch. III
6	Indian Fox	<i>Vulpes bengalensis</i>	Sch. II
7	Indian porcupine	<i>Hystrix indica</i>	Sch. IV
8	Indian hedgehog	<i>Paraechinus micropus</i>	Sch. IV
9	Indian gerbil	<i>Tatera indica</i>	Sch. IV
Amphibians			
1	Freshwater frog	<i>Hoplobatrachus crassus</i>	Sch. IV
Reptiles			
1	Common indian krait	<i>Bungarus caeruleus</i>	Sch. II

Common Mammals, Amphibian & Reptiles Species

S. N.	Common Name	Scientific Name	Status as per IWPA,1972
2	House Lizard	<i>Hemidactylus flaviviridis</i>	Sch. IV
3	Common garden lizard	<i>Calotes versicolor</i>	Sch. IV
4	Indian Cobra	<i>Naja naja</i>	Sch. II
5	Rat snake	<i>Ptyas mucosa</i>	Sch. IV

3 & 4. Clean and green campus recognitions/awards and Beyond the Campus Environmental Promotional Activities of MGSU



बीकानेर

जिले के पर्यावरण को सुरक्षित व संरक्षित रखने के लिए बनेगा डिस्ट्रिक्ट एनवायरनमेंट प्लान

दैनिक
युगपक्ष

बीकानेर | 3
गुरुवार 11 फरवरी 2021

वर्षा जल संरक्षण का प्रावधान नहीं रखने पर नहीं मिलेगी एनओसी -मेहता

डिस्ट्रिक्ट एनवायरमेंट मैनेजमेंट प्लान की बैठक में जिला कलेक्टर ने दिए निर्देश

बीकानेर (नसं)। नियमों के अनुसार वर्षा जल संरक्षण का प्रावधान नहीं रखने की स्थिति में नगर विकास न्यास भवन निर्माण के लिए नो आब्जेक्शन सर्टिफिकेट (एनओसी) जारी नहीं करेगा। जिला कलेक्टर नमित मेहता ने डिस्ट्रिक्ट एनवायरमेंट मैनेजमेंट प्लान के संबंध में आयोजित बैठक में यह निर्देश दिए। उन्होंने अधिकारियों से कहा कि रैंडम रूप से जांच कर देखें कि नियमों को पालना की जा रही है अथवा नहीं।

बायो मेडिकल वेस्ट के निस्तारण की दें सूचना

मेहता ने कहा कि जिले की समस्त अस्पतालों से निकल रहे बायो मेडिकल वेस्ट को किस प्रकार निस्तारित किया जा रहा है इसके संबंध में निस्तार पूर्वक सूचना उपलब्ध कराई जाए। पीएचईडी द्वारा जल स्रोतों को संरक्षित रखने की दिशा में किए जा रहे प्रयासों की भी सूचना उपलब्ध कराई जाए। उन्होंने जिला परिषद सीईओ को वाटर शेड, सेक्टर पंचट आदि की सूचना देने के भी निर्देश दिए। मेहता ने बताया कि वर्तमान में सभी नगर पालिका और नगर विभाग में शत प्रतिशत डोर टू डोर कचरा संग्रहण किया जा रहा है। बायो वेस्ट जलरेट करने वाले 193 संस्थान विहित किए गए हैं। बैठक में डिस्ट्रिक्ट एनवायरमेंट मैनेजमेंट प्लान के संभाग स्तरीय बोर्डल ऑफिसर प्रो. अशोक कुमार छंगाणी, विभागध्यक्ष पर्यावरण विभाग विभाग महाराज गंगा सिंह विश्वविद्यालय ने कहा कि एकजोटी द्वारा जारी दिशा-निर्देशों पर सभी विभाग बकाया रही सूचवार एक सप्ताह में डिस्ट्रिक्ट एनवायरमेंट कमेटी को उपलब्ध कराई जाए जिससे प्लान बनाकर राज्य सरकार को भिजवाया जा सके।

Maharaja Ganga Singh University, Bikaner as a Nodal Agency prepared a model District Environment Plan (DEP) that covers following thematic areas of Bikaner Division including Shri Ganganagar, Hanumangarh and Churu Districts with District administration and stakeholders.



