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**Ph: 0755-2426520, Mobile 9755936100 E-mail:- jkc153@gmail.com,
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FOUNDER & PUBLISHER

Jagdish Chandra
IFS Retd. batch 1990



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संपादक की कलम से ...

ज्ञात किन्तु अपुष्ट सूत्रों के अनुसार; पृथ्वी हर साल लगभग 38,000+ वर्गमील जंगल खो देती है। वैश्विक वनों की कटाई का 96% उष्णकटिबंधीय वनों में होता है। वनों की कटाई के कारण ग्रह के आधे से अधिक उष्णकटिबंधीय वर्षा वन नष्ट हो गए हैं या खराब हो गए हैं। 2050 तक लगभग 28,000 प्रजातियों के विलुप्त होने की भविष्यवाणी की गई है।

वन हमारे ग्रह पर लगभग एक-तिहाई भूमि क्षेत्र को कवर करते हैं और भूमि पर जीवन के छत्र हैं। वे सभी जीवन रूपों के लिए वन अत्यावश्यक हैं, हमारे पानी हवा को शुद्ध करते हैं और किसी भी संक्रामक रोगों के खिलाफ रक्षा की पहली पंक्ति के रूप में काम करते हैं।

वन वर्षा को अवशोषित कर इसे धीरे-धीरे नदियों, झीलों और भूजल जलाशयों में छोड़ कर जल चक्र को बनाए रखने में महत्वपूर्ण भूमिका निभाते हैं। वे अपनी जड़ों से मिट्टी को पकड़कर मिट्टी के कटाव को रोकने में मदद करते हैं। उनके बिना, मिट्टी का कटाव बेहद बढ़ जाएगा, जिससे मिट्टी की उर्वरता कम होकर पोषक तत्वों की कमी हो जाएगी और कृषि उत्पादकता समाप्त हो जाएगी।

वन भूस्खलन और बाढ़ जैसी प्राकृतिक आपदाओं के खिलाफ प्राकृतिक बफर के रूप में कार्य करते हैं। वनों को खत्म करने से जैव विविधता, जलवायु, मृदा स्वास्थ्य, जल संसाधन और मानव एवं अन्य प्राणी जीवन पर विनाशकारी परिणाम होंगे।

वन लकड़ी, औषधीय पौधे और गैर-लकड़ी वन उत्पाद जैसे मूल्यवान संसाधन प्रदान करते हैं जो स्थानीय अर्थव्यवस्था को बनाए रखते हैं। उनके उन्मूलन से वन संसाधनों पर निर्भर समुदाय / जीवन की आजीविका पूरी तरह समाप्त हो जाएगी।

अतः

हमारे वन "कार्बन सिंक" के रूप में कार्य कर जलवायु परिवर्तन को कम करने में महत्वपूर्ण भूमिका निभाते हैं यानी कार्बन डाइऑक्साइड को सोख लेते हैं जिसे अगर मुक्त छोड़ दिया जाए तो वह वायुमंडल में "वैश्विक तापमान वृद्धि" अर्थात "ग्लोबल वार्मिंग" का कारण होगी। यदि हमारी आने वाली पीढ़ियों के लिए वनों को सुरक्षित नहीं रखा गया तो जीवन असुरक्षित हो जाएगा परिणामस्वरूप मानव और अन्य जीवन को ऑक्सीजन न मिलने के कारण अकाल मौतें भी होंगी।

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OWNER & PUBLISHER : JAGDISH CHANDRA

Phone: 0755-2426520 M: 9755936100

Email: menmyearth@gmail.com

Email: jkc153@gmail.com

web: www.meandmyearth.com

Regd. Office:

**H.No. 277, Rohit Nagar, Phase-I,
Bawadia Kalan, BHOPAL - 462039 (M.P.)**

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LOOKING BACK AT FIFTY FOUR YEARS IN FORESTRY FOLD

H.S. Panwar (IFS Retd.)

It was in 1957 that I went to Indian Forest College for my AIFC Diploma and in 1960 was posted to Umaria Division under a very able and willing guru Shri R.P. Shrivastav. I then spent four and a half years at the Forest Headquarters in Rewa as Assistant Forest Utilisation Officer most of it under another real and sharing guru Shri S. S. Shrivastav. In 1966 I was promoted as DCF and posted as DFO North Mandla and held charge also of South Mandla Division for over a year, which exposed me to Kanha National Park. I was moved locally to South Mandla essentially for my perceived suitability for Kanha, but upon my pleading to make Kanha larger and make me Kanha's Director for a longish tenure I was transferred to Dewas in June 1969. In Dewas I lasted for just fourteen months only to be drafted back at Forest Headquarters in Bhopal supposedly for strengthening the new venture in timber trade nationalization. Much to the chagrin of my seniors I went as a homing bird back to Kanha in mid 1971 having been delivered in exactly nine months from Bhopal as the first independent Director of Kanha, where I spent ten years including as Field Director of Project Tiger, which was launched in 1973.

In 1981 I was deputed to Centre as Director for Project Tiger and in 1985 through UPSC was picked up to become the founder Director of the new Wildlife Institute of India at Dehradun where I spent nine years. In 1994 I undertook an UN-FAO assignment as Chief Technical Advisor to the Department of Wildlife Conservation of Sri Lanka, where I spent in all four and a half years in Colombo touring also the parks that were not disturbed by insurgency. Finally I have settled in Gurgaon and continue to remain involved with the forest-wildlife sector.

It is difficult to summarize these long innings in a single article and I would confine myself to the salient aspects of MP forests and wildlife. Before I begin I do lay a claim to be the main instrument in the process of not allowing wildlife management to separate from the forestry fold, for which there was a strong move in the 1980s when the new Department of Environment was created in Government of India. This conviction stems from my firm belief that while specialization in different forestry sectors is highly desirable and needed, dismembering is the surest way to compromise India's ecological security without which country's development in any sector cannot be sustainable. This also emphasizes

the continued close coordination now and for all times in future among all wings of the forest department.

Madhya Pradesh Forests

MP forests are diverse and spread through the sprawling ranges of Satpuras and Vindhyas and, in association with those in Chhattisgarh, provide watersheds of critical significance not just for the two states but importantly also for all adjoining states of India around these two states. This accounts for over a third of the whole of India. This is the single most vital reason for securing these forests. Both states have valuable timber, bamboo resources, a wide range so called minor forest produce (vanopaj) and an enormous spectrum of biodiversity typical to the 'Central Highlands of India'. This biodiversity resides in both some relict specimens of 'old growth' forest ecosystems in several national parks and sanctuaries and in the 'secondary' ecosystems in managed forests and pastures as well as a huge network of stream and river banks. These forests include some of the best specimens of moist and dry deciduous forests in the country with unique stands of teak, sal and mixed forests with bamboo as a strong complement. The rich water regime directly attributable to the forests, and the forage and vanopaj attributes are an enormous contribution for the local communities. All these ecological services and products are taken for granted, often without realizing the role of forests and with more professed than real conservation support in the overall framework of development and governance.

Nonetheless, these values enhance the cause and the reasons for the conservation of forests in Madhya Pradesh. I say so with full conviction but must simultaneously add that this cannot be achieved unless the wellbeing of the forest dwellers and the forest side communities is also concurrently ensured. A range of Central and State schemes support this objective also in respect of forest dwellers and forest side communities as a part of the overall rural development and tribal welfare programmes. But I must maintain that no sustainable wellbeing can be delivered unless the forests around them are in a good conservation state. This is so because the productivity of their farms and animals depends upon water, vanopaj (including bamboo) and some timber resources, all of which derive from a well conserved forest status. Thus while recognizing the forest rights of

these communities one must lay emphasis on the mode in which these are facilitated. Rather than emphasizing on land, perhaps a share in forest revenues including timber and preferential employment in forestry-wildlife sector seem to me better ways in which sustainable wellbeing can be ushered. The share in revenue and use of vanopaj in return for rights should mainly be invested in ecodevelopment of the concerned villages including improving farmland of right owners and provision of sound animal husbandry that aims at reducing livestock numbers while enhancing economic returns. Likewise beneficial engagement in ecotourism in parks and other forests is another benefit that must be extended to these communities. Naturally this needs to be done in responsible participation with real stakeholders.

Wildlife and Biodiversity

Madhya Pradesh is widely and rightly recognized as the tiger state of the country and has generally been the torch bearer in wildlife management. I do not wish to recount the various associations of animal and bird communities but would surely say that the State, given the varied land forms and the bioclimatic environment, carries diversity and attributes typical to the central part of India in terms of wildlife and biodiversity from east to west and north to south. All these values are but an integral component of our national values in this domain. Kanha has the distinction of harbouring the relict population of Barasingha paradoxically called 'the hard ground swamp deer' and has demonstrated how a species on the threshold of extinction can be saved. Bandhavgarh, Pench, Satpura and Panna are other notable tiger reserves, especially the former two along with Kanha that have demonstrated how good management can establish parks of distinction. I am heartened by the news that the State Wildlife Wing has translocated a good sized herd of gaur from Kanha to Bandhavgarh restoring a lost attribute to the latter and that it is planning to take barasingha to Satpura. This is the innovative way in which the shrunk distribution of several species can be at least partly restored. But this must be subject to a rider that the management of the proposed host park is competent enough to host such an activity especially if the species happens to be in the highly endangered category.

Panna after its recent and sad loss of tigers has successfully restarted a tiger population with contribution of two females from Kanha and Bandhavgarh and a male from Pench that have bred to the delight of us all. This operation distinguishes Madhya Pradesh as a similar operation in Sariska tiger reserve of Rajasthan though initiated some years back has failed as yet to yield the progeny. While kudos for Madhya Pradesh can be rightly claimed, the lessons from Panna loss of tigers in a short and recent period from a thriving and structure wise sound population of over

thirty tigers must not be forgotten. Panna Report to which I am also a signatory describes these lessons in detail but I would just mention the following cautions and management steps needed to prevent recurrence of such adverse events in future that, as in the case of Panna, tend to tarnish the Department's image through media trial. There is no dearth of pseudo conservationists and even scientists who even on half truths and misinformation contribute with glee to such smear campaigns. The salient points I make are:

1. When tiger breeding is good in a small park without a viable buffer zone, the adverse possibility of 'population stress' caused by an increase in upcoming adult males as manifested in frequent cub killing to the acute predicament of tiger mothers is to be expected. Among other reasons this was a strong factor in pushing out such mothers and cubs to the sure fate of poaching outside. Heightened internecine fights, leading to tiger deaths beyond the natural level, is another signpost of such a population stress. This emphasizes the need of close monitoring of tiger population in terms of sex ratio and structural age profile, which is neither possible by 'camera trap' technique nor is it practicable to put radio collars on a larger segment of the population. Similarly, genome based method of tiger identification from collected samples of tiger feces needs help from a competent genetic biotechnology laboratory, which again is beyond ready adoption by reserves for this purpose because of the sheer cost involved.

2. Three lessons emerge from this likely eventuality in successful smaller reserves:

Earnest attempt to set up well protected and managed buffer zones in full benefited participation of communities must be made, where dispersing sub-adults can find shelter until gaining adulthood. This is vital for replacement of 'core population adults' as they become older. (I admire the ongoing attempts to set up such buffer zone around Panna).

In smaller successful reserves with little potential for viable buffer zones timely relocation of identified sub-adults for relocation so as to restock the depleted parks and sanctuaries has to be undertaken. This eventuality can be foreseen also from smaller reserves with buffer zones, based on the indications from close population monitoring.

In any case such relocations of tigers would be needed as a scientific requirement for genetic exchange as it is most unlikely to take place through long ranging tiger movements between reserves, given the absence of viable corridors.

The only method of sustained annual monitoring of population that can succeed is the pugmark method. It has been conclusively proved that tiger pugmark is a true

signature for individual identity and science has advanced to a stage where pugmarks can be photographed by using stereoscopic color imaging under standard conditions with the use of specifically designed stereoscopic camera equipment. Software for image interpretation, specially evolved for this purpose, can then yield the standardized pugmark measurement parameters, much in the way of satellite image interpretation as used in geographic and thematic mapping. These parameters in association with the measurement of stride and 'straddle' (horizontal distance between left and right pugmarks, at right angles to the direction of walk as measured from a good pugmark trail) can again be analyzed by computers to cluster pugmarks of the individual tigers in separate clusters and also lead to their sex identification. It is a happy augury that Madhya Pradesh is supporting this ongoing research. My sincere compliments are due to the State on this count as this will fulfill my long term cherished scientific desire of landing a strong scientific tool in the hands of field managers.

Forest tracts needing special conservation attention Surely there are numerous other tracts that merit being included in this list but I will limit myself to the following of prime value to my mind.

1. Kanha - Pench - Satpura - Betul: The first three are tiger reserves and Betul a forest division linking with Melghat tiger reserve in Maharashtra. Ongoing genome based tiger research has shown that Kanha and Pench have a strong connectivity with a revived tiger presence in the forests in between. The tiger link further west is presently under study. But, what is more critical is the prospective better forest conservation not necessarily only for the tiger, but for the sake of these Satpura forests providing an essential ingredient of water security for the region.

2 Laugar-Khara: These are two contiguous reserved forest blocks of Balaghat district and their conservation value derives not so much from serving as a link connecting Kanha and Pench. Their real value arises from their donning in perhaps the best specimen of mixed forests with bamboo in the whole of Satpura Range in Madhya Pradesh and Maharashtra. Another unique feature, perhaps in Laugar Block or somewhat outside towards Lanji, is of the only 'forest swamp' that exists in the whole of Satpura and Vindhyan Ranges.

3. Bandhavgarh Katni Panna -Chhatarpur: Like Kanha-Pench connectivity these forests also represent transition from sal to teak as the dominant forest tree species. Further forest connectivity with Damoh, Sagar, Narsinghpur on to Seoni can be kept as a prospective goal, again from the water security services of this sprawling tract. Gaps in between do not count for

much as real the value lies in hydrological and biodiversity conservation.

4. Kuno-Shivpuri - Chambal - Kela Devi -

Ranthambhore: All these are protected areas, the last two being protected areas across Chambal in Rajasthan and the former three are protected areas of Madhya Pradesh. Among them these represent an excellent specimen of dry deciduous forests of the Vindhya. The forest tract within Madhya Pradesh has good overall ecological value. If one looks at the forest map of India, this is the only sizeable 'green patch' in an otherwise desolate expanse in the region.

Reminiscing

How does one, with a multitude of events of significance experienced in all sectors of forest-wildlife sector choose for a short write up like this. I will hence include just a few, related to wildlife, dotted around in my long innings.

1. First ever large wild cat encounter: I was a probationer in Umaria Division and was engaged in laying out strips for the then famous 'van sudhar yojana' perceived by the then CCF Shri. K. P. Sagariya. Alternate strips were to be cleared for planting and for tending under 'coppice with reserves'. I was camping at the forest inspection hut at Ghunghuty in the back of the railway station and used to cycle down alone seven kilometers every day for the task. One evening dusk time as I was returning I allowed my cycle to accelerate down the gradient of a small nala crossing so as ease the peddling effort on the ascent across the culvert. As I looked up at the onset of ascent, I saw a huge leopard standing across the road in mid slope and staring at me. As a green horn I was at a loss as to what to do. My reflexes did the rest, I braked the cycle and stood still with one foot on the ground. The leopard did not budge and I thought of my end early in life. After what seemed to me to be an eternity, but must have been under just a minute, the leopard relieved me by crossing the road and melting away into the forest. I must have waited for few minutes but then hurried back to the safety of the inspection hut. That was my first real encounter with a carnivore in my carrier and gave me a lesson when I reflected on the event in the verandah of the hut. 'If you don't fool with a large wild cat it won't harm you and leave you alone, if shocked a little'. This was later reconfirmed umpteen times in my carrier. Only a couple of days work was left and I finished it politely turning down the staff offer to put me up at the local forest guard's quarter.

Tiger a real gentleman: As Field Director in Kanha I was on my way from Mandla to Kanha and stopped by Kisli. I saw an empty bullock cart coming from Kanha side and the staff told me that it was returning after dropping park-elephant rations at Kanha.

I continued my wagoner ride and came across an educating rare phenomenon of tiger behavior in about a kilometer of road stretch, half a km beyond Kisli. First just the cart tracks for half a km, then tiger tracks showing movement of the animal towards Kanha run over by those of the cart over some 100 meters. Then just cart tracks again for a distance of some 100 meters. Then finally and queerly, fresh tiger tracks continuing again uninterrupted overlaying the cart wheel tracks for well over a km. The climax was, we saw a good sized tiger jumping off the road and disappearing in the forest along the deep steep terrain of the banks of the dry nala. Now the interpretation - Half a km from Kisli is quite disturbed by staff quarters and it is rare to see a tiger here in late morning. So, the bare cart wheel tracks. Later unaware of the tiger presence, the cart man trampled the fresh tiger tracks with the wheel tracks of the bullock cart. But the tiger, sensing the cart movement well in advance, left the road alone for the cart to pass and continued his traverse inside the nala running along the road descending from Kanha. After the tiger saw the cart having moved away he resumed his journey on the road, as evidenced by a stretch of the bare cart tracks and then a continuing stretch of tiger tracks overlaying those of the cart wheels. Finally, though he must have sensed our vehicle approaching from a long distance, only when we drew near did he leave the road. That's how my driver Rajaram and I saw the tiger jumping off the road. What greater evidence of the gentlemanliness of tiger allowing us the right of way?