92.7 BIG FM
dun badi ke toh dekho

Catch
Prof. Anil Chhangani
Environmentalist, MGSU

In conversation with RJ AJAY

On World Environment Day
Let's find the ways for
Ecosystem Restoration

05th June
8 - 11 Am




बीकानेर श्रीगंगानगर हनुमानगढ़

» बीकानेर-9251085008 » श्रीगंगानगर-9382422856 » हनुमानगढ़-9414318587 » नौदल-9314461187 » कोलारत-9413311118 » सांगरिया-9414629987

साठ-समाचार

श्रीनागाजी गोशाला को दिए 5100 रुपए दान

न्यूज सर्विस/नवज्योति, रावतसर। शेर के मांस 34 अंतराष्ट्रीय में अपने पिता को मृत्यु पर मृत्युभोज ने करके रखम पन्ड्रे के दिन मांस को श्रीनागाजी गोशाला में 5100 रुपए नगद राशि दी। मांस के अमर सिंह पालिका ने बताया कि मेरे पिता नेरम राम पालिका की मृत्यु पर मेरे छारा कोई मृत्यु भोज नहीं किया तथा रखम पन्ड्रे के दिन मांस को गोशाला में अकाउंट से रुपए मोबाइल के पारे के लिए दिए गए। गोशाला अध्यक्ष करवीराम बाजीर वरु शर्मा ने पालिका के इस करण को प्रशंसक की व कहा कि पालिका के इस करण से और भी लोगों को प्रेरण मिलेगी और अपने पूर्वजों की मृत्यु पर मृत्यु भोज के स्थान पर समाज सेवा के कार्य करने में लोग आगे आएंगे।

कोरोना काल में प्रकृति ने दिए अच्छे जमाने के संकेत: प्रो. छंगानी



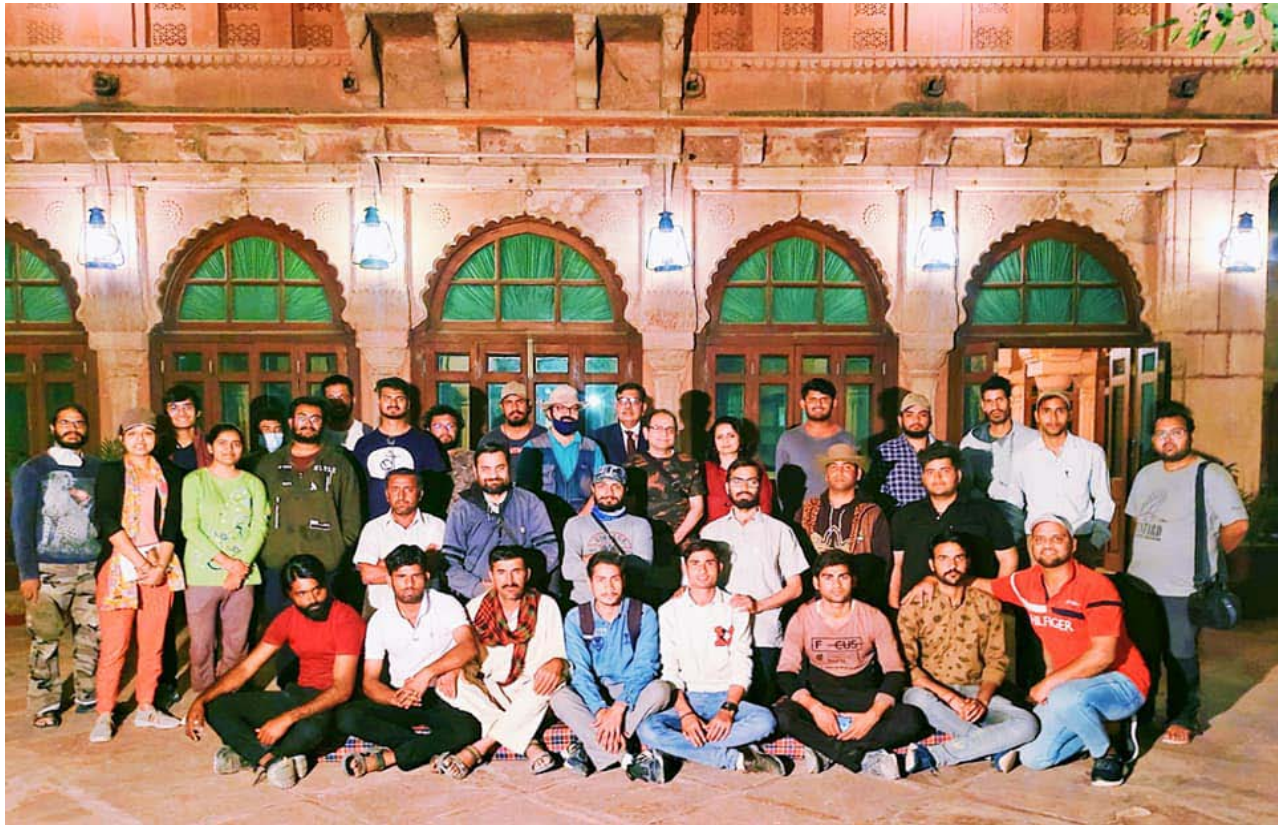
न्यूज सर्विस/नवज्योति, बीकानेर। परंपरागत मौसम के पूर्वानुमानों ने इस बार अच्छे मानसून के संकेत दिए हैं। और कई स्थानों पर किसानों ने अपने खेतों को मई माह में ही तैयार करने में लग गए हैं। महाराजा गंगा सिंह विश्वविद्यालय बीकानेर में पर्यावरण विज्ञान विभाग के विभागाध्यक्ष प्रो. अजित कुमार छंगानी के अनुसार इस बार रोहिंदे, नीम, फेम आदि में फूल आना, खेजड़ी पर अच्छे लालवट में साफ़ी लगना, गौरों का उपवास कम होना, अच्छे जमाने के संकेत हैं। उन्होंने बताया कि इस बार धरेलु चिड़िया भोरख ने 3 और 4 अंडे एक साथ दिए तथा जिनमें 85 से 90 प्रतिशत चिड़िया सफल रही।

टिटहरी ने भी चार चार अंडे दिए साथ ही अंडे उपाई वाले स्थानों पर धरेलु अपने आप में अच्छी चिड़िया के संकेत हैं। प्रो. छंगानी के अनुसार राजस्थान और विशेषकर बार मरुस्थल में किसान सालों से इतने तरह मौसम का और बारिश का पूर्वानुमान लगाता रहा है, जो आज भी सार्थक और सटीक है। इसी के चलते किसान अपने खेतों में तैयारियां शुरू कर देते हैं खेतों की तैयारी निर्धार रहती है, खेतों में बीज का मिश्रण तय करते हैं, साथ ही लगातार अंधियों के फलते, कुछ प्रो. मानसून सांख्यिकीय चरितों को पूर्वानुमान है। इससे फास और खेती छाड़ियों की जल्दोती हुई, जिसके चलते मरुस्थल के बायोमास और जैव विविधता में बढ़ोतरी होने का अनुमान है। प्रो. छंगानी के अनुसार इस बार सायबमैंग (नीम), केवरा, खुलपुल, तीतर, मोर, टिटहरी, मोपरा, कोबरा, धरेलु लिफकलियाँ, लंगुरी, चिंकरा, ब्लैकबक, नीलगाय, सूअर आदि कई प्रजातियों का भी प्रजनन 85 से 100 प्रतिशत तक सफल रहने का पूर्वानुमान है।

कोविड गाइडलाइन अवहेलना पर निगम ने सीज किए 2 संस्थान वसूला तीन हजार जुर्माना

न्यूज सर्विस/नवज्योति, बीकानेर। कोविड एडवाइजरी की अवहेलना पर जाने पर निगम के प्रवर्तन दल ने शनिवार को 2 संस्थानों को सीज कर तीन हजार रुपए जुर्माना लगाया। निगम उपयुक्त संकाय तमाम ने बताया कि अनुकूल व्यवस्था के निर्देशन में को गई कार्यवाही के तहत कोविड मानक शेर में अनामान कानूनम जनरल स्टोर को पिछले मेट से खानक विक्रम करते पाए जाने पर सीज किया गया। वहीं दुधरी और मिता रोड स्थित हाथ फुटवियर को भी अनुमति लेनी की होने के कारण सीज कर पाए जाने के कारण निगम किया गया। इस प्रकार निगम द्वारा शनिवार को कुल 2 प्रतिष्ठान सीज कर 3000 को जुर्माना राशि वसूली की गई। कार्यवाही के दौरान प्रवर्तनी अधिकारी जगदीश खोपड़ा, अतीक ज्वाग, स्वच्छता निरीक्षक शिवाय शायद, किसान ज्वाग, विनोद स्वामी, होमगार्ड के जवान मौजूद रहे।