3. Jumman Khan, a pious, steadfast, proficient and honest forest foot soldier: Educated only up to Primary level, and recruited as forest guard may be in the 1920s in Sagar, he found his way to Kanha in the early 1950s. Apart from above rare qualities, by sheer will to learn and by application, he had become quite a competent forest civil engineer. His knowledge of forest and wildlife ran as deep as his familiarity with forest herbs. His values saw him steadily rise and he came to be elevated on an ex-cadre park post equivalent to a Ranger. He often accompanied me on civil work planning and sometimes on tracks through the forest. He was well up in the upkeep of park elephants too - in all a very valuable park employee. We had a tusker named Deobahadur gifted to the park by the Surguja Maharaja and with it came an elephant attendant claiming to be his mahaut. But Deobahadur hardly obeyed him and he ill treated the elephant ceaselessly. As a result the tusker became far too aggressive and had to be chained with the help of other camp elephants and mahouts.

One day Deobahadur broke his hind leg chain and ran away. While our searches proved futile, it was captured in a very critical health and almost in an immobile state with a festering wound in the right leg, by a temple mahant in Rajnandgaon district. With

knowledge of elephants and medicines the mahant cured the elephant. Finally, upon getting the news after many months our staff got back the elephant after compensating and thanking the mahant. Deobahadur was then entrusted to an experienced mahaut (Imamuddin) of the park who trained it as a forest park elephant. The tusker was gradually allowed to accompany other park elephants on tiger tracking and viewing in the way of the pioneering skills first developed in Kanha. But no tourists were allowed on this tusker for a couple of months. Finally, we felt it was ready too for tourists but we needed to test this. One day Jumman Khan and I went on Deobahadur with the park elephants and gradually took the elephant closer to the tiger. But as tourists were ferried on other elephants, one other park elephant and our Deobahadur kept the track of the tiger. Eventually we asked all other elephants to start ferrying tourists while we stayed alone with the tiger on Deobahadur. This went on for well over an hour and I could take good tiger photos. With three other park elephants with tourists around the tiger, Deobahadur continued behaving impeccably. Then suddenly for no reason the tusker panicked, trumpeted and bolted out of control through the forest. We held ourselves with great effort on elephant back, I along with my camera and Jumman Khan with my camera briefcase. However, when we came inside a young pure stand of sal poles, Jumman Khan lost his perch and in the process he fell from the hauda. But his right foot was caught by the chain of the hauda footrest and he was dangling inverted somehow saving himself from the saplings as these were parted by the bolting tusker. At last Jumman Khan's foot got released and he fell off. Even though highly apprehensive of Jumman Khan's condition, I could hardly do a thing in the midst of the saplings as the elephant continued to bolt. Shortly we came upon a grassy patch and I jumped off Deobahadur who also stopped forthwith. I ran towards Jumman Khan, only to see him coming towards us with my camera bag in his hand as I entered the sapling patch. I was relieved and asked him about himself. He showed me his injured ankle having a deep gash, to which on the spot he had already applied a forest herb. Bleeding had stopped and he looked in fine fettle. With his courage as an asset we decided to take Deobahadur back to the tiger, both of us on the hauda. Stayed with the tiger for another hour and Deobahadur remained on his best behaviour, becoming a valuable asset to the park. Such was Jumman Khan and this is but one example of his endless contribution to Kanha. Several engineering structures including anicuts in the park stand testimony to his skills. Alas! Jumman Khan is no more but his legend in Kanha lives on.

4. Prime Minister Smt Indira Gandhi's four and a half hour midday visit to Kanha: It was January 1985 when her helicopter landed at a makeshift helipad

near Kisli at 11 AM, I having come from Delhi especially for this visit at the behest of the then Chief Minister Shri Arjun Singh. We awaited her at the helipad. I was standing by the open Kanha jeep that was to take her on the park visit. A young tiger male, had been tracked in the forest a km away but had moved with his chital kill to a low hill top encircled by thick bamboo clad slope copiously strewn with broken rock pieces, large and small. She agreed to go on the elephant despite our briefing of the terrain and forest. With her Principal Security Officer and I she rode the elephant and I somehow successfully struggled to keep the bamboo branches from touching her and she did help herself too as the elephant negotiated the tortuous terrain.

Eventually near the top we were eye level on the hauda with the tiger. She was thrilled and stayed on as we shifted the elephant to vantage positions for her view for about fifteen minutes. Finally we moved to Kanha on the jeep and she was able to see another tigress with two grown up cubs from the elephant back in the Chuhri nala open grassland, all this within an hour and a half. She had lunch in the open under the sal stand opposite what once used to be the new rest house (now a museum) and enjoyed hot jalebis. As only stray chital and some birds could be seen on way to Kanha I commented, "Madam you have chosen to come to during the period of the day when we ask our visitors to relax in their rooms, and then only for as many hours as the days we suggest our visitors to stay". She answered that it was either this visit or not visiting Kanha at all. We all said we are indeed grateful that you opted to come.

After a brief stay we left for a jeep excursion of

Kanha meadows and I mentioned to her that in morning or evening we could have seen plenty of other animals including the rare Barasingha of Kanha. I took the jeep in the Kanahri meadow and we stood close to a sal stand with tall grass separating us from another lower grass meadow. I sought her permission to drive through the grass taller than the jeep but which was safe and free from pits or boulders and she readily agreed. Despite the security man restraining me by pressing my shoulder from behind I took the jeep slowly and we soon came across the tall grass and emerged into the opening. My best anticipation turned out to be true and we witnessed a large herd of Barasingha, some resting, some foraging and intermittently engaging in displays typical of the breeding season. She was thrilled again and I was delighted as all the VIPs in the jeep heaved a sigh of relief. Finally we were on way to Bamhanidadar where a larger, Air Force helicopter awaited to take her to Jabalpur for her special plane to take her to Delhi. She was surprised when I told her that she had but seen just five percent of Kanha from the jeep. On Chief Minister's suggestion I joined the helicopter flight to enable her to take a small tour of the park and besides Kanha Range forests we went about a third of our way towards Supkhar. She was delighted to see the wonderful green forest canopy and appreciated the great Kanha wilderness and happy at our securing green heavens like this. Finally, she flew in time to catch special plane well before sunset, as was mandated because Jabalpur airport then was not equipped for night flights.



Shri Hamendra Singh Panwar, got Padm Bhushan in 2013. A legendry from foresters fraternity of Madhya Pradesh and pride of India, born in a small village, Tingipur in Balaghat distt. He won several other awards during his life time. Forest officers of Madhya Pradesh and India, may like to know more about this learned man of Indian wildlife conservation.

Other awards :

1981.. Government of M.P. Gold Madel.

1992.. Prime Minister's Memento at New Delhi.

1996.. Fred M. Parker International Parks Merit Award -by World Conservation Union (WCA-IUCN).

1996.. Tree of Learning Award - World Conservation Union (WCA-IUCN), highest 'Fred M. Packard International Parks Merit Award.

1999.. Rajiv Gandhi Wildlife Conservation Award New Delhi

2002.. Duke of Edinburgh Conservation Medal at WWF International. Only IFS and 2nd Indian, the other being Prof. M. S. Swaminathan.



H. S. Panwar (IFS Retd.)

LIFE OF A JUNGLEE

- J.J. Dutta

My first posting (April 1950) was in Yeotmal, now in Maharashtra under a DFO who was well known to be harsh on 'direct recruits'. He had a liking for officers from the Ranger's rank. The reasons I was to know much later. Anyway I had no trouble with him, only after six months a new DFO took over.

I had joined as Attached officer where two SDO Forests already existed and I was told that I will get good guidance from the SDOs, both of whom were from Ranger's ranks with over 25 years of forestry experience. And I certainly got a good many anecdotes and stories from them but for solid 'forestry' guidance I had to fall back on myself.

This I did to my best abilities starting off to do 'marking' in high forest coupes. I spent continuous two and a half month in tents, camping inside the coupes which were teak forests with no water or leaf shade. But the local staff managed to keep me supplied with water from a village six km. away.

My DFO felt very happy about 'this new ACF' who preferred tent life to FRH's but he hardly knew my reasons. I had borrowed my father's 12 bore gun and got a license. Jungle fowl, green pigeons, 'sawal' fish in the river pools and ponds all held me charmed and I had the full run of the forests.

The CP + Berar shooting rules seemed to be all made for forest officers. As a gazetted officer of FD I was allowed to hunt anything 'on duty'. The C.P. Game Act and Wild Animals and Birds Protection Act 'did not apply' to gazetted forest officers, something that no one would believe today. These were incorporated in the CP Forest Manual and as I learnt soon after, had a very potential reason.

Marking over, and the monsoons on my heels I was back to my headquarters to almost a standing ovation from my DFO! He looked at my sun burnt figure and seemed to be in a very good mood. Then he gave me a bundle of files and asked me to study them and make out briefs on each.

I had never seen office files before. It took me time to grasp the terminology and abbreviations, but I produced results, late I thought, but the DFO spoke to me only after two days and expressed that he could not himself have drafted anything better. My future from then on was smooth sailing.

The next DFO who came in after six months of my joining was interested in my hunting propensities and ordered me to share my meat hunts with him. This of course I was happy to do.

After an year as Attached officer, I was sent for 'Range training' to 'Bhavargarh' Range in Betul division, a teak and 'mixed' forest area, which was at that time also taken up for working plan revision by an officer six years my senior. Mr. N.K. Sharma WPO came to my Range with

Silvi M.P. Mr. R.B. Mujumdar of his batch. We walked to the FRH from Shahpur, my headquarters to Kantawadi 14 kms. away, the luggage going on bullock carts. The officers refused to travel by cart and the 14 km. walk was easily done. The silvi disagreed with the WPO on the classification of a certain compartment as Teak' forests (over 25% Teak) as apparently there were too many non-Teak trees in the area, but WPO said that if this was not Teak Forests' then no area in Betul could be called Teak Forests. The plan was made. Teak was to be encouraged for better 'revenue' and non-teak areas were proposed to be planted.

This plan was followed by another plan - with the same emphasis. Today Betul forests are almost 'pure' Teak. Mixed forests have virtually disappeared. The areas where sambar, cheetal, bison, tiger and leopard roamed around have become wildlife deserts. Betul, where the bungalows never needed ceiling fans even, now needed to be air conditioned, Betul, a favorite Division for British IFS officers, now is a poor division due to these environmental changes that I have seen and experienced in my lifetime. The current trend towards 'environmental forestry' does not help. The existing areas cannot be harvested to make way for enviro-friendly species.

An unusual event in Forest management took place in 1951. The Government of CP & Berar was starved for funds. One senior level forest officer suggested that 'advance working' of one coupe may be done all over the state! Govt took the bait and orders came, I had to work an additional main felling coupe in each FS. The revenue of my Range swelled from 21/4 lakhs to 4 lakhs that year and the State Forest Revenue jumped from 21/2 crores to 4 crores. Government had enough money but the officer whose mischief had given this reprieve to Government was at the receiving end of abuse and ridicule from his fellow IPS officers. I am glad to say that this transgression of systematic forestry was subsequently regularized by partial stoppage of felling in about one fifth of each division. Never again has this been heard of in Forestry anywhere in India.

In the third year I was packed off to 'West Berar' Division, comprising the two districts of Akola and Buldhana, both now in Maharashtra. Their forest area was very small and they were mostly poor quality Teak (QV) a type which did not exist in the AI Teak volume Tables. West Berar had a lot of 'C' class forests, mainly open grasslands but R.F. all the same. Many had good top soil hardly 30 cm deep which grew grass in good measure for village cattle. Many of these had been leased out for cultivation during World War II for 'grow more food campaign'. I was assigned the job of renewing the leases on new guidelines issued by the Government to allot the plots to landless people with means to cultivate the land, whereas they had been in the part in the hands of rich landlords in the first

instance. This I proceeded to do with total impartiality, to the consternation of the rich holders. I was promptly reported to the Commissioner and CM who had come on a tour to Buldhana. I was summoned and sheepishly I went into the presence of these august authorities not knowing what the complaint was. I was received with a friendly smile and was asked how exactly I was doing the renewal of the land plots. I replied that I had not deviated in any way from the guidelines, and wanted to know what was against me.

Then the bubble burst. The commissioner told me that I had not been complained against. The complaint was why the Revenue authorities who were not allotting 'E' class (non-RF) lands under the same GMF campaign in the way that I was doing. These august authorities did no more than see my face and I was told to go and resume my work. After finishing the work just ahead of the monsoons I returned to headquarters to be received by the DFO (a promoted officer) with open arms. He asked what 'jadu' I had performed that the Commissioner and CM were so happy about, and the Collectors were glum?

This was a part of my probationary learning. Another thing I learnt about the 'grazing settlement' in the working plans. This was a detailed exercise by a Dy. Collector (then called Extra Assistant Commissioner) around the villages of all reserved forests to ascertain how many cattle each village had sent to the RF in previous years of the new plan. Each village within 8 km. radius was thus allotted a cattle grazing quota and grazing licenses were issued accordingly. Check of grazing in forests was part of the duties of the ACF in the division, as well as of the SDOS and even the DFO took part in some areas. The regulation of grazing was 'figid'. Penalties and compounding were the order of the day and all regeneration areas whether natural or planted were closed to grazing. These abounded with quails, partridge, jungle fowl, peacocks, deer, pigs and neelgai. Tigers and Leopards were not too far nor few;

I trained my sights mostly on pigs and blue bulls both declared 'crop pests', and acquired skills that made me lose interest in shooting herbivore. My leanings shifted to carnivores.

I shot my first tiger in Buldhana district, leopard in Akola district apart from the 'crop pests'. These were also cattle raiders.

My next posting was to Hoshangabad district as SDO Harda. Hoshangabad was a prize district for a forest officer as it held the world famed 'Bori Teak', I had been told by the DFO (the same Mr. N.K. Sharma whom I had met when RO Bhavargarh) that I would take over from him as DFO Hoshangabad, as he was going on long leave, and I had been hand picked for the division by Mr. G.G. Takle IFS then CCF MP. I was elated! Hoshangabad was always a 'British' division and I was the fifth Indian DFO. It included Pachmarhi hill station where all Britishers (including the Governor) used to congregate in summers, to avoid blistering heat of the plains.

Hoshangabad then was the largest division of the state in terms of revenue and area. I was asked to propose a

division and I carved out Harda Division consisting of four ranges of Hoshangabad and two of Khandwa to form Harda division. On 16th March 1954 I took over as DFO Harda, and in the same year converted it into a fully departmental[^] exploited division. Only bamboo coupes were still auctioned to contractors. Sometime later (in Feb 1955) Mr. GG Takle CCF and Mr. CE Hewetson Conservator Western Circle visited Timarni and Mr. Takle expressed surprise at the size of the Depot saying that he never knew that a depot selling Teak, and in this quantity existed in the state. In volume terms it was bigger than Ballarshah Depot of famous Chanda Teak (now in Maharashtra but in 1955 it was MP).

In Harda I had to face another test. The erstwhile Makrai state was a small enclave in the forests of Harda and had been absorbed by accession agreement with the Raja Saheb of Makrai. I was surprised to receive a letter from the Dy. Minister to CM, forwarding an application from the Raja of Makrai and two erstwhile forest contractors (now it was all departmental up to the depot) that they had an old agreement with Makrai state to obtain Raja's timber and they should be allowed to operate that lease. The channel of sending the application was to me utterly strange, and I grew suspicious. The application and agreement both were typed in Hindi script, whereas the contract was said to be of 1949-50. Hindi fonts in typewriters had just been introduced by Remington and that gave me a clue. I obtained information on the date of release of the font from Remington Bombay, and it was much later than the date of the agreement. The stamp paper was purchased at a later date than the alleged date of agreement. To clinch the case I fished out rated passes of Teak issued by the Raja subsequent to the date of agreement, for sale of timber from the same area, to private persons. This could not have been done if the area had already been leased out as claimed in the application.

My report was acid and categorical. I even recommended that the Raja be prosecuted u/s 420 IPC and sent my report through the proper channel totally negating every claim and proving my case to the hilt. I did not then know that according to the merger agreements the Raja could not be prosecuted without special permission from the Government of India.

The report created some red faces, but I was marked as an officer of unbending ethics, and about a month after this at the Silvicultural Conference in D'Dun Mr Takle and Hewetson pointed me out to CCF Gujarat and told him the story of the Makrai case. Their looks at me were certainly appreciative.

Harda was now well set in departmental works and I was due for a change. (To this date Harda has never had contractors working.) I was thus transferred to Surguja Division.