Wildlife survey come training was organized in the Bikaner district from 15 to 25 February, 2021. This is a collaborative pilot survey coordinated by wildlife institute of India, State Forest and wildlife Department. Maharaja Ganga Singh University, Government Dungar College and many other NGO and Volunteers participated in it.



<https://mgsubikaner.ac.in/wp-content/uploads/2022/05/Bikaner-Survey-Report-Migratory-Birds-Prof.-AKC.pdf>



घर-घर पौधा वितरण अभियान का शुभारम्भ

बीकानेर। महाराजा गंगा सिंह विश्वविद्यालय द्वारा सोमवार से गोद लिये गए गांव नाल बड़ी में घर-घर पौधा वितरण अभियान का शुभारम्भ किया। कुलपति प्रो. विनोद कुमार सिंह के आह्वान पर ह्यहपारिवारिक वानिकीहह को बढ़ावा देने के उद्देश्य से गांव के प्रत्येक घर में एक औषध एवं एक फलदार पौधा देते हुए ग्रामवासियों को पर्यावरण की महत्ता बारे बताया। पर्यावरण विभागाध्यक्ष प्रो. अनिल कुमार छंगाणी एवं डॉ. अनिल कुमार दुलार, सहायक आचार्य-पर्यावरण विभाग ने इन पौधों से होने वाले लाभ से ग्रामवासियों को अवगत



कराया। साथ ही नाल बड़ी गांव के सरकारी कार्यालय ग्राम पंचायत, विद्यालय, आंगनवाड़ी केन्द्र एवं उप स्वास्थ्य केन्द्र परिसर में पौधारोपण किया गया। कार्यक्रम में बागवानी विशेषज्ञ प्रो. इन्द्रमोहन वर्मा, सरपंच श्रीमती तुलसी देवी, ग्राम

विकास अधिकारी अनिल कुमार, समाजसेवी दिलीप सिंह, सुरजाराम, ओमप्रकाश सोनी सहित विश्वविद्यालय कार्मिक अजय भांडू, मनोज चौधरी एवं विद्यार्थी वृश शर्मा एवं सिद्धार्थ उपस्थित रहे।

घर-घर पौधा वितरण अभियान शुरू

नाल @ पत्रिका. महाराजा गंगासिंह विश्वविद्यालय बीकानेर की ओर से सामाजिक दायित्वों के निर्वहन के तहत द्वितीय चरण में गोद लिए गांव नाल बड़ी में सोमवार को घर-घर पौधा वितरण अभियान का शुभारम्भ किया गया। कुलपति प्रो. विनोद कुमार सिंह के आह्वान पर पारिवारिक वानिकी को बढ़ावा देने के उद्देश्य से गांव के प्रत्येक घर में दो-दो पौधे देकर ग्रामवासियों का पर्यावरण की महत्ता से अवगत कराया गया।

पर्यावरण विभागाध्यक्ष प्रो. अनिल कुमार छंगाणी एवं डॉ. अनिल कुमार दुलार ने इस कोरोना काल में पर्यावरण संरक्षण की महत्त्व बताया। इस दौरान गांव के ग्राम पंचायत, विद्यालय, आंगनवाड़ी केन्द्र एवं उपस्वास्थ्य केन्द्र में पौधारोपण किया गया। कार्यक्रम में बागवानी विशेषज्ञ प्रो. इन्द्रमोहन वर्मा, सरपंच तुलसी देवी, ग्राम विकास अधिकारी अनिल कुमार, समाजसेवी दिलीप सिंह, सुरजाराम आदि मौजूद रहे।

सीमा सन्देश

Tue, 21 September 2021

<https://www.readwhere.com/read/c/63256402>



पेज एक का शेष...

Door to door campaign to distribute medicinal and fruit plants was started by Maharaja Ganga Singh University, Bikaner in the in the adopted villages

Protection of natural resources of Thar Desert

11:55 4G LTE

Experts caution about threat of solar...

Hindustan Times

Experts caution about threat of solar, wind energy plants on ecology

Aabshar H Quazi
aabshar.quazi@htlive.com

KOTA: Environmentalists of Rajasthan have cautioned about the threat of solar and wind energy projects on ecology in Western Rajasthan.

Santosh Bohra (45), a farmer of Jodhpur, who has a date palm farm, said that he earlier used to partially pollinate date palm trees due to presence of the honey bees and other natural pollinators, but now he has to manually pollinate the entire cultivation due to less honey bees and insects.

"I have 65 solar panels at my farm due to which there is rise in the temperature, which has adversely affected the pollinators, insects and birds," Bohra said.

Resonating his concerns, Dr Anil Kumar Chhangani, Head, Department of Environmental Science, Maharaja Ganga Singh University, Bikaner, said that there are extensive solar power projects in desert areas of Western Rajasthan including Bikaner, Phalodi, Baap, Jaisalmer, Jodhpur which are established after removing vegetation beneath.

Further, the solar panels absorb sunlight up to a certain extent after which it reflects sunlight due to which there is a rise in surrounding temperature, he said.

"Our observations indicate that the surrounding temperature has increased up to 3-to-5 degrees (Celsius)," he said.

SANTOSH BOHRA,
date farmer

adversely affected, he said.

"Just as we need tiger and elephant in the ecosystem, we also need micro insects and bees for agriculture to thrive," he said.

Dr Chhangani, who has been appointed as the nodal officer for District Environment Plan preparation on the instructions of the National Green Tribunal to all the state governments, said, "We will take the issue of solar panels and wind turbines to the NGT."

The solar plants are established by private companies, RRECL and government of India in western Rajasthan.

A research student of Maharaja Ganga Singh University, Vishnu Acharya said, "Our observation says Sewan grass is perishing due to the rise in atmospheric temperature by solar projects while insects, flies

usually impacting environment the immediate effect of is of the wind mill which only in border areas of and Jaisalmer.

"Wind turbines are transmissions lines at Great Indian Bustard, cranes and vultures, th ment is allotting land power plants without environment impact ment," he said.

Wildlife Institute of also described wind tu a disturbance for the ex said.

However, Chairman; aging Director, R Renewable Energy Co Limited (RRECL), Subc wal, said, "Renewabl plants and generation are much cleaner, gre environmentally frier conventional thermal based power generatic Most of the land be for solar and RE plants han are in barren asserted.

New technologies evolving to facilitate v and plant growth ev solar panels to ensure ing loss of vegetation ment sources of livelihood farmers, he said.

Further, NoC is tal Forrest departments f projects in notified at Agarwal.

The installed capac energy (Ground Mo Rajasthan is 4996.96 M

अक्षांश: 26.651037
देशान्तर: 71.342268
ऊंचाई: 326.33 m
सटीकता: 1.8 m
समय: 10-02-2021 18:26



Environment Impact Assessment Campaign to protect the national bird "peacock", state animal "chinkara", "camel", state bird "Godavan", state tree "Khejri", state flower "Rohida", etc., to preserve the valuable biodiversity of the Thar desert.

Traditional Forecast System

Hindustan Times

TRADITIONAL FORECAST SYSTEM | STUDY BASED ON PLANTS AND ANIMALS

Nature signals good monsoon for Rajasthan, says study

Aabshar H Quazi

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KOTA: At a time the India meteorological department (IMD) and private agency Skymet have said the 2021 southwest monsoon starting in June is expected to be normal, the study of an environment science professor in Bikaner has predicted a good monsoon this year for Rajasthan with the help of a traditional forecast system based on indications in the nature.

Professor Anil Kumar Chhangani, head of the department of environmental science at Maharaja Ganga Singh University in Bikaner, has been observing the traditional forecast system for the last 15 years. He has predicted a good monsoon this year on the basis of flowering of Thar desert plants and breeding of animals and birds.

"According to the traditional forecast system, less production of ker (capparis decidua) fruits and good production of 'sangri' on khejri (prosopis cineraria) indicate a good monsoon. Similarly, good flowering of neem, rohida and fog trees promises good monsoon," Chhangani said.