This to everyone else seemed like a punishment posting, but I took it as part of my service. Young and energetic, lately married and just one baby still in arms I reached Ambikapur, on 1.1.1956, to a newly built DFO's bungalow, and a very welcoming group of District Officers. Surguja was a truly wild place, and like all wild places,

supremely secure! There were no pilfering, no thefts. The only crimes were murders, and in all cases the murderer just came to the PS and declared that he had murdered someone for very good reason. None of them was ever sent to the gallows. They served their terms in jail like the best of people, happy and hardworking, and the jail garden supplied us the freshest and choicest of vegetables at a nominal monthly payment. Otherwise Surguja had no vegetables! Only lately something used to come from Raigarh 200 kms away by road. But meat, fowl and eggs came unbelievably cheap, and the 'Bishnubhog' rice was really something for the Gods and at only Rs 13/- for 40 seers (37 kg.)!

I had intended early to call on the Maharaja but was told he stayed in Benares, and the same evening had a surprise visit from the heir-apparent Raja Saheb Ambikeshwar Saran Singh Deo, whose son, Madaneshwar S. Singh Deo was then under training in the IAS. Soon after the younger brother of Raja Saheb Shri. Chandikeshwar Saran Singh Deo, who used to live 40 km away in Pratappur also came to visit and I was overwhelmed by the affable way in which they took me as a new addition to their state.

The Maharaja Surguja, Maharaj Ramanuj Saran Singh Deo is well known to the world as the person who shot a record 1300 tigers in his lifetime, all in his own state (barring a few on a trip once to Nepal). Many people now look down on this as a monstrous deed leading to decimation of tigers, but I would very much differ. The fact is that Surguja of those days had no difficulty in supplying about 50 tigers per year. The forests, and the few cattle that the villagers possessed, provided rich and abundant prey for a large population of tigers and on my tours as DFO, then WPO and again DFO totaling nearly seven years I saw why Surguja was so hospitable to tigers. The forests were lovely Sal and mixed type and water was every where, to the extent that road making was a major problem due to innumerable water crossings. There was just one all weather road from Raigarh to Manendragarh through Ambikapur. All other roads were then either non-existent or just Kutchra road tracks, jeepable in fair weather.

The division was well provided. I had a jeep and a Land Rover, each with a trailer and one elephant for touring about. There was no plan of working the forests, and coupes were marked ad-hoc merely to keep the staff accustomed and trained in exploitation. The area had been worked for sleepers by Bengal Timber Trading in the days prior to merger of the State in 1951. They had removed all sleeper convertible trees and packed off. The remnant now needed management.

After a year and a half I was made working plan officer, Surguja. I took over and soon found that a de-novo first plan for over 5000 sq. km of forest, in the absence of even basic maps, was hardly possible. I requested for a split of North and South Surguja, and a separate WPO for South Surguja. This was accepted and I took charge of the first Working Plan of North Surguja Division.

In three and a half years I managed to complete the plan. The Division had been split and now two DFO's and two

WPO's existed. Forestry was looking good. Plantations of Teak proposed early by the plans had started coming up. Rest Houses had been built, new roads more aligned and constructed and the revenues took a northward leap. From being a forlorn and forgotten division, Surguja became suddenly appealing.

Subsequent events, inadvertently, helped forestry in Surguja. One of the DFO's spent a healthy 14 years in Surguja and was instrumental in faithfully complying with all the prescriptions of the plans. North Surguja was split again into two divisions for better management.

Some thirty years later, as PCCF MP I revisited Surguja. In one place I saw a lovely Teak plantation on the south face of a hillock and immediately on the north face was a lovely Sal forest! I was surprised. How could this Teak forest have been planted on such a lovely Sal area?

The DFO has done his homework. He promptly took out the Compartment History and there in my own hands was written that the north face was Sal forest while south face was mixed and should be planted with Teak, the soil etc being suitable. The compartment had been allotted by me to plantation working circle and a lovely 20 year old Teak plantation had come up.

The area has another memory for me. As WPO I had no vehicle so had to hitch a lift while my camp moved on 16 camels led by camel choudharys who came from Agra every year for 8 months @ Rs 70/- p.m. per camel plus one month's wages for travel to and fro. One of these lifts was Rajpur (40 kms. From Ambikapur) with collector Mr. NN Chaturvedi, and SDO Mr. A Khan. On reaching Rajpur, and before dinner, the collector suggested that we move out to see some wildlife. He was senior person and not interested in hunting, but he thought it would be nice to see me shoot something. The fields were then sporting paddy crops and in one of them our spotlight showed a huge boar eating the paddy. Now here was indeed a fit case for action! I shot and the beast simply rolled over. Approaching the dead animal in the headlights of the jeep the collector remarked that I had surely shot a buffalo, the animal was huge. After my initial upset I went around the beast and there it was- a boar alright but a size that nobody could have anticipated. Weighed in the scales at Rajpur it proved to be 5 mds 35 srs. in weight witnessed by the SDO and the Collector Surguja. The villagers of Rajpur were supremely happy that this raider had been eliminated, and of course they loved the meat. My camel choudharys melted the tallow from the boar and took away 4 canisters of 15 kg each, for use in Rajasthan in their household. These 16 camels, their choudharys and my own tent khallasis were always prompt in setting up my tented camps, with tents for each Rangers, Dy. Rangers and Foresters and surveyors, draughtsman, steno and peons/orderlies and occasional labor that need to stay in camp as their village was too far to reach after the days work. They also had a chance to get fresh wild meat from my hunts which held them back in spite of all odds. One night a camel got caught in a narrow but deep gully and a tiger circled around him apparently unable to fathom this new creature with the long neck that the tigers of Surguja

had never seen!

After nearly seven years in Surguja, I opted for a change and requested the visiting CCF Mr. KN Mishra for posting as Silvi MP which post was going a-begging. I presently got the posting and shifted to Rewa - the then Forest headquarters of the state. In six month's time I moved to Jabalpur and set up my office as Director State Forest Research Institute in rented accommodation. The search for a new location began and materialized, only to be lost to the Army Vehicle Factory of Jabalpur, the present site was then chosen as alternative and acquired, but my term as Silvi ended with promotion as CF working plans in June '64. This was a short stint and in Dec. 64 I was posted as CF Indore. This was considered a prize posting due to its headquarters but for me it was a low point. The circle hardly had any forests worth the name but was very well administered, and the office was a symbol of efficiency. The mannerisms of the staff all inherited from the State times (Indore and Dewas and many smaller states formed Indore circle) were new to me but I avoided feeling like a Maharaja, and stayed like a commoner.

Then came a turning point in my career. I had a Master's degree in Zoology and was picked up by GOI for training under the Colombo Plan for 6 months in Canada, in Wildlife Conservation and National Park Management. My family was allowed to draw my pay and could continue to live in the same bungalow. So on 3rd May 1966 I landed in Ottawa and reported to the Canadian Wildlife Service. This department was then in the stage of a split, the national parks being made into a separate department. The new director Dr. David Munroe was just the same age as myself and was as flustered in his new responsibilities as I was in a new land, and not knowing what I was to do next. The Canadian Wildlife Service Biologists did not know what I was there for and I was the single person under the scheme. I was asked how I would like to proceed and I gave them my idea of what would be good for me. The CWS then went into a huddle with the National Parks Service and by next day, in spite of all the turmoil of a split department I had my programme. I was provided full field dress, boots and equipment for the Canadian climate, it was still snowing in Ottawa in early May, as I had only enough civilian clothes, I was to learn my lessons, as and how I wished to. The Canadian Wildlife Service had opened its doors for me and I remember those six months in Canada as the best period of my life. I went across Canada from east to west and from US boundary in south to the Canadian Arctic (in two trips of about 3 weeks each).

Canadian species of wildlife were very different from ours but I found that the principles of management could easily be applied to our species. The parks management took me to 10 of their 19 National Parks and I studied the variations of policy according to needs of the area. One of the then most modern techniques of tranquilization by remote injection from a gun was being developed and tranquilizers of different types had been given to CWS by manufacturers for trials on wildlife. Cattle had been tranquilized by manual injection using hand syringes, but carnivores had never been so treated. A new

line of action was being created.

Thus it was that I found my way to the Canadian Arctic, to tranquilize Polar Bears for biological studies on their health, growth rate and physiological parameters. Dr. Charles Jonkel was the CWS biologist on this project, and had done a lot of work on Black Bear in Montana USA for his doctoral thesis. Now he had embarked on the Polar Bear study, and I was his sole companion on this memorable venture.

We reached Fort Churchill, Ontario in September 1966 and were housed in the high security NASA complex. There was nothing else within 300 miles!

The Director of the space centre, Dr. Brandy met us and arranged for all the help that we could need. Our camp, in a wooden shack 8'X8' at Cape Churchill was 150 miles away on the Hudson Bay. We had a lot of field gear including an all terrain vehicle that could move on water mud and ice and tackle slopes of upto 30s all by itself. It had six balloon tires to help it float. A small two stroke engine below the seat, could take two people and their gear, but had no roof. It was almost a cross between a paddle boat and a motorcycle, but was immensely useful for Tundra, for which it had been designed. The Company-Bombardier had offered it free to us in exchange for feedback on its performance and shortcomings. I had a long time interest in motor vehicles and their mechanics and knew a lot about repairs etc. So Charles Jonkel was mighty pleased to have me as his mate.

We were dropped at Cape Churchill, by NAS, A helicopter, a huge twin rotor machine that could take in about 20 people plus luggage, including a motor vehicle. We were given a two way radio and our reporting time to NASA was 8:00 pm every night. If no contact then the copter would come to look out for us.

I thought in the back of my mind that this was too much of arrangements but the next day on reaching the Cape Churchill, a chill ran down my spine. It was all white and permafrost and there was no human within 500 miles except NASA, and the Hudson Bay was in process of freezing. There were no land marks, the landscape was a maze of water ice and land and even the azimuth of the sun did not give any idea of direction. Compass readings were often confusing. How on earth could we come back to camp.

Jonkel was of course more knowledgeable about the conditions. The polar bears were leaving the freezing Bay and moving inland and in our outing in the ATV we spotted two, at long distances. Visibility was excellent in the crisp air and I had good eyesight. You could see for miles as the land was all flat and only sometimes undulating. Half was water covered.

We laid our traps of various kinds, gin traps, snares etc and baited them with canned salmon, which smelt strong and could attract the Bears from miles away. We captured 5 polar bears, tranquilized them and recorded data as needed and released them, following the protocol fixed for the job. Our was the first successful attempt at tranquilizing polar bear as five previous attempts had only resulted in deaths, creating a furor from the government.

I was provided a Cap-chur gun, syringes, ammo and tranquilizers of the latest types, for herbivores and carnivores, with their antidotes. I brought back 1.5 cubic meters of equipment, field gear and wildlife books and research literature which came by ship after my return home.

On return from this wonderful trip, I was posted as Conservator Bilaspur circle, Development circle and then Bastar circle. Then I entered upon another phase of Forestry. I was on deputation to GOI for five years in the then Pre-Investment Survey of Forest Resources (PISFR) a FAO-UNDP project which had been launched in 1965.

This project identified potential forest areas to locate forest based industries and used very low intensity sampling over large areas to assess availability of resources. My predecessors had been trained in Sweden, and I too had a 12 week stay in Stockholm at the 'Skogshogskolan' i.e. Swedish for 'Forestry School'. On return I took up the work in Central Zone with hqs in Jagdalpur, but my work was in Andhra Pradesh.

The PISFR was well provided for its job. I even had at my disposal a Bell, Jet-Ranger jet helicopter for field work. The only other zone for the PISFR was North Zone, in UP-Himachal hill, where the helicopter had little use due to absence of landing spots. In my zone we had no such problem. The copter was used for grid surveys, dropping of survey crew at pre identified spots, and getting them back to camp at the end of the day. This needed absolute pin-point map reading and of course we had the best maps available. Our air crew was also very adept at map reading. I myself acquired this additional expertise and our job was successfully accomplished in given time. Some of the procedures I developed remained in vogue as long as PISFR continued with resource assessments. Then it branched out into wider fields and was re-christened Forest Survey of India, with headquarters at D'Dun.

On return from deputation in 1977 I took charge as Chief Wildlife Warden, MP and was entrusted with setting up a whole new discipline in the Forest Department. Staff and finances, motor vehicles etc. were sanctioned but personnel for posts were hard to get. No one was too eager to join a new discipline and they did not know what was expected of them. They had no training of any kind in wildlife conservation.

Fortunately the Indian Forest College had included Wildlife Conservation as a subject in the curriculum and a very competent MP Officer was in charge of the subject. We picked the best performers and soon a nucleus was formed, and of course others at all levels followed. Each one of them later became one of India's top wildlife experts, trainers, and top officials of the discipline. I had made the right choices. New Sanctuaries and National Parks were notified with such rapidity thanks to the support from the Secretary Forests that soon MP topped in the matter of wildlife conservation. The MP model was supported by the GOI Ministry of Forests and held up as an example for other states to follow. Visits by GOI officials to some of our parks convinced them that here was a set-up that could deliver results and funds followed. After six years in the

Wildlife side, it was my turn to move up.

Here again something happened that never happened before or after. My promotion orders came almost two months before the due date of my promotion. Again on nearing retirement I was given extension, two months ahead of the actual date of retirement. The reason and from the ministers own mouth was that everyone should know who the next boss will be and that he is not refining yet but extended.

The saddest part of my retirement was its circumstance. As I was sitting in my office, much earlier than regular office hours, preparing for handing over charge in the afternoon, I got the shocking news of the assassination of our beloved PM Shrimati Indira Gandhi. Only a few months before she had visited Kanha and went back supremely happy not only because she saw all the animals that Kanha had to offer, all in three noon hours, but because she saw no ever-present 'security' cordon anywhere around her. She was in an open 'jeep' with no armed escort anywhere. This had been a hard job for me to achieve, but Late Shri Arjun Singh, then CM ordered that if I wanted it that way it had to be that way. I sat dumbfounded on my office table and cancelled the farewell party that my office had arranged. Never again did I attend a farewell party.



Author : Retired as PCCF of M.P. State.

He is living legendary under whom maximum numbers of wildlife National Park & Sanctuaries were notified in M.P.

WOMEN ROLE & CONTRIBUTION IN FORESTRY

On International Women's Day, 8th March, Occasion

Kumud Dubey



As we know that the world has lost its about one third of forests due to development, industrialization and other anthropogenic reasons resulting in threatening of flora and fauna biodiversity. Due to deforestation, the earth is warming, and rainfall is more erratic, causing both floods and droughts. There are an estimated 100 million people in the country who live in and around forests and another 275 million for whom forests constitute an important source of livelihood. Local life ways of these people have been changed and livelihoods are being ruined due to deforestation. Therefore, conserving the forest becomes priority. Forestry has traditionally been considered as man dominated professions or designated as „Manly“ in which men have been most decisively and solely entrenched. But now days, the situation is changing fast. Women participation has been witnessed substantially in several non-traditional sectors including forestry sector. Women are now practicing as foresters in both public and private service in sufficient numbers. Increasing evidence shows that women's participation and decision-making in management of local forests significantly improves forest conditions and conservation. Especially, leadership by indigenous women, who have lived in sustainable balance with the natural world for generations, is crucial to preserving life on the planet alongside thriving communities. Women are involved in restoring forests through native species, protecting forests and economies through non-timber forest-based livelihoods, and developing responsible tourism to generate local livelihoods in process protecting wild places. Areas, in which women are playing a significant role in forestry, are discussed following:

Women Role in Collection of Forest Produce:

Women are the primarily involved in collection of a wide range of NTFPs for subsistence and as a source of income. In developing countries, lives of rural women more depends on forestry and forest products for their food, fodder, fuel wood and other livelihood products. Of about three-quarters of all rural families depend on wood in cooking their food - fuel wood which is used and collected mainly by women.

Forests are the source of foods enriching a predominantly cereal diet with protein, vitamins and minerals; forest also yield important economic products, like Mahua flower, Chiraunji, Sal seeds, Tendu leaves, medicinal plants, lac, that are gathered mainly by women. Plants growing in the forest provide most of the available medicines used in Ayurveda. Trees give shade to the home, and their foliage feeds their livestock that women widely keep around the home as a further source of food and income. Women are also involved in the work of minor forest products at home. Some important forest produce collected by women are describe below:

Kendu Leaves: Kendu leaf or Tendu Leaf is leaf of forest tree *Diospyros Melanoxylon* which is well known nationalized product like Bamboo and Sal seed. Kendu leaf is one of the most important non-wood forest products of Uttar Pradesh, Jharkhand, Madhya Pradesh, Chhattisgarh, Odisha etc. Due to its unique characteristics, viz. Matching aroma with Tobacco, Hygroscopic nature of dry leaves to withstand crack, Thinness and pliability, gradual combustion, resistance to fungus attack etc., it is used for wrapping Bidi (country cigarette).



Women harvesting Tendu leaves from forest

Mahua Flower & Seeds: Women are also involved in collection of Mahua flower from forest. Mahua (*Madhuca longifolia*) being the primary revenue-generating product, amounting to approximately 200 crores, in Chhattisgarh state only. Women are responsible for gathering Mahua flowers and seeds.



An Artistic piece "Woman Collecting Mahua in Forest" is a Gond Tribal Style of painting designed by Mithlesh Shyam

Mahua flowers, mainly used for brewing a local country liquor which is popular across India. It is a source of livelihood. Tribal women also utilize mahua flowers to prepare various delicious food dishes. Tribal women in Odisha use dry mahua flowers to prepare some value added dishes like laddus, cakes, jam, toffees, pickles, squash, pakodas and biscuits using and sell it in the local market. Mahua laddus are in high demand compared to other products. Most tribal women in the district are engaged in collecting mahua flowers from jungles between February and April every year.

Mahua seed collection Commence from June to mid-July. The yield of Mahua seeds varies (5–200 kg/tree), depending on the size and age of the tree. The kernels contain 20–50 percent oil and used in soap industry.

Medicinal Plants

Collections: Tribal women emerge as an ideal for the conservation of their community and the environment. Forest Department is empowering the villagers to manage, cultivate, and sell minor forest produce for the livelihoods of indigenous tribes. Tribal women have become the custodians of ethno-botanical knowledge. Their dependence on

agriculture and the collection of medicinal plants, mahua, sal seeds and tendu leaves has shaped their way of life. Tribal women use *Asparagus racemosus*, an important medicinal plant and locally known as Dasamul due to its cluster roots. This wonder herb swiftly strengthens the weak and aids lactation for nursing mothers, becoming an invaluable aid during childbirth.



Collection of Fodder: In many regions, women play a crucial role in providing livestock with tree-based fodder. About 30 percent of fodder requirements are met from forests and about 25 percent of the country's livestock graze on forestlands. The collection of fodder from forest is mainly done by women



Women Involved in Forest Conservation:

Tribal Women, in Panna, in Chitrakoot & Sonbhadra area, are working for Forest Conservation. They are working mainly to restore Mahua trees, many of which were destroyed due to forest fires. They are also raising saplings in the community-managed nurseries. Women are trying to increase tree cover in their community forest boundaries with local species. Since mahua is the main source of income for the tribal community, the nurseries also serve as an opportunity for economic support to women. Tribal Women are blessed with diverse natural resources and evolved traditional knowledge of practising forest-based livelihoods. Mahua flower, mahua seeds, Tendu leaves, Sal Seeds, Medicinal plants are major source of income and nutrition.





Forests in Nayagarh, Odisha are rich in varieties of tubers, fruits, medicinal plants, bamboo, and Sal trees, but prone to illegal logging and smuggling. However, since the formation of women-led forest protection committees and patrolling contingents, instances of logging and smuggling have drastically decreased, helping to regenerate the forests' rich biodiversity. Women leaders from the Forest Protection Committees protect their forests from illegal logging and smuggling (photo credit: Y. Giri Rao).

Women participation of in forest

governance: Women participation of in forest governance should be encouraged. The traditional knowledge of tribal women in particular to forests must be acknowledged. Tribal women consider forests sacred and have devised ways of co-existing that the rest of us have much to learn from. Tribal women have already been contributing to an increase in India's forest cover. Be it the Kodarapalli women preserving 1/3rd of Odisha's forests, or the women of Jharkhand's Murukham saving 50 hectares of forest land from the timber mafia. Yet, these women and their contribution fail to be acknowledged in reports of India's forest cover increase. Studies have shown that women-led decision-making in forests benefits both the forest ecosystem and the local communities. Active policy leadership of women in a region is also more likely to motivate future female leaders.

Women Who Dedicated Their Lives To The Trees: Few women dedicated their lives in conserving the forest have been discussed below:

Tulasi Gowda, from Honnali village in Ankola taluk of Karnataka, has not just planted countless saplings that will grow, and have grown up to become trees that help the world at large to live a better life, she has also helped prevent poachers from destroying wildlife, and has worked to prevent many forest fires. Owing to her mindblowingly vast and accurate repository of knowledge of flora, she has



also advocated against practices of the government and plantation owners which negatively impact the environment. She was awarded the **Padma Shri** for her enormous contribution towards resuscitating the country's forests. Tulasi says she started to seek solace in planting. Tulasi Gowda now spends her time planting still more trees, while also teaching children the importance and art of doing the same. "We need forests. Without forests, there will be drought, no crops, the sun will become unbearably hot. If the forest thrives, the country will as well. We need to create more forests," she says. She was a consistent volunteer in the state's afforestation program. After immensely helping them for years, the Forest Department finally recognised her efforts and gave her a permanent job as a planter of saplings just fourteen years ago. She is now retired and subsists on a small pension given by the Forest Department, and it is her only source of income. Tulasi Despite the fact that people like Tulasi Gowda have consistently and for centuries been protecting forests as part of their very way of life.

Vandana Shiva is an environmentalist who has spent most of her life in protection of biodiversity. She is the founder of „Navdanya' which is a research institute that aims to protect the diversity and integrity of native seeds along with promoting fair trade practices. This research institute was founded in 1991 and is dedicated to address the most important environmental and social justice issues. Women like Vandana Shiva are truly an inspiration for society.



Prabha Devi, a 76Year Old Garhwali Woman who has planted an entire forest on her own in her village. She proved that age is just a number and you can achieve anything if you put your mind to it. She has planted a whole forest in her village and she is still at it even when she is approaching 80.

The village of Palashat in Rudraprayag district now has an entire forest which is planted by her.

Kollakkayil Devaki Amma started the initiative of saving the environment with her own backyard. Her love for the environment and fear of climate change allowed her to curate a forest in the five acre distance around her home. She was influenced by her



grandfather as he was the one who helped her to inculcate a love for horticulture. Her love for the environment increased after marrying Gopalkrishna Pillai, an English teacher.

Women in the Forest Service:

Women have not been offered the same job opportunities within the realm of forestry as men have – even in the "developed" world. Presently the scenario has been changed. From the time when the Imperial Forest Service was created way back in 1865, the Indian forest service has witnessed a sea change in its functioning and structure. One major milestone in this was the joining of 3 women officers as IFS in the year 1980. Since then, each year, lady officers continue to join and contribute to the service immensely. According to a statement of Mr. S. P. Yadav, IFS, the then President IFS Association-Central Unit (2021), there were 280 women IFS officers serving our nation (MoEF&CC, GOI, New Delhi website). There were nearly 5000 women frontline personnel according to a press release of MoEF&CC, New Delhi dated 8th March, 2021. These women officers are not only doing exemplary work in the field they are highly accomplished academically and also leading in the central and state government at policy making levels. Some prominent faces of

Women IFS officers are mentioned below:

According to **Dr Savita**, IFS (1985), as the first woman Director of Forest Research Institute, Dehradun, "The institute takes its educational role very seriously and hopes the

students and other visitors of FRI will be better informed about the role of forests in saving the environment and be inspired to plant more trees". She also served as PCCF& HoFF, Himachal Pradesh.

Ms R. Sobha, an IFS officer of 1986 Batch from Telangana Cadre as first lady officer to hold the post of Head of the Forest Force in the Telangana state, R. Sobha has set a benchmark by bringing changes to the conventional working style of the Department in whichever capacity she has worked. She was instrumental in changing the face of the forest department.

The concept of „land bank creation" was introduced by **Ms Vasvi Tyagi**, an IFS of 2004 Batch from Haryana Cadre. While working as DCF, Panipat, she motivated Gram Panchayats to provide land to the Forest department for plantations as Haryana is a

forest-deficit state.

Plantation in degraded lands requires special care as they are prone to failure. **Ms Shalini Raina**, an IFS of 2001 Batch from Chhattisgarh Cadre and **Ms Satovisha Samajder**, an IFS of 2010 Batch from Chhattisgarh Cadre had proven an excellent combo of a CCF-DFO duo to successfully converted completely 50 ha land fallow degraded revenue land to a lush green forest. (Source IFS2021 Green Queens.pdf from MoEF&CC website)

Women Forest Officer at Lower Level:

As front level forest officer, **Ms. Prajna Dwivedi**, Range Forest Officer from Uttar Pradesh Forest Department says

"Unfortunately this department sees one of the least number of female employees, especially at the frontline level. Not an irony so, because of the harsh nature of job, long deep walks into Jungle, dominated by male

counterparts: is slowly changing as women are more free than ever before and are their own decision makes". She further mentions "Their encouragement in this field is, what I find,, would be more to their emotional end. When I entered the field as Range Forest Officer, I faced the question of how to have work-life balance. But never in reality I suffered any such difficulty." She further quotes "The supportive roles of higher lady officers are overwhelming."

According to **Mrs Sangita**, Assistant Conservator of Forest, Prayagraj "Forest is considered one of the most important natural resource and it's become mandatory to preserve and conserve it. It's FC important for maintaining the ecology and women play a very vital role in its protection. Women's role is considered as the most familiar manager, collector and protector of forest. The destruction of forest mostly affects this group only as their lives are intertwined with the ecology. Now in the present era as women role is being recognized in every field so their role in ecology management must also be recognized. So to accelerate the active participation of

women, joint management program has been started to constantly upgrade their involvement. But as we all know that the revolution takes time in the same way it is seen that that their contribution in forest management is passive regardless of diverse policy changes. Due to many cultural



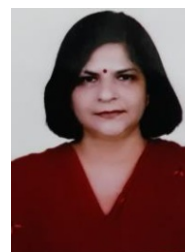
and other social constraints, women are unable to get involve in effective forest management activities. So at last it is very vital for gender participation in forest management which would accelerate the competence of forest institutions. It is seen that women's contribution lead to better following of rules and a greater transparency in the working of the organization. It even leads to an improved conflict resolution and improved observance. So it's important to regard the both genders participation."

The women forest staff at lower level prefers the posting in office and not in field level. This is mainly due to harsh field conditions. There are no arrangements of seperate toilets and other essential facilities for ladies. Their protection is also at risk. She may be attacked or sexually molested. Though these issues are being changed slowly.

Every workplace is gendered. Being gendered means: who you are, male or female, deciding where you work, what assignments you get, the kind of support or encouragement that you receive at your workplace. The Forest Service is no exception. As we see that from harvesting the forest products to forest management and conservation services, women are actively involved. Participation is increasing day by day. Government has become proactive. Women forest officers are contributing to all the levels. It is this rise in their numbers at higher levels that has triggered a positive cascade at all levels, especially at the level of the Forest Guard, which in many ways is the face of the Forest Department at the grass root level. It is this change which turned out to be a game changer in ensuring the 'gender balance' in the forest service. One of the measures needed to change this state of affairs is to increase the number of women foresters at lower level to facilitate communication and participation of women at harvesting managerial level. Participation of women in the forest derived economy

is significant, as they are primary collectors of forest produce, as wage employees in forestry operations and forest-based enterprises and in forest management. The dominant role played by women in mass movements to protect forests. Women are capable of carrying out most forestry tasks, even laborious works like nursery works, plantation works as pits digging, watering and other soil work. They are especially adept at nursery work. Besides creating jobs for women under social forestry programs, their role in forest supervision must also be supported. Women involved in small-scale forest-based industries, like „Bidi" rolling (country cigarettes) and basket-making must be helped to improve their skills and to learn to manage the entire process from collection to processing and sale.

Some Non-Governmental Organizations like Women's Earth Alliance (WEA) are working for environment and forest in association with Women. WEA is on a mission to protect our environment, end the climate crisis, forest protection and ensure a just, thriving world by empowering women's leadership.



Dr. Kumud Dubey
Senior Scientist
ICFRE-ERC, Prayagraj

ANTARCTICA A HEAVEN ON EARTH

-By Ratan Purwar

Pic 2 - Rainbow

Antarctica, the fifth largest and southernmost continent, is uninhabited, unpolluted and mostly ice covered land mass. It does not belong to any country but it is governed by a group of nations through international partnership. It is managed through Antarctica Treaty system, which means original Antarctica treaty and various agreements. The first treaty was signed in 1959 by 12 nations viz. Argentina, Australia, Belgium, Chile, France, Japan, New Zealand, Norway, South Africa, Soviet Union, United Kingdom and United States. The central ideas with full acceptance were the freedom of scientific research in Antarctica and the peaceful use of the continent. There was also a consensus for demilitarization and the maintenance of the status quo. The treaty prohibits nuclear testing, military operations, economic exploitation, and territorial claims in Antarctica. It is monitored through on-site inspections. The only permanent structures allowed are scientific research stations. The original signatory countries

hold voting rights on Antarctic governance, with seven of them claiming portions of the continent and the remaining five being non-claimants. Other nations have joined as consultative members by conducting significant research in Antarctica. Non-consultative parties can also adhere to the treaty. In 1991-1992, the treaty was renegotiated by 33 nations, with the main change being the Madrid Protocol on Environmental Protection, which prohibited mining and oil exploration for 50 years. The whole thing can be reviewed in the year 2048.

I have been interested in visiting Antarctica for the last many years, but could not visit due to one reason or the other. Finally in December 2023, I visited Antarctica along with visit to Argentina and Falkland. I left from Mumbai by Emirates Airlines on 13 December 2023 and reached Buenos Aires on 13 December 2023 night. Though total travel time was more than 25 hours, but due time difference between India and Argentina, I reached on the same date.

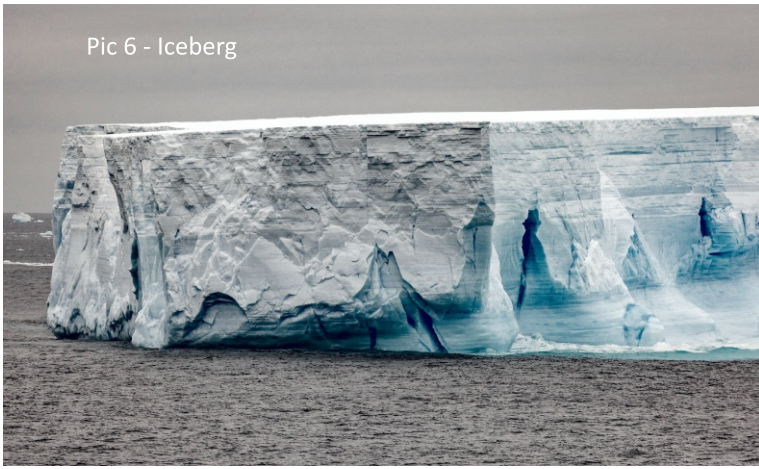


Pic 3 - Giant Petrel



Pic 4 - Grey Headed Albatross

Pic 6 - Iceberg



Pic 7 - Flanders Bay



Ushuaia and Tierra Del Fuego:- After sightseeing in Buenos Aires, I reached Ushuaia, also known as southern most village on Earth, on 15 December at 11 am, and I visited Tierra Del Fuego National Park. The park is spread over 2 nations Argentina and Chile. It is known for spectacular scenic landscapes that feature coastline, forests, glaciers, lakes, mountains, and waterfalls. Tierra Del Fuego, means land of fire, a name given by Spanish explorers. I could see various variety of plants in the beautiful surroundings. For the first time I could see redfox (Pic 1).

Embarkation for Antarctica:- After visiting Tierra del Fuego, I embarked on the cruise MS Roald Amundsen with 250 passengers and 170 crew members on board at 5 pm. The cruise started moving at 6 pm, but before moving, a safety drill was conducted for all the passengers. A beautiful rainbow (Pic 2) could be seen during cruising.

Passing Drake:

Passage:- It is the body of water between South America's Cape Horn, Chile, Argentina and the South Shetland Islands of Antarctica. It connects the southwestern part of the Atlantic Ocean with the southeastern part of the Pacific Ocean and extends into the Southern Ocean. It is considered as one of the most treacherous voyages for ships to pass through. The Currents do not meet any resistance

from any land mass and waves upto 12 meter high often occur and thus causing lot of sickness to the passengers. The width of this passage between Ushuaia and South Shetland island of Antarctica is approximately 1000 Km. We started cruising in drake passage at around 7 pm on 15 December 2023, and most of the passengers were suffering from sea sickness on next morning. Though by evening, a large number of passengers were better. We could see variety of birds while cruising. Some birds can be seen in Pic 3-5. A number of icebergs could be seen for 17 December 2023 onwards (Pic 6).

Reaching Antarctica Islands and Falkland:- After about 48 hours of cruising, we reached the Antarctica Islands. During visit to Antarctica, on many occasion, we faced heavy winds due to which we could not do landing during that period. In Flanders bay, the snowfall was so heavy that the visibility was restricted to a great extent (Pic 7). We passed through a very beautiful Lemaire channel (Pic 8). Various nations have established their research stations. We visited Brown station established by Argentina. For landing in various islands, we used zodiac boats, a kind of inflatable boat, to go from cruise to island. At all places, it was wet landing, i.e. landing in water. A special kind of knee high rubber boot was provided for going out of cruise for boating or landing, which provided very good protection

Pic 14 -Adelie Penguin



Pic 19 - Indian group at Brown station





Pic 17 - Macaroni Penguin



Pic 18 - Penguin colony, Brown station



Pic 5 - Light Mantled Albatross



Pic 15 - Magellanic Penguin



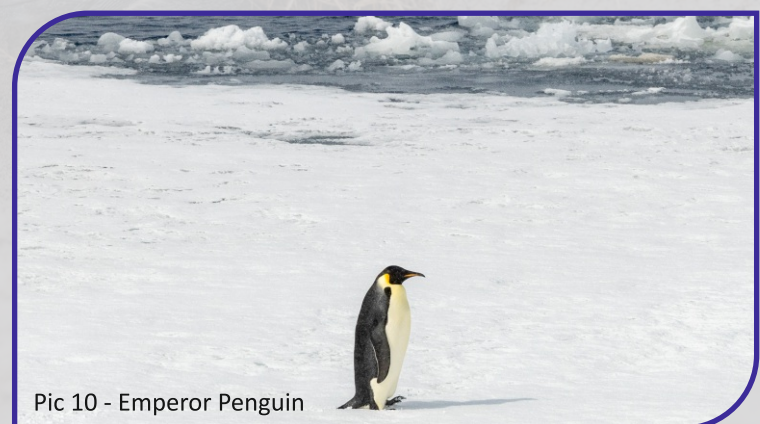
Pic 11 - King penguin



Pic 13 - Chinstrap Penguin



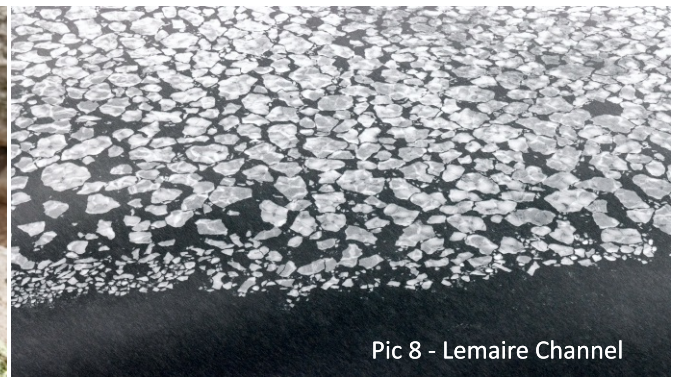
Pic 12 - Gentoo Penguin



Pic 10 - Emperor Penguin



Pic 16 -Rockhopper Penguin



Pic 8 - Lemaire Channel

from the severe cold. We visited Brown station, Damoy point, Mikkelson harbour, floating iceberg in Weddel sea. The landing on floating iceberg was a very adventurous activity as the thickness of ice was only 70 cms. and during our landing to iceberg, it actually drifted by about 700 meters (Pic 9 – author standing on 70 cm thick iceberg).

Touching Falkland:- After crossing Weddel sea, we moved towards Falkland, and landing was done in Saunders island, Stanley island and New island. Falkland is a overseas territory of U.K, inhabited by 3700 people. There is long standing dispute over Falkland territory between Argentina and U.K. A referendum on political status was held in the on 10–11 March 2013. The islanders were asked to vote on their support for the continuation of their status as an overseas territory of U.K. Almost everyone voted to remain a British territory, with only three votes against. The dispute between Argentina and U.K. still

continues.

Penguins:- There are 28 spp. of penguin. During this trip, we spotted variety of penguins, including Emperor (Pic 10), King (Pic 11), Gentoo (Pic 12), Chinstrap (Pic 13), Adelie (Pic 14), Magellanic (Pic 15), Rockhopper (Pic 16), Macaroni (Pic 17). These penguins have their colonies (Pic 18) in various islands. We could reach very close to these birds, but we were advised to keep a distance of 5 meters from the birds due to spreading of bird flu. We came across penguin highway, on which penguins move frequently. We were advised to avoid standing on these highways. Total hygienic precautions were taken and nobody was allowed to sit on the ground to put any item including camera tripod on ground. Immediately after returning to cruise, everybody was disinfected.

Other Animals:- During our trip, we spotted humpback whale, Dolphin and few varieties of seals. Though there are huge variety of sea wildlife in this region. But we could spot only few.

The sightseeing in Antarctica, in itself, very interesting. Many passengers were just watching from the cruise and enjoying the surroundings. In our group of almost 250 passengers, only 11 indians joined on this trip (Pic 19 – Indian flag). Overall, it is very beautiful and worth visiting.



Pic 1 - Red fox in Tierra Del Feugo National Park



Author : Is a Retired IFS. He served as secretary, GOMP For more than 5 years.

His hobbies are writing and traveling.

He has traveled all seven continents on the Earth

ROLE OF ARTIFICIAL INTELLIGENCE (AI) IN FORESTRY

Anita Tomar and Sanjay Singh

Artificial intelligence (AI) could be an interesting solution for Forestry sector. Forestry sector under changing conditions needs new tools to find insight and forecast forest dynamics and management. AI encompasses a wide range of techniques and frameworks dating back to the middle of the 20th century, although its use in forestry is relatively new, especially when compared to the early adoption of AI in other fields such as agriculture. An AI system that is specified to perform a limited task, is commonly applied in forest biometry (e.g., analysis of forest structure with 3D point cloud data) but is not so much used in other forestry domains.

The application of AI in forestry sector is mainly focused on improving predictions. Due to the potential power of AI, opportunities are open to broadening the suite of applications, such as enhancing the understanding of forest processes. Thus, it is important to discuss, jointly with academia and operational sectors, the implications, limitations, and capabilities of this technology as an alternative quantitative method in forest management.

With the growing world's population and the demand for food rising, it is crucial to use efficient planting methods to increase production on the limited amount of land. AI is becoming more prevalent every day in forestry as well as agriculture sector and AI-based devices are elevating the current forestry system.

Forestry is dependent on a number of variables, including soil nutrient content, moisture, crop rotation, rainfall, temperature, etc. Products based on artificial intelligence can use these variables to track crop productivity. In order to improve a wide range of forestry-related tasks throughout the entire food supply chain, industries are turning to Artificial Intelligence technologies. Applications and solutions that use AI in Forestry have been created to assist farmers in precise and regulated crop farming by giving them the right advice on water management, crop rotation, timely harvesting, the type of crop to be cultivated, optimal planting, pest attacks, and nutrition management etc. AI-enabled systems make weather predictions, monitor agricultural sustainability, and assess farms for the presence of diseases or pests and undernourished plants using data like temperature, precipitation, wind speed, and sun radiation in conjunction with photographs taken by satellites and drones.

With equipment as basic as an SMS-enabled phone and the sowing App, farmers without connectivity may profit from AI right away. Farmers with Wi-Fi connectivity can utilise AI apps to get a constantly AI-tailored plan for their farms, in the meantime. Farmers can meet the increased demand for food while growing output and revenues responsibly and without diminishing priceless natural resources with the help of AI-driven technologies.

AI & ITS ROLE –

1. AI in Forest Conservation :

AI algorithms can be used to build models that forecast the expansion of forests, the likelihood of fires, or the spread of illnesses. AI can play a tremendous role in the control of forest fire. Software can provide the information about the places which are most vulnerable to catch fire. Using machine learning, the AltaML fight prevention AI Model analyzes thousands of data points to forecast, based on region, how likely new fires will be the next day. Given that it's trained through historical fire data, it can also make predictions through regional weather and forest conditions planning and decision-making for sustainable forest management can be aided by these models.

AI algorithms can detect and classify land cover, monitor deforestation, track changes in habitats, and identify invasive species, providing valuable insights for ecological research and conservation planning.

2. Weather forecasting using AI:

Farmers find it challenging to decide the best time to sow seeds due to various environmental factors. With the aid of artificial intelligence, farmers can analyze weather conditions by using weather forecasting, which helps them plan the type of crop that can be grown and when seeds should be sown.

3. Crop and Soil health monitoring system:

Types of soil and nourishment of the soil have a substantial impact on the crops that are grown and their value. The quality of the soil is declining as a result of growing deforestation and pollution. Crop health monitoring can also be done by using drones. Drone technology has had a lasting effect on the productivity of India's forestry sector. The companies like equinox drones provide farmers with



drone-powered solutions to boost productivity in a variety of farming operations, including precision farming, livestock management, pesticide application, crop stress identification, treatment planning, plant growth monitoring, and survey.

4. AI Robotics:

Robots can play important role in Forestry Sector, they can easily carry out a variety of activities in farming fields based on AI. As compared to humans, these robots are trained to harvest crops more quickly and in greater quantities while controlling weeds. These robots are taught to harvest and pack crops while simultaneously inspecting the crops' quality and looking for weeds. These robots can also overcome the difficulties experienced by forest based industries labourers. Forest department can use aforestry robot to plant seedlings, reducing the risk of manual errors and improving overall efficiency of plantation site.

5. Pests detection using AI:

AI can play important role in plant Protection. One of the lethal enemies of tree plantation which cause drastic damage are insects and pests. AI systems employ satellite photos and historical data to determine whether any insects have landed and, if so, which species-such as locusts, grasshoppers, and others-have done so. AI aids farmers in their battle against pests by sending alerts to their cell phones so that forest department, farmers may take the necessary precautions and can take action to prevent crop damage, leading to a better overall crop yield.

6. AI to reduce deforestation :

AI-powered algorithms can analyze satellite imagery and other data sources to detect illegal logging activities. These algorithms can identify patterns that are indicative of illegal logging, such as changes in forest cover, road construction, and vehicle movements.

AI in forestry offers numerous opportunities, including improved crop health monitoring, precision plantation, and weather forecasting. However, farmers face several challenges when adopting AI, including the cost of implementing AI systems and the need for technical expertise. Farmers can improve crop health, optimize operations, and drive profitability, paving the way for a brighter future in Forestry sector.



Anita Tomar and Sanjay Singh
ICFRE-Ecorehabilitation Centre, Prayagraj

GREEN BELT DEVELOPMENT ON DIVIDER STRIP, INTERSECTIONS AND ROUNDABOUTS OF HIGHWAY

Dr. Kumud Dubey, Mr. K.P. Dubey

Greenbelts, locally known as “Harit Patti” are established to control air pollution mainly due to vehicle fuel combustion and dusts. These greenbelts are being developed on divider strips, Intersections and Roundabouts of Highway with plantation of specific plant species capable of absorbing air pollutants. Leaves in plant foliage capture pollutants on their surface and efficiently decrease pollutants present in surrounding air. Generally these adsorbed pollutants are assimilated in the metabolic pathway of plant species and the surrounding air is purified. Plantation grown to function as pollution sink are communally referred as greenbelts / Harit Patti (हरित पट्टी).

An important aspect of a greenbelt is that the plant species are with varying capacity limit towards the air pollutants and its effectiveness only depends on their tolerance limit to pollutants. Apart from function as pollution sink, greenbelt would provide other benefit like aesthetic beauty of the area and providing suitable habitats for birds and animals. Selection of Plant Species for Establishing Greenbelts The main selection criteria of plants to function as pollutant scavenger are its capability of interaction to air pollutants, sensitivity to pollutants, climatic conditions of particular area where Greenbelt has to be established, place of plantation and soil characteristics of that area. While selecting plants species for green belts, due consideration has to be given to the natural factor of bio- climate. Xerophytic plants like Cactus are not necessarily good for greenbelts; they with their sunken stomata can resist pollution by circumvention but act as poor absorber of pollutants. Character of plants mainly considered for affecting absorption of pollutant gases and removal of dust particle are as follows:

For absorption of Gases

1. Tolerance towards pollutants
2. Plant species with longer foliage age.
3. Freely exposed foliage
4. Adequate height of crown: it depends

upon the place of plantation.

5. Plant species with open foliage canopy so that can capture more volume of air
6. Big leaves (long and broad laminar surface)
7. Large number of stomatal apertures

For Removal of Suspended Particulate matter

1. Height and spread of crown should be in range of particulate pollutants.
2. Leaves supported on firm petiole
3. Abundance of surface on bark and foliage
4. Roughness of bark
5. Abundance of axillary hairs
6. Hairs or scales on laminar surface
7. Protected Stomata

Recommended Plant Species for Green Belt Development:

The following trees and shrubs are suggested for green belt development within the plant premises. The highlighted species are more suitable for plantation as well as for prevailing dust emission.



**Table: Recommended Plant Species for Green Belt Development along the Boundary of
As a Wind Barrier As Well As To Prevent Dust Pollution:**

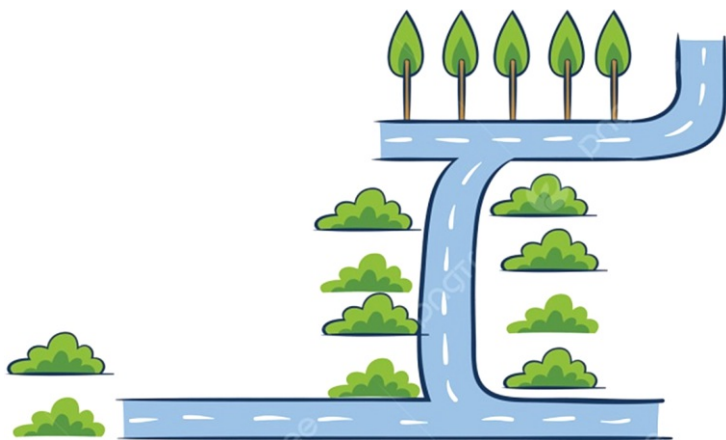
S.No.	Name of Species	Local Name & Suitability
1.	<i>Washingtoniafilifera</i>	California Fan Palm Decorative Flowering Plant
2.	<i>Tecomastans</i>	Tecoma, Yellow Elder Yellow Colour Flowering Plant for Good Aesthetic Beauty
3.	<i>Tecomastans (hybrid)</i>	Ticoma/GoriChori / white Bell" white Flower" Decorative Flowering Plant
4.	<i>Tecomacapensis</i>	Orange Tecoma / Honeysuckle Decorative Flowering Plant
5.	<i>Tabernaemontanacoronaria nana (TMC)</i>	Chandni/Jasmine/Tagar Decorative Flowering Plant
6.	<i>Thevetianeriifolia / Thevatiaperuviana</i>	Yellow Oleander/Yellow Kaner Flower Decorative Flowering Plant
7.	<i>Murrayapaniculata</i>	Indrabela / Kamini /Orange Jasmine Flower Decorative Flowering Plant
8.	<i>Coliandracalothyrsus</i>	Red Powder Puff Plant/Fairy Duster Plant Decorative Flowering Plant
9.	<i>Bougainvillea species</i>	Paper leaf plower, Bougainvillea, Small Flowering Shrub Decorative Flowering Plant with Yellow White, Red, Pink, Orange & Multi Colouretc
10.	<i>Clerodendroninerve</i>	Inerve / Bhant Plant Decorative Flowering Plant/ Good Evergreen Fence /Hedge Plant
11.	<i>Ixora species</i>	Tropical flowering shrub
12.	<i>Acacia leucophloea</i>	Tropical flowering shrub

In addition to above species, few species like Arelia species, Adenium species, Aglonaema species, Croton species, Cypreus species, Duranta Gold, Duranta Green & Bar Mehndiamy also be planted as hedge.

On crossings, Intersections, Roundabouts & Rotary Islands, small trees like Drooping Ashokapendula, Austrialanbabool(Acacia auriculiformis),Saptaparni (Alstonascholaris)Yellow Flowers(Cassia fistula), Harsingar, Kachnar(Bauniniarecemosa), Palms, White Temple Tree (Plumeria alba),Pink Cassia (Cassia javanica)Red Temple Tree (Plumeriarubra), Sawani&Tecoma may also be planted.

Palms, White Temple Tree (Plumeria





with well decomposed farm yard manure. The filling of soil has to be completed at least 5-10 days before actual plantation. Good quality of seedlings of identified species should be planted in each pit with the commencement of monsoon season. Provision for regular and liberal watering during the summer period during the establishing stage of the plant is prescribed.

The plant species identified for greenbelt development can be planted. The choice of plants for green belt should include shrubs and trees as per requirement and designs. The melding of trees and shrubs should be such that the foliage area density in vertical is almost uniform. The pit size has to be either 45 cm x 45 cm x 45 cm or 60 cm x 60 cm x 60 cm. bigger pit size will be considered at marginal and poor quality soil. Soil used for filling the pit should be mixed

Senior Scientist
ICFRE-ERC, Prayagraj



Retd. PCCF
(WL & CWLW)
UP Environment,
Forest and Climate Change
Department, Lucknow



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Date :

To,
Shri Dr. Mohan Yadav
Honorable Chief Minister
Govt. of M.P.
BHOPAL

Date: - 28/12/2023

Sub: - Mathwad Region's Development as Tourist Destination

Sir,

We are here with congratulate you to become our next Chief Minister of the Madhya Pradesh State. To brief about our self, we are Ex- Rulers of the Mathwad Alirajpur Dist. and belong to the Parmar Pynasty of Raja 1111Bhoj Dhar.

I have the pleasure to inform you that Mathwad is located in Vindhyachal Mountains at a height of 3,000 ft above sea level. River Maa Narmada is passing throughout the Mathwad region before entering Gujarat near Kevadia which has become a very big tourist destination.

Then D.F.O. Alirajpur Shri R.S. Sikarwar had taken lot of interest in developing Mathwad as tourist destination after we were acknowledged by I.U.C.N. Switzerland and INTACH Chapter Indore and had traveled & walked with me to survey our old territory of 129 sq miles to collect the historical data of Geography, Religious, Cultural details and take photographs so based on the survey then DFO had commented that if someone does not want to go to Himalayan then he should come to Mathwad to see the semi Himalayan Topography. Incidentally Shri R.S. Sikarwar was the first D.F.O. since independence to do so.

The other important part was played by Dr. Afroj Ahmed member secretary, Dr. Shukla Rtd P.C.C.F. Wild Life and Dr. Anjana Rajput who had selected Mathwad region to develop a bird Sanctuary omitting Badwani and Kathiwada. Dr. Anjana Rajput of forest Research Institute Jabalpur was another person who had traveled the most difficult interior parts of Veerbari and Rundmal valleys so on the basis of her report the Govt. has sanctioned a 20 cores for bird Sanctuary for Mathwad region.

The C.E.O. / E.C.O. Tourism board has prepared a proposal which has been send to U.N.E.S.C.O. for approval but our Mathwad region have been omitted where we have discovered many dinosaur eggs and fossils in the valley.

Therefore, requesting your honor to direct the M.P. Tourism offccials to visit Mathwad region so that it can be developed as Tourist destination to promote rural tourism to generate employments for our rural people.

Thanks & regards,

Rana Sajjan Singh
Mathwad, Alirajpur

Continued...



Motor Boat Cruise



Drive through Valley



Sleeping Beauty Island

Survey and visit to Parmar Dynasty of Mathwad Area



Rana Sajjan Singh / Villager



Heap of Dinosaur Eggs



Adivasee Worship Place

मथवाड़ वन क्षेत्र में तेंदुआ, लकड़बग्घा, जंगली बिल्ली सहित अन्य वन्य प्राणियों की हो रही खोज

जड़ी बूटियों शंख पुष्पी, रोजा घास, काली मूसली, सतावर व जंगली कालमेप मिली

राज्य वन अनुसंधान संस्थान जबलपुर के वैज्ञानिक जुटे अनुसंधान में

भारत संजय संजय / आलीराजपुर



मथवाड़ वन क्षेत्र में अनुसंधान दल कर रहा वन्य प्राणियों व जड़ी बूटियों की खोज

राज्य वन अनुसंधान संस्थान जबलपुर के वैज्ञानिक दल द्वारा वंडमंडल आलीराजपुर के वन परिक्षेत्र मथवाड़ के वनक्षेत्रों में अनुसंधान कार्य के दौरान वन्यप्राणी एवं वन संसाधन (दुर्लभ जड़ी व बूटी) के संरक्षण के लिए अनुसंधान किया जा रहा है। तेंदुआ, लकड़बग्घा, जंगली बिल्ली एवं शर्मिली वन्य प्राणी की उपलब्धता के लिए आधुनिक तकनीकों का उपयोग किया जा रहा है। कैमरा ट्रैप, प्रतिस्थापन कर समय पर डाटा कलेक्शन कर वन्य प्राणी की

निर्भरता व उपलब्धता का आकलन किया जा रहा है। साथ ही वन क्षेत्रों में पाई जाने वाली दुर्लभ जड़ी-बूटी जैसे शंख पुष्पी,

रोजा घास, काली मूसली, सतावर जंगली कालमेप की उपलब्धता देखी गई है।

वैज्ञानिक दल द्वारा अनुसंधान क्षेत्र सुझाव से मथवाड़ डूब क्षेत्र में आ रही प्राणी एवं वन संसाधन संरक्षण एवं उ आवास विकास के लिए कार्य किया रहा है। डीएफओ गोपाल कछावा, ग्रामी क्षेत्रीय वे अमले के सहयोग से र वन अनुसंधान संस्थान के डॉ. अनिल मजुमदार, शैलेंद्र यादव, विजय हल्दर कृष्ण प्रकाश उपाध्याय एवं प्रशांत व द्वारा किया जा रहा है।

उक्त कार्य में वन परिक्षेत्र मथवाड़ रेंजर रतनसिंह सिंगोड़, वनरक्षक सुरेंद्र मेहता, नरेंद्र बारिया, विमलकुमार भूषि कमलेश वामनिया, मालसिंह कनेश स्टॉफ का सहयोग रहा।

संगत : मथवाड़ में सर्वे के बाद दीपीआर को मिली मंजूरी, पर्यटन को बढ़ावा मिलने के साथ स्थानीय लोगों को मिलेगा रोजगार

आलीराजपुर में बनेगा अभयारण्य, 20 करोड़ होंगे खर्च

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विभिन्न समाचार पत्रों में प्रकाशित मथवाड़/आलीराजपुर की खबरें

Rana Sajjan Singh,
Mathwad, Alirajpur



Continued...

Enclosed: Letter from the IUCN written to Rana Sajjan Singh

LETTER FROM IUCN TO RANA SAJJAN SINGH OF MATHWAD,

Dear Rana Sajjan Singh Mathwad,

Thank you for your email and interest in preserving natural places. There is however a long nomination process that needs to be followed before IUCN is mandated by the UNESCO World Heritage Center to perform an evaluation of a proposed area.

An area first needs to be recognized by the National Authorities and needs to be on the Tentative List of the country : <http://whc.unesco.org/en/tentativelists/state=in> Only then can a nomination process start in coordination with the UNESCO World Heritage Centre, a process that can last years before it ends on the Advisory Bodies' desk for evaluation.

Here's an extract from a useful resource manual: <http://whc.unesco.org/en/preparing-world-heritage-nominations/>:

The first step a country must take is to make an 'inventory' of its important natural and cultural heritage sites located within its boundaries which are considered to be cultural and/or natural heritage of potential Outstanding Universal Value, and therefore suitable for inscription on the World Heritage List (see Chapter II-C of the Operational Guidelines). This 'inventory' is known as the Tentative List, and includes properties that a State Party may decide to submit for inscription in the next five to ten years. Tentative Lists are not expected to be exhaustive of all possible properties. They may be updated at any time, and States Parties are encouraged to re-examine and resubmit their Tentative List at least every ten years.

By preparing a Tentative List and selecting properties from it, a State Party can plan when to present each nomination dossier for a particular property. The World Heritage Centre offers advice and assistance to the State Party in preparing this dossier, which needs to be as comprehensive as possible, making sure the necessary documentation and maps are included. The nomination is submitted to the World Heritage Centre to check it is complete. Once a nomination file is complete the World Heritage Centre sends it to the appropriate Advisory Body/ies for evaluation.

If you have further questions, I suggest you reach out to the UNESCO World Heritage Centre directly.

Best Regards,

Christelle Perruchoud
Evaluations and Operations Officer
World Heritage Programme
Mail- christelle.perruchoud@iucn.org
IUCN (International Union for Conservation of Nature)
28 rue Mauverney, CH-1196 Gland, Switzerland
www.iucn.org



कान्हा टाइगर रिजर्व मण्डला, क्षेत्र संचालक पदक अलंकरण आयोजन

दिनांक 10/04/2024 स्थान- किसली

कान्हा टाइगर रिजर्व के अर्न्तगत पदस्थ कर्मचारियों द्वारा विषम परिस्थितियों में कार्य किया जाता है। कर्मचारियों द्वारा वन क्षेत्र में प्रतिदिन औसतन 10 कि.मी. पैदल गश्त की जाती है। प्रत्येक केम्प में एक परिक्षेत्र सहायक / वनरक्षक एवं एक सुरक्षा श्रमिक पदस्थ रहते हैं। एक केम्प से दूसरे केम्प की औसत दूरी 5 से 6 कि.मी. है। मानसून में कई स्थानों पर वाहनों द्वारा आवागमन हेतु रास्ते बंद हो जाते हैं, ऐसी स्थिति में कर्मचारियों को केम्प तक पैदल जाना पड़ता है तथा गर्मी के मौसम में कई बार ग्रामीणों द्वारा जंगल में आग एवं जलस्रोतों में जहर मिलाने की चुनौतियों से बचाने का कार्य भी प्रथम पंक्ति के अमले द्वारा किया जाता है। ऐसी विषम परिस्थिति में कर्मचारियों को वन्यप्राणी प्रबंधन, वन संरक्षण संबंधी तकनीकी एवं विशेष कर्तव्य निभाने होते हैं। अपने कर्तव्य निभाते समय कर्मचारियों को वन्यप्राणी द्वारा घायल करने एवं प्राणहानि होने के प्रकरण भी सामने आते रहते हैं। इसके अलावा नक्सल प्रभावित क्षेत्रों में कर्मचारियों को सदैव नक्सलियों द्वारा जानमाल की हानि एवं पुलिस नक्सल मुठभेड़ में जान का जोखिम बना रहता है।

ऐसी जोखिमभरी परिस्थितियों में कार्यरत कर्मचारियों द्वारा अदम्य साहस एवं कुशाग्रता के साथ क्षेत्र में कार्य किया जा रहा है। कान्हा टाइगर रिजर्व के सफल प्रबंधन एवं सुरक्षा में उत्कृष्ट योगदान

देने वाले कर्मचारियों को क्षेत्र संचालक पदक प्रदाय किया जा रहा है। क्षेत्र संचालक पदक टाइगर रिजर्व के कर्मचारियों का मनोबल बढ़ाने एवं उनको प्रोत्साहित करने हेतु प्रदाय किया जा रहा है। क्षेत्र संचालक पदक की शुरूआत वर्ष 2023-24 में कान्हा टाइगर रिजर्व मण्डला में पहली बार की जा रही है। जो कि मध्यप्रदेश वन विभाग के टाइगर रिजर्व में अनूठी पहल है। पदक के साथ परिक्षेत्र सहायक को राशि 8000, वनरक्षक 6000 एवं दैनिक वेतन भोगी को 3500 रुपये प्रोत्साहन स्वरूप प्रदाय की गई है। इस अवसर पर 16 वनकर्मियों एवं 18 सुरक्षा श्रमिकों को सम्मानित किया गया।

इस पदक अलंकरण समारोह में प्रधान मुख्य वन संरक्षक भोपाल म.प्र. एवं वन बल प्रमुख श्री असीम श्रीवास्तव (भा.व.से.) प्रधान मुख्य वन संरक्षक एवं मुख्य वन्यप्राणी अभिरक्षक श्री अतुल श्रीवास्तव (भा.व.से.), प्रधान मुख्य वन संरक्षक (से.नि.) श्री जे. एस. चौहान, क्षेत्र संचालक कान्हा टाइगर रिजर्व श्री एस. के. सिंह (भा.व.से.), उप संचालक कान्हा टाइगर रिजर्व कोर श्री पुनीत गोयल, उप संचालक बफर सुश्री अमिता, सहायक संचालक संजीव शर्मा एवं अन्य कान्हा टाइगर रिजर्व एवं समस्त परिक्षेत्र अधिकारी उपस्थित रहे।

-Source : Kanha TR





उत्तर प्रदेश में कृषि वानिकी से आर्थिक लाभ : चुनौतियां तथा नवीन संभावनाएं

अनुभा श्रीवास्तव, अनीता तोमर तथा संजय सिंह

परिचय:

वनोपजों में सबसे निचले स्तर पर जलाने के लिये लकड़ी, औषधियाँ, लाख, गोंद और विविध फल इत्यादि आते हैं जिनका एकत्रण स्थानीय लोग करते हैं। उच्च स्तर के उपयोगों में इमारती लकड़ी या कागज उद्योग के लिये लकड़ी की व्यावसायिक और यांत्रिक कटाई होती है। एफ०ए०ओ० के अनुसार भारत जलावन की लकड़ी का विश्व में सबसे बड़ा उपयोगकर्ता है और यह वनों में लकड़ी के पुनर्स्थापन से पाँच गुना अधिक है। वहीं भारतीय कागज उद्योग प्रतिवर्ष 3 मिलियन टन कागज का उत्पादन करता है जिसमें कच्चा माल वनों से लकड़ी और बाँस के रूप में आता है। वानिकी के वर्तमान परिदृश्य – जनजातियों और स्थानीय लोगों के जीवन, पर्यावरणीय सुरक्षा, संसाधन संरक्षण और विविध सामाजिक राजनीतिक सरोकारों से जुड़े हुए हैं। पूर्वी उत्तर प्रदेश के परिपेक्ष्य में कृषकजन कृषि वानिकी के माध्यम से इमारती लकड़ी, फलदार वृक्ष, औषधीय पौधे तथा बाँस आदि का रोपण कर आर्थिक लाभ प्राप्त करते हैं। काष्ठ अकाष्ठ उत्पादों के उचित बिक्री के अवसर प्राप्त करना कृषकों लिए एक कठिन चुनौती है। भारत में वानिकी एक प्रमुख ग्रामीण आर्थिक क्रिया, जनजातीय लोगों के जीवन से जुड़ा एक महत्वपूर्ण पहलू और एक ज्वलंत पर्यावरणीय और सामाजिक-राजनैतिक मुद्दा होने के साथ ही पर्यावरणीय प्रबंधन और धारणीय विकास हेतु अवसर उपलब्ध करने वाला क्षेत्र है। आर्थिक योगदान के अलावा वन संसाधनों का महत्व इसलिए भी है कि ये बहुत सी प्राकृतिक सुविधाएँ प्रदान करते हैं। हवा को शुद्ध करना और साँस लेने योग्य बनाना एक ऐसी प्राकृतिक सेवा है जो वन उपलब्ध करते हैं और जिसका कोई कृत्रिम विकल्प इतनी बड़ी जनसंख्या के लिये नहीं है। वनों के क्षय से जनजातियों और आदिवासियों का जीवन प्रत्यक्ष रूप से प्रभावित होता है और शेष लोगों का अप्रत्यक्ष रूप से क्योंकि भारत में जनजातियों की पूरी जीवन शैली वनों पर आश्रित है।

कृषि वानिकी

खेतों में अन्न उपजाने के साथ-साथ अधिक से अधिक वृक्ष लगाकर आर्थिक रूप से सुदृढ़ हो सकते हैं। खेत में फसल के साथ-साथ वृक्ष लगाकर भविष्य की सुरक्षा प्राप्त कर सकते हैं। कृषि वानिकी के अन्तर्गत ऐसे वृक्षों को उगाना चाहिए जो अपेक्षाकृत तेज बढ़ने वाले हो जिससे लाभ हेतु उनसे कम समय में ही उपज प्राप्त कर सकें।

खेत का पूरा उपयोग कर अधिकतम व विभिन्न प्रकार के उत्पाद प्राप्त कर सकते हैं।

अन्न का उत्पादन बढ़ा सकते हैं व लगाए गए पेड़ को बेचकर धन प्राप्त कर सकते हैं।

खेत में ही चारा, ईंधन, इमारती लकड़ी, कुटीर एवं लघु उद्योगों के लिए कच्चा माल प्राप्त कर सकते हैं।

खेत में ही ईंधन प्राप्त कर, गोबर को कंडा बनाकर जलाने से बचाकर खाद के रूप में प्रयोग कर धन की बचत व अधिक फसल प्राप्त कर सकते हैं।

प्राकृतिक आपदा, यथा-बाढ़, सूखा, अधिक वर्षा आदि से कृषि फसल को क्षति पहुँचने पर अथवा कृषि फसल अधिक होने के कारण मूल्य में कमी आने पर खेत के वृक्ष को बेचकर धन अर्जित कर

सकते हैं।

उपलब्ध प्राकृतिक वनों पर जैविक दबाव कम कर सकते हैं। वृक्षारोपण में वृद्धि कर भूमि एवं जल संरक्षण कर, पर्यावरण में संतुलन स्थापित कर प्रदेश व देश के विकास में योगदान दे सकते हैं

कृषि वानिकी में रोपण हेतु सीधे तने, कम शाखाओं, विरल छत्र व शाख तराशी सहने वाली वृक्ष प्रजातियों को चयन में प्राथमिकता दी जानी चाहिए।

कृषि वानिकी में लम्बी जड़ों वाले वृक्षों को उगाना बहुत लाभदायक होता है। यह जड़ें भूमि में जाकर नीचे से लाभदायक पदार्थ ऊपर लाती हैं जो कृषि फसलों को फायदा पहुँचाते हैं। वृक्षों की मूसला जड़ों की बढ़त इसप्रकार हो कि वे जल से खनिज लवणों के अवशोषण व फसलों की आवश्यकता के साथ सामंजस्य स्थापित कर सकें।

कृषि वानिकी के अन्तर्गत द्विदलीय बीज वाले वृक्ष उगाना अधिक लाभदायक है, क्योंकि ऐसे वृक्ष हवा से नाइट्रोजन लेकर भूमि में जमा करते हैं जो कृषि फसलों के लिए लाभदायक है।

कृषि वानिकी अपना नेक महत्वपूर्ण चरण

- पौधरोपण हेतु भूमि की उपलब्धता
- बाजार में उच्च मांग वाली प्रजातियों का अध्ययन तथा उनकी विपणनविधियों की जानकारी
- उचित प्रजातियों का चयन
- उच्च गुणवत्ता के पौधे प्राप्त करना
- पौधरोपण तथा इसका रख रखाव
- वानिकी काष्ठ अकाष्ठ उत्पादों का निष्कर्षण, संग्रहण, पैकेजिंग, तथा प्रक्रिया प्रक्रम संबन्धित तकनीकी जानकारी
- उत्पादों के स्व-उपयोग, विक्रय अथवा वानिकी पौधों की नरसेरी स्थापित कर पौधों की बिक्री
- वानिकी अकाष्ठ उत्पादों- यथा, सतावर, आवला, बेल, महुआ, सहजन आदि का मूल्य संवर्धन लघु उद्योगों के रूप में वित्तीय सहता हेतु पंजीकरण

उत्तर प्रदेश के ग्रामीणवशहरी क्षेत्रों में मुख्य प्रजातियों का वितरण (:)-

स्रोत : वन सर्वेक्षण रिपोर्ट (2021)

क्रमांक सं.	मुख्य प्रजाति	ग्रामीण क्षेत्रों में वितरण (%)	शहरी क्षेत्रों में वितरण (%)
1.	आम	31.54	9.81
2.	यूकेलिप्टस	15.86	8.87
3.	पापलर	9.60	-
4.	नीम	5.71	15.90
5.	कीकर	5.30	-
6.	अमरुद	-	3.90
7.	अर्जुन	-	3.33

पूर्वी उत्तर प्रदेश की प्रमुख काष्ठ प्रजातियाँ – वर्तमान परिदृश्य
राष्ट्रीय वन नीति 1988 व उत्तर प्रदेश राज्य वन नीति 1998 के अनुसार भौगोलिक क्षेत्र का एक तिहाई क्षेत्रफल वनों से ढका रहना चाहिए, परन्तु 30 प्रमों कुल वनाच्छादित व वृक्षाच्छादित क्षेत्र भौगोलिक क्षेत्र का 9.23 प्रतिशत ही है। बढ़ती जनसंख्या, शहरीकरण व

औद्योगीकरण आदि ऐसे अनेक कारण हैं जिसकी वजह से बड़े पैमाने पर नये वन क्षेत्रों को लगाये जाने की सीमित सम्भावनाएं हैं। प्रदेश में वृक्षारोपण जन सहयोग प्राप्त करके व कृषिवानिकी को जन आन्दोलन बनाकर ही प्रदेश में वृक्षावरण का अपेक्षित लक्ष्य प्राप्त करने में सफल हो सकते हैं। मानव जीवन के अस्तित्व की रक्षा के लिए वृक्ष व वन आवश्यक हैं। प्रत्यक्ष प्रभावों में मनुष्य विभिन्न आर्थिक लाभों जैसे— चारा, जलौनी, फल, जड़ी-बूटी उद्योगों में कच्चे माल निर्माण हेतु लकड़ी आदि से लाभान्वित होने के साथ-साथ आजीविका प्राप्त करता है। परोक्ष प्रभावों में वन आक्सीजन उत्सर्जन एवं जल व मृदा संरक्षण जैसे कार्य मानवता को लाभान्वित करते हैं।

पूर्वी उत्तर प्रदेश की प्रमुख काष्ठ प्रजातियाँ यूकेलिप्टस, पापलर, शीशम, सागौन, बबूल, आंवला, बेर, खैर, शहतूत आदि पूर्वी उत्तर प्रदेश में कृषि वानिकी की मुख्य प्रजातियाँ हैं। इसके अतिरिक्त आम, नीम, महुआ, जामुन, पीपल, बरगद, पलाश आदि प्रजातियाँ बाग बगीचों, घर के आस-पास या गांव की अतिरिक्त भूमि पर पायी जाती हैं। प्रजातियों की उपलब्धता माँग से बहुत अधिक कम है अर्थात् माँग और आपूर्ति का अन्तर बढ़ता ही जा रहा है। ग्रामीण तथा शहरी स्तर की चारा, लकड़ी तथा जलौनी की माँग निरन्तर बढ़ती जा रही है। ग्रामीण अपनी दैनिक आवश्यकताओं जैसे— जलौनी, लकड़ी की पूर्ति व्यापक स्तर पर बाजार में उपलब्ध लकड़ी से करते हैं जो विभिन्न ग्रामीण तथा शहरी बाजारों में वनों तथा अन्य स्रोतों से उचित मूल्य में उपलब्ध है।

पूर्वी उत्तर प्रदेश में कृषि वानिकी: वृक्षारोपण की नई संभावनायें

कृषि वानिकी के अन्तर्गत खेत के चारों तरफ मेड़ों पर दो या तीन पंक्तियों में अथवा खेतों के अन्दर पंक्तियों में एक निश्चित दूरी में फसलों के साथ वृक्षों को रोपित किया जाता है। इस पद्धति में रोपित वृक्षों के मध्य दूरी इस प्रकार रखी जाती है कि उनके मध्य में कृषि फसलों को उगाया जा सके तथा कृषि कार्य हेतु उनके मध्य से ट्रैक्टर आदि चलाया जा सके।

- 1. राज्य वन विभाग के नियमानुसार प्रजातियों का कटान तथा दुलान समयानुसार उचित परमिट प्राप्त कर के किया जाता है। उचित दर पर वृक्ष प्रजातियों की बिक्री उपयुक्त बिक्री स्रोत से की जा सकती है: वन निगम, आरा मशीन, प्लाईवुड ध्वनीयर उद्योग अन्य काष्ठ उद्योग।
- 2. प्लाईवुड ध्वनीयर उद्योग में मुख्य रूप से यूकेलिप्टस तथा पापलर प्रजातियों का प्रयोग होता है। इस उद्योग में बिक्री हेतु 5-8 वर्ष की तैयार लकड़ी ही प्रयोग की जाती है। 18-50 इंच मोटाई के यूकेलिप्टस तथा पापलर के वृक्ष विनीयर उद्योग हेतु उपयुक्त होते हैं। 52 इंच के टुकड़े यूकेलिप्टस तथा 40 इंच के टुकड़े पापलर हेतु उपयुक्त होते हैं। एक वृक्ष से तीन फसले ली जा सकती है। यूकेलिप्टस व पापलर का वर्तमान बाजार मूल्य 500-600 रुपये/धुकुन्टल है।
- 3. पैकिंग बाक्स उद्योग में यूकेलिप्टस, आम आदि की लकड़ी की बिक्री की जा सकती है। क्षेत्र की नजदीकी आरा मशीनों पर किसान वन विभाग से नियमानुसार कटान तथा दुलान परमिट प्राप्त कर वृक्षों की बिक्री कर सकते हैं।
- 4. इसके अतिरिक्त वन निगम द्वारा तैयार किये मानकों जैसे मोटाई के आधार पर देय मूल्य से भी कृषक प्रार्थना पत्र देकर वृक्षों की बिक्री कर सकते हैं।

ग्रामीण विकास में कृषि वानिकी

आम, नीम, कटहल, बबूल की प्रजातियाँ पूर्वी उत्तर प्रदेश के

क्षेत्रों में माँग के अनुसार पर्याप्त मात्रा में उपलब्ध नहीं है। कुछ वर्षों बाद गावों में सागौन, शीशम, के पेड़ बहुत कम उम्र के होने के कारण काटे नहीं जा सकते हैं। जलाने के लिए पर्याप्त मात्रा में लकड़ी उपलब्ध नहीं है जिससे जलौनी की समस्या उत्पन्न हो गयी है। आम के पेड़ जो लगभग 40 से 50 वर्ष पहले के थे, काटने के कारण बहुत कम रह गये हैं। भविष्य में इमारती लकड़ी तथा जलौनी की सतत उपलब्धता हेतु योजनाबद्ध तरीके से इन महत्वपूर्ण प्रजातियों का रोपण राज्य वन विभाग, कृषकों तथा गैर सरकारी संस्थाओं द्वारा किया जाना चाहिए। आम (देशी आम), कटहल, नीम, बबूल बहुत कम उपलब्ध है, सागौन और शीशम पिछले कुछ वर्षों में लगाये हैं लेकिन देसी आम, कटहल, नीम को भी लगाने की जरूरत है जिससे इमारती लकड़ी और जलौनी पर्याप्त मात्रा में मिल सके। नये उम्र के आम (कलमी आम) से फल तो मिल रहा है लेकिन जलौनी के लिए लकड़ी नहीं मिलती है, इससे जलौनी की कमी हो रही है। गावों में यह पाया गया कि शीशम के 7 से 15 वर्ष के पेड़ सूख जाते हैं। सागौन और शीशम पिछले कुछ वर्षों में लगाये हैं लेकिन देसी आम, कटहल तथा नीम को भी लगाने की जरूरत है जिससे इमारती लकड़ी और जलौनी पर्याप्त मात्रा में मिल सके।

काष्ठ प्रजातियों के विक्रय के चरण

1. कृषक > ठेकेदार > कमीशन एजेंट > टिंबर ट्रेडर > अंतिम उपयोगकर्ता
2. कृषक > अंतिम उपयोगकर्ता
3. कृषक > ठेकेदार > टिंबर ट्रेडर
4. कृषक > ठेकेदार > अंतिम उपयोगकर्ता
5. कृषक > टिंबर ट्रेडर > कार्पेंटर > अंतिम उपयोगकर्ता
6. कृषक > ठेकेदार > कमीशन एजेंट > अंतिम उपयोगकर्ता
7. कृषक > कमीशन एजेंट > अंतिम उपयोगकर्ता
8. वन निगम > ठेकेदार > टिंबर ट्रेडर > अंतिम उपयोगकर्ता
9. वन निगम > टिंबर ट्रेडर > अंतिम उपयोगकर्ता
10. कृषक > ठेकेदार > टिंबर ट्रेडर > अंतिम उपयोगकर्ता
11. कृषक > टिंबर ट्रेडर > अंतिम उपयोगकर्ता

प्रमुख काष्ठ प्रजातियों का विक्रय

यूकेलिप्टस / पापलर

क्षेत्र विशेष में आर्थिक लाभ के कारण यूकेलिप्टस किसानों की स्थापित प्रजाति है। यूकेलिप्टस का वृक्ष सीमान्त कृषक खेत की मेड़ों पर तथा लघु और विकसित किसान खेत में ब्लाक रोपण कर सकते हैं। पारम्परिक तथा अन्य फसलों के साथ भी वृक्ष तथा फसल की वृद्धि नगण्य रूप से प्रभावित होती है। सामान्य बीज से तैयार पौधे 7-8 वर्ष में तथा क्लोनल पौधे 5-6 वर्ष में तैयार हो जाते हैं। यूकेलिप्टस प्रजाति के उन्नत किस्म के पौधों का चयन पूर्वी उत्तर प्रदेश के कृषकों हेतु एक चुनौती है। कुछ कृषकों को यूकेलिप्टस के क्लोन पौधों के विषय में जानकारी है किन्तु क्षेत्र विशेष हेतु उपयुक्त क्लोन का चयन कठिन है। गेहूँ, धान, गन्ना आदि फसलों के साथ यूकेलिप्टस लगाने पर अतिरिक्त उपज प्राप्त हो सकती है। राज्य वन विभाग के नियमानुसार यूकेलिप्टस प्रजातियों का कटान तथा दुलान परमिट बिक्री हेतु आवश्यक नहीं है। उचित दर पर वृक्ष प्रजातियों की बिक्री उपयुक्त बिक्री स्रोत से की जा सकती है जैसे वन निगम, आरा मशीन, प्लाईवुड ध्वनीयर उद्योग अन्य काष्ठ उद्योग। प्लाईवुड ध्वनीयर उद्योग में मुख्य रूप से यूकेलिप्टस तथा पापलर प्रजातियों का प्रयोग होता है। इस उद्योग में बिक्री हेतु 6-8 वर्ष की तैयार लकड़ी ही प्रयोग की जाती है। 18-50 इंच मोटाई के

यूकेलिप्टस तथा पापलर के वृक्ष विनीयर उद्योग हेतु उपयुक्त होते हैं। 52 इंच के टुकड़े यूकेलिप्टस तथा 40 इंच के टुकड़े पापलर हेतु उपयुक्त होते हैं। एक वृक्ष से तीन फसले ली जा सकती है।

सस्य के रूप में प्रयोग किया जाता है। इसके साथ सब्जियों वाली फसलों को आसानी से उगाया जा सकता है। इसको लगाने से भूमि की भौतिक दशा में सुधार होता है। ऑवला के बाग में खरीफ के



यूकेलिप्टस/पोपलर का वर्तमान बाजार मूल्य 500 – 600 रुपये/कुन्टल है। एक वृक्ष से लगभग 3–5 कुन्टल लकड़ी मिलती है जिससे 1650–2750 रुपये तक आर्थिक लाभ हो सकता है। पैकिंग बाक्स उद्योग में यूकेलिप्टस की बिक्री की जा सकती है। क्षेत्र की नजदीकी आरा मशीनों पर किसान वृक्षों की बिक्री कर सकते हैं। इसके अतिरिक्त वन निगम द्वारा तैयार किये मानकों जैसे मोटाई के आधार पर देय मूल्य से भी कृषक प्रार्थना पत्र देकर वृक्षों की बिक्री कर सकते हैं। जय मां दुर्गा प्लाईवूड इंडस्ट्रीज, अलावलपुर, रायबरेली के साथ केंद्र द्वारा स्थापित संयोजन के अंतर्गत कृषकों के यूकेलिप्टस वृक्षों की बिक्री अच्छे मूल्य(रु 2000–2500) प्रति वृक्ष की जा रही है।

आंवला की खेती से लाभ

आंवला एक अत्यधिक उत्पादनशील प्रचुर पोषक तत्वों वाला तथा औषधि गुणों वाला यूफोर्बेसी कुल का पौधा है। इसके फल विटामिन सीका मुख्य स्रोत है तथा शर्करा एवं अन्य पोषक तत्व भी प्रचुर मात्रा में पाए जाते हैं। यह भारत का ही देशज पौधा है। आंवला के व्यवसायिक जातियों में चकैया, फ्रांसिस कृष्ण, कंचन, नरेंद्र आंवला एवं गंगा बनारसी उल्लेखनीय है। व्यवसायिक जातियों – चकैया, नरेंद्र आंवला एवं फ्रांसिस से काफी लाभार्जन होता है। कृषि वानिकी में महत्व यह वर्षा ऋतु में धान के साथ व शरद ऋतु में गेहूं के साथ अन्तः

मौसम में मूंग उड़द तथा मूंगफली रबी के मौसम में मटर मेथी मसूर चना व जायद के मौसम में लोबिया की फसले लगायी जा सकती है। प्रायोगिक शोध में पाया गया कि बीज जनित आंवला की अपेक्षा नरेंद्र 7 और नरेंद्र 10 (बलवंत) पौधों का प्रदर्शन अच्छा रहा।

बीजू पौधा 6 से 8 साल बाद फल देना प्रारंभ करता है जब कि कलमी आंवले का पौधा लगाने के तीन साल बाद फल मिलने लगते हैं कल मी पौधों में 10 से 12 साल बाद पूर्ण फल देने लगते हैं। इसका अच्छी तरह से रख रखाव होने पर 60 से 75 साल तक फल लगते रहते हैं। एक पूर्ण विकसित आंवले का वृक्ष एक से तीन विन्टल फल देता है। आंवलाके 8 x 8 मीटर की दूरी पर 1 हेक्टेयर में 100 वृक्ष लगाए जा सकते हैं। एक विकसित आंवले का वृक्ष कमसेकम एक कुन्टल फल देता है। आंवले का बाजार मूल्य कम से कम 3 रु 4 हजार रुपये प्रति विन्टल मिल जाता है। किसान इसकी खेती करके प्रति हेक्टेयर कम से कम 3 से 4 लाख रुपये आय प्राप्त कर सकते हैं। आज भारत में आंवले की खेती पांच लाख हेक्टेयर में की जाती है।





गंभार की खेती से लाभ

गंभार का पौधा बहुत तेजी से बढ़ता है। इसका प्रयोग हम वृक्षारोपण करने में कर सकते हैं। यह वर्षा ऋतु में धान के साथ शरद ऋतु में गेहूँ के साथ अन्तः सरस्य के रूप में प्रयोग किया जाता है। इसके साथ सब्जियों वाली फसलों को आसानी से उगाया जा सकता है। इसको लगाने से भूमि की भौतिक दशा में सुधार होता है। गंभारके साथ खरीफ के मौसम में मूंग उड़द तथा मूंगफली रबी के मौसम में मटर, मेथी, मसूर, चना व जायद के मौसम में लोबिया की फसलें लगायी जा सकती हैं। वन क्षेत्र को बढ़ाने में इसका प्रयोग किया जा सकता है। गंभार के पौधे का रोपण कर वातावरण के साथ – साथ वनक्षेत्र का विस्तार किया जा सकता है। लकड़ी की सामान्य जरूरत भी पूरी कर सकते हैं। यह मृदा के संरक्षण को बढ़ाता है। किसानों के द्वारा अपने खेत में लगाने पर यह उन्हें कम समय में अन्य फसलों (वनी फसलों) की अपेक्षा ज्यादा लाभकारी होगा। उद्योगों के लिए कच्चा माल मिलने पर क्षेत्र में लकड़ी से सम्बन्धित उद्योग लगेंगे जिससे क्षेत्र में रोजगार मिलेगा।

इस प्रजाति में असाधारण रूप से तेज वृद्धि होती है, और अच्छे स्थानों पर यह 5 वर्षों में 20 मीटर तक की ऊँचाई ग्रहण कर लेती है। परिपक्व अवस्था में इसकी ऊँचाई लगभग 30 मीटर एवं व्यास 60 से.मी. तक हो जाता है। एक सामान्य से अच्छे वृक्ष में 6–9 मी. तक का सीधा लट्टा मिलता है। कुछ वृक्ष रोपण के तीसरे वर्ष में 3 मी. एवं 4.5 वर्षों में 20 मी. की ऊँचाई तक पहुँच जाते हैं। गम्हार के 1 एकड़ में खेती के साथ 5 • 5 मीटर की दूरी पर 160 पौधे तथा बिना खेती के 2 • 2 मीटर की दूरी पर 1000 पौधे लगाए जाते हैं। प्रति पौध लगभग 100 रुपये की लागत लगती है। पेड़ की लकड़ी की क्वालिटी के आधार पर लगभग 8–10 वर्षों में प्रति वृक्ष 10–12 कुंतल काष्ठ प्राप्त होती है। रुपये 700 प्रति कुंतल की दर से एक वृक्ष से रुपये 7000– 8400 तक प्राप्त हो सकते हैं। पल्प प्लाइवुड & वीनीयर उद्योग में लगभग 5 वर्षों बाद प्रति वृक्ष रुपए 2000 – 2500 तक

प्राप्त हो सकते हैं। औषधीय प्रयोग में पेड़ की छाल का मूल्य रुपए 122 प्रति किग्रा है।

सागौन सागौन की खेती से लाभ

इस प्रजाति में असाधारण रूप से तेज वृद्धि होती है, और अच्छे स्थानों पर यह 5 वर्षों में 20 मीटर तक की ऊँचाई ग्रहण कर लेती है। परिपक्व अवस्था में इसकी ऊँचाई लगभग 30 मीटर एवं व्यास 60 से.मी. तक हो जाता है। एक सामान्य से अच्छे वृक्ष में 6–9 मी. तक का सीधा लट्टा मिलता है। कुछ वृक्ष रोपण के तीसरे वर्ष में 3 मी. एवं 4 – 5 वर्षों में 20 मी. की ऊँचाई तक पहुँच जाते हैं।

कृषि वानिकी को ध्यान में रखते हुए सागौन के साथ कृषि फसलों को भी अंतर फसल के रूप में उगाया जा सकता है। सागौन की खेती के बीच में गेहूँ, धान, मक्का, तिल और मिर्च के साथ-साथ सब्जी की खेती की जाती है। कृषि वानिकी में अंतर फसल लेने के लिए दो तरीकों – मेड़ पर तथा ब्लाक में पौध रोपण किया जाता है। पौधारोपण के लिए पूरी जमीन की जुताई, एक लेवल में करना जरूरी होता है। अगर पेड़ों के बीच फसल भी लेना है तो ये दूरी 5 मी 5 मी 0 रखनी चाहिए। प्रायोगिक शोध में पाया गया कि बीज जनित सागौन की अपेक्षा ऊतक संवर्धित पौधों का प्रदर्शन अच्छा रहा।

रोपण सामग्री की गुणवत्ता एवं क्षेत्र की निर्भरतानुसार सागौन की चक्रण आयु 50–80 वर्ष के बीच होती है। लगभग 15 से 20 सालों में अच्छी सिंचाई, उपजाऊ मिट्टी तथा वैज्ञानिक प्रबंधन के जरिये आमतौर पर एक एकड़ में 400 अच्छी क्वालिटी के आनुवांशिक पेड़ तैयार किये जा सकते हैं जिससे एक पेड़ से 10–15 क्यूबिक फीट





लकड़ी प्राप्त की जा सकती है। इस दौरान पेड़ के तने की लम्बाई 25–30 फीटमोटाई 35–45 इंच तक हो जाती है। यदि सागौन का पौधा रोपण 3 मी0 3 मी0 की दूरी पर किया जाये तो 1 एकड़ खेत में 400 पौधे तैयार किये जा सकते हैं। एक स्वस्थ पेड़ से 10 से 15 फिट लकड़ी प्राप्त की जा सकती है। सामान्यतः बाजार में 1500–2000 रु 0 प्रति क्यूबिक फिट लकड़ी का मूल्य प्राप्त होता है। एक पेड़ से 12–15 क्यूबिक फिट लकड़ी प्राप्त होती है, 400 पेड़ से लगभग 4800 – 6000 क्यूबिक फिट लकड़ी प्राप्त हो जाती है। इस प्रकार एक एकड़ से कुल 72 लाख से 90 लाख रुपये तक की आमदनी प्राप्त की जा सकती है।

अकाष्ठ वन उत्पादों का विपणन:

अकाष्ठ वन उत्पादों का विपणन एक जटिल प्रक्रिया है। इसमें उत्पादों को उनके उत्पादन के स्थान से खपत तथा उपयोग के स्थानों तक ढुलाई के कार्य तथा प्रक्रियाएं शामिल हैं। विपणन गतिविधियों में न केवल खरीद एवं बिक्री के कार्य निहित होते हैं, बल्कि विपणन के लिए उत्पाद तैयार करने (सुखाने, छिलका उतारने आदि), एसेम्बलिंग, पैकेजिंग, ढुलाई, ग्रेडिंग, भंडारण, प्रसंस्करण, रिटेलिंग आदि कार्य भी शामिल होते हैं। ऐसे कार्यों की संख्या तथा उनकी प्रकृति अलग-अलग उत्पादों, अलग-अलग समय तथा अलग-अलग स्थानों पर अलग-अलग होती है। इन सभी कार्यों के लिए अकुशल तथा कुशल दोनों प्रकार के श्रमिकों की आवश्यकता होती है। यही एकमात्र ऐसा सबसे बड़ा क्षेत्र है जो अकुशल और कुशल व्यक्तियों को रोजगार दे सकता है।

पैकेजिंग

अकाष्ठ वन उत्पादों के विपणन की प्रक्रिया में पैकेजिंग एक अनिवार्य अपेक्षा है। इसकी आवश्यकता निम्नलिखित कारणों से होती है:—

- ढुलाई के दौरान यह उत्पाद को बर्बादी या टूट-फूट आदि से बचाती है।
- भंडारण तथा ढुलाई के दौरान उत्पाद का रखरखाव आसान हो जाता है।
- इससे उत्पाद साफ-सुथरा रहता है।
- यह मौसम के बुरे प्रभाव से रक्षा करके अकाष्ठ वन उत्पादों की

भंडारण गुणवत्ता को बढ़ाती है। पैकेजिंग प्रक्रिया रोजगार के अवसरों का सृजन करती है।

ढुलाई

स्थानों के बीच अकाष्ठ वन उत्पादों की ढुलाई प्रत्येक चरण पर एक विपणन का एक सर्वाधिक महत्वपूर्ण कार्य है। अकाष्ठ वन उत्पादों सामग्री वन से स्थानीय बाजारों में लाई जाती है और वहां से प्रारंभिक थोक बाजारों, मझले थोक बाजारों, रिटेल बाजारों में और अंततः उपभोक्ताओं के पास पहुंचाई जाती है। परिवहन (ढुलाई) विपणन का एक अनिवार्य कार्य है और इसके अनेक लाभ हैं :

- यह अकाष्ठ वन उत्पादों के विपणन बाजार का विस्तार करती है।
- स्थानों पर मूल्य के अंतर को कम करती है।
- रोजगार अवसरों का सृजन करती है।
- इनकी ढुलाई के उपलब्ध साधन अधिकांशतः अपर्याप्त होते हैं।

ग्रेडिंग

ग्रेडिंग तथा मानकीकरण अकाष्ठ वन उत्पादों की ढुलाई को आसान बनाता है, पहले उत्पाद के मानकों की ग्रेडिंग निर्धारित की जाती है और उसके बाद स्वीकृत मानकों के अनुसार उन्हें अलग-अलग किया जाता है। ग्रेडिंग के कई लाभ हैं जैसे इससे अधिक मूल्य प्राप्त होता है, ग्राहकों में जागरूकता लाता है, विपणन का विस्तार करता है, विपणन-लागत कम करता है आदि।

प्रसंस्करण

अकाष्ठ वन उत्पादों का प्रसंस्करण, इसके विपणन कार्य का एक सबसे महत्वपूर्ण घटक है। प्रसंस्करण कार्यकलापों में परिवर्तन लाने का कार्य निहित है और यह उत्पादों के रूप में परिवर्तन लाकर उसके मूल्य में वृद्धि करने में संबंधित होता है। अकाष्ठ वन उत्पादों के कई लाभ हैं, यह सकल राजस्व में वृद्धि करता है, नुकसान या बर्बादी को कम करता है, इसे लंबी अवधि तक भंडार करना संभव है, यह रोजगार के अवसरों को बढ़ाता है और विपणन क्षेत्र का विस्तार करता है।

प्रमुख अकाष्ठ वन उत्पाद





1. बाँस

बाँस को तृण वृक्ष भी कहते हैं। ग्रामीण अर्थव्यवस्था, बहुआयामी रोजगार उत्पन्न करने तथा मूल्यवान् उत्पादों को तैयार करने में इस प्रजाति की महत्वपूर्ण भूमिका है। कुल वन क्षेत्र के लगभग 12 प्रतिशत भाग में बाँस के जंगल हैं। उत्तर प्रदेश के ग्रामीण क्षेत्र में बाँस की मुख्य दो प्रजातियाँ हैं— लाठी बाँस (डेन्ड्रोकेलेमस स्ट्रिक्टस) तथा कंटीला बाँस (बम्बूसा अरुडीनेशिया)। बाँस प्रत्येक जलवायु एवं सभी प्रकार की मिट्टी में उग जाता है। विश्व में प्रायः 1250 बाँस की प्रजातियाँ हैं जो घास के आकार से लेकर विशालकाय 40 मी० ऊँची और 0.3 मीटर व्यास तक पायी जाती है। भारत में 130 से भी अधिक प्रजातियाँ पायी जाती हैं।

बाँस का विपणन एवं लाभ

स्थानीय बाजार में किसान अपने उगाये बाँस बिक्री कर सकते हैं। इसके अतिरिक्त पल्प तथा पेपर उद्योगों में बाँस की बहुत मांग है। सामान्यतः बाँस का उत्पादन 3—5 वर्ष के बीच प्रारम्भ हो जाता है। प्रति कोठी औसतन 10 कल्ले प्रति वर्ष की दर से कल्लों का उत्पादन होता है। 11 वें से 15 वें वर्ष के बीच उत्पादन बढ़ कर 15 कल्ले प्रति कोठी प्रति वर्ष हो जाता है। एक हेक्टेयर क्षेत्र में 400 पौधों के रोपण पर तीसरे से पाँचवें वर्ष के मध्य प्रति वर्ष लगभग 4000 बाँस का उत्पादन होने लगता है। 100 रु० प्रति बाँस की दर से प्रति वर्ष 3,50,000 रु० की आमदनी होगी।

2. औषधीय पौधे :

औषधीय पौधों का महत्व आदि काल से विभिन्न रोगों के उपचार के लिए चला आ रहा है। आयुर्वेदिक, यूनानी तथा अन्य भारतीय चिकित्सा पद्धतियाँ औषधीय वनस्पतियों पर निर्भर करती हैं और भारतीय जल वायु के अनुसार औषधीय पौधों का प्रयोग भारतीयों पर अनुकूल पड़ता है। भारत वर्ष में लगभग 4500 प्रजातियाँ औषधीय श्रेणी में आती हैं। समुद्रतटीय, कम उपजाऊ, अधिक वर्षा वाली तथा बंजर आदि सभी प्रकार की जमीन यहाँ उपलब्ध है और यही कारण है कि यहाँ पर सभी प्रकार की वनस्पतियों का उत्पादन करने तथा औषधियों का निर्माण करने की सभी आवश्यक सामग्रियाँ उपलब्ध हैं। देश की अर्थ व्यवस्था इस समय चुनौतियों से गुजर रही है। एक ओर जहाँ विदेश व्यापार का घाटा पूरा नहीं हो पा रहा है, वहीं दूसरी ओर बेरोजगारी की समस्या भी विकराल हो रही है। औषधीय पौधों के कृषि करण में इन दोनों समस्याओं के समाधान करने की असीम संभावनाएँ हैं। भारत की अर्थ व्यवस्था कृषि—प्रधान है, देश के किसानों के लिये जड़ी—बूटियों के साथ सुगंधित फूलों—लताओं की खेती नई और भरोसेमंद फसलों का काम कर सकती है। कुछ व्यवसायिक महत्व के पौधे हैं: अश्वगंधा, कुटकी, केयोकन्द, ईसबगोल, कालमेघ, गुग्गुलु, गुडमार, गिलोय, ब्राम्ही, मुलहठी, सर्पगन्धा, सतावर।

सतावर— एक महत्वपूर्ण व्यवसायिक औषधीय पौधा

पूर्वी उत्तर प्रदेश में सतावर एक व्यवसायिक महत्व का पौधा है। कृषिवानिकी में इसे कृषक अपनाते हैं और उद्योगों में इसे बिक्री कर

अच्छा लाभ प्राप्त कर रहे हैं। इसकी जड़ें कंदिल होती हैं तथा बीज काले रंग के होते हैं। सतावर की बेल 3—5 फीट तक ऊँची होती है एवं शाखायें पतली होती हैं। महिलाओं के स्वास्थ्य हेतु विशेष उपयोगी है। सामान्यतः जलन, आँख सम्बन्धी रोग, उदर विकार, यकृत रोगों में, श्वसन रोग, सूजन, मूत्र विकार, कफ तथा अम्ल दोषों में विशेष उपयोगी है।

उत्पाद की पैकिंग तथा संग्रहण—सूखी जड़ों को मोटे कपड़े के थैलों में रखकर लम्बे समय तक भण्डारण कर सकते हैं।

जड़ों के पाउडर का वायुरोधी प्लास्टिक के डिब्बों में सुरक्षित रखा जाता है।

उचित विधि से पैकिंग तथा संग्रहण करने से उत्पाद को लम्बे समय तक संक्रमण से बचाया जा सकता है।

सतावर के प्रचलित उत्पाद—सतावर सलाद, सतावर सूप पाउडर, सतावर मिठाई सतावर चटनी सतावर पाउडर, बाजार मूल्य—सूखी जड़ों का वर्तमान मूल्य रु० 40—50 प्रति किग्रा तथा बीजों का मूल्य रु० 1000 से 1500 धेकिग्रा होता है। एक हेक्टेयर जमीन से कुल 6 टन जड़ों का मूल्य 2,40,000— तथा 35 किग्रा बीज का 35,000— या कुल आमदनी 2,75,000 तथा तथा खेती की लागत लगभग 30,000 होगी। शुद्ध लाभ 2,40,000 का होगा।

महत्वपूर्ण औषधीय पौधों से कुल लाभ

प्रजाति	खेती का व्यय रु. / हे. (सी)	प्राप्त आय रु. / हे.	शुद्ध लाभ रु. / हे. (बी)	वी / सी अनुपात
तुलसी	10,500/-	38,250/-	27,750/-	1:3.64
एलोवीरा	22,000/-	50,000/-	28000/-	1:2.27
अश्वगंधा	10000/-	78,750/-	68750/-	1:7.8
कलमेघ	25,000/-	75,000/-	50,000/-	1:3
सतावर	84000/-	2,50,000/-	1,66,000/-	1:2.9
सर्पगंधा	48,500/-	2,37,500	1,89,000/-	1:4.8
ब्राह्मी	35,000 /	2,00,000	1,65,000/-	1:5.7
सनाय	9000/-	40,000/-	35,500/-	1:4.4
गुडमार	15000	157000	142000/-	1:10.4
नीबू घास (5वर्ष)	200000	850000	650000	1:4.2
गिलोय	7200	58000	50800/-	1:8
सफेद मूसली	22,000/-	65,000/-	43,000/-	1:2.95
सदाबहार	11400	220000	208600/-	1:19

उत्तर प्रदेश में औषधीयपौधों की बिक्री

उत्तर प्रदेश में औषधीयपौधों की बिक्री विभिन्न हर्बल कंपनियों, उद्योगों तथा नेशनल मेडिसिनल प्लांट्स बोर्ड, नई दिल्ली द्वारा संचालित www.e-charak.in, मोबाइल एप: e-charak (Source: www.nmpb.nic.in) के द्वारा किया जा सकता है।



प्रमुख औषधीय पौधों का औसत मूल्य (www.e-charak.in)

स्थानीय नाम	वाणस्पतिक नाम	उपयोगी भाग	बाजार मूल्य (₹ / किबा)
बघ	एकोरस केलेमस	जड़	116.81
अइसा	अथाटोडा वेसिका	पत्ती	37.02
बेल	ईंगल मार्मेलोस	फल	59.09
कालमेघ	एंड्रोबाफिक पानिकुलाटा	वाह्यभाग	45.77
शतावर	एम्पेरेगस रसेमोसस	जड़	354.21
नीम	अजाडीरेक