On the basis of plant phenology and breeding pattern of ani-



Flowering of rohida tree in Thar desert indicates a good monsoon, according to the environment science professor.

mals and birds, monsoon activity is still gauged in the traditional forecast system in Rajasthan, he said.

Phenology is the study of cyclic and seasonal natural phenomena, especially in relation to climate and plant and animal life.

"This year house sparrow is breeding very well and most of the nests have three to four chicks, with a breeding success of 80 to 90% in Thar desert. This



A sparrow and its chicks in a nest. Good breeding by the sparrows indicates normal monsoon, according to the study.

indicates good monsoon as well," Chhangani said. He claimed that successful breeding of Hanuman langur and chinkara blackbuck in Thar desert this year is also an indication of a good monsoon.

Farmers in western Rajasthan have started preparations for sowing of kharif crops on the basis of such indications, he said. "Even the traditional forecast system based on the nature is known for its precision -- that is, whether the rainfall will be less, medium or heavy," he claimed.

Farmers in rural Rajasthan also endorse the study of Chhangani. Dushrath Kumar, general secretary of Hadooi Kisan Union, said, "The modern weather forecast has a short history, but the traditional forecast system has a long history, which has been a great help for the farmers in this part of the country."

Fatima Sultana, associate pro-

According to the traditional forecast system, less production of ker fruits and good production of 'sangri' on khejri indicate a good monsoon.

ANIL KU CHHANGANI,
Environmental science professor

fessor at the Government Janki Devi Bajaj Girls College in Kota, also stands by the claims of Chhangani.

"Birds and animals get indication from the nature about weather, which they reflect in their behaviour," she said.

"Rats leaving holes and birds laying eggs at a height are indication of overwhelming rains," Sultana said.

A good monsoon will mean another year of bumper farm production and cascading positive impact for the economy but fight Covid-19 infections.



बीकानेर 09-05-2021

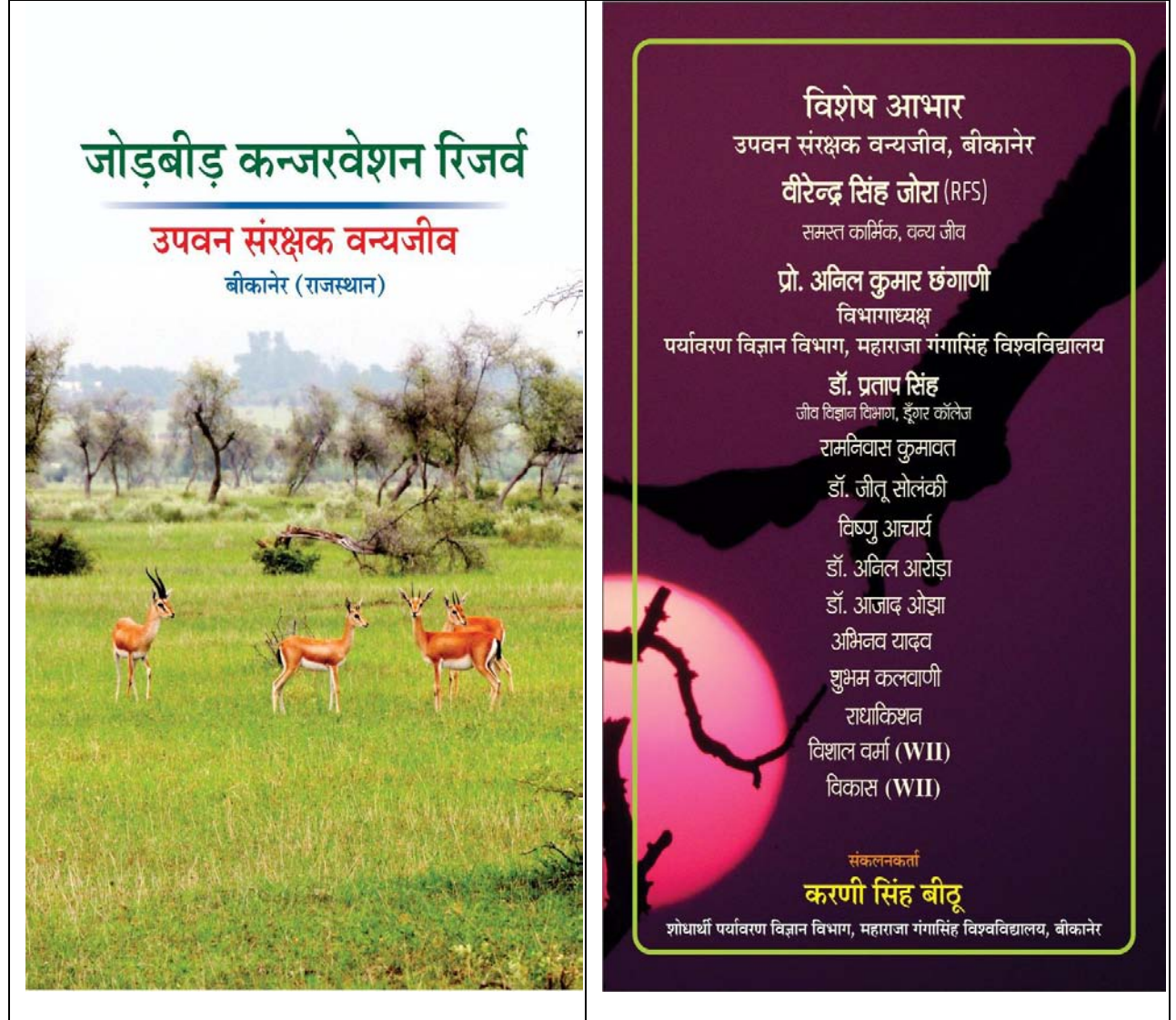
प्रकृति ने दिए अच्छी बारिश होने के संकेत

बीकानेर | परंपरागत मौसम के पूर्वानुमानों ने इस बार अच्छे मानसून के संकेत दिए हैं। कई स्थानों पर किसानों ने अपने खेतों को मई में ही तैयार करना शुरू कर दिया है। महाराजा गंगा सिंह विश्वविद्यालय के पर्यावरण विज्ञान विभाग के विभागाध्यक्ष प्रो. अनिल कुमार छंगानी ने बताया कि इस बार रोहिड़े, नीम, फोंग आदि में फूल आना, खेजड़ी पर अच्छी तादाद में सांगरी लगना, गैरों का उत्पादन कम होना अच्छी बारिश के संकेत हैं। साथ ही घरेलू

चिड़िया गौरैया ने 3 और 4 अंडे एक साथ दिए। जिनमें 85 से 90 प्रतिशत हैचिंग सफल रही। टिटहरी ने भी चार-चार अंडे दिए। साथ ही अंडे ऊंचाई वाले स्थानों पर दिए जो अपने आप में अच्छी बारिश के संकेत हैं। उन्होंने कहा कि राजस्थान और विशेषकर थार मरुस्थल में किसान सालों से इसी तरह मौसम का और बारिश का पूर्वानुमान लगाता रहा है, जो आज भी सार्थक और सटीक है। इसी के चलते किसान अपने खेतों में तैयारियां शुरू कर देते हैं।

A good news amid corona pandemic “ The monsoon this year is going to be very good (Achcha Jamana) as per the traditional forecast system, which is based on nature's indication and response. Especially on the basis of floral and faunal breeding and Flowering and fruiting Phenology of Thar desert plants.

Education and Awareness



<https://mgsubikaner.ac.in/wp-content/uploads/2022/05/Jorbeer-Conservation-Bikaner-Prof.-AKC.pdf>

Education and Awareness materials for the school college students and community have been prepared, in collaboration with the state forest department.

HOD
Prof. Anil Kumar Chhangani



Photo 7.1: Plantation near Sanvidhan Park in the campus

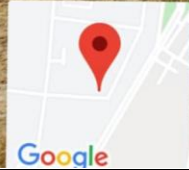


Photo 7.2: Comparisons before and after plantation in front of Examination block



Photo 7.3: Plantation near sports complex at the campus

परंपरागत वर्षा जल संरक्षण महाराजा
गंगा सिंह विश्वविद्यालय, बीकानेर



Bikaner, Rajasthan, India
27J8+R95, Antyodaya Nagar, Bikaner, Rajasthan 334001,
India
Lat 28.030844°
Long 73.264755°
12/05/22 04:03 PM

Photo-7.4: Tradition rain water harvesting system established in the campus

(Prof. A.K. Chhangani)

(Dr. P.D. Charan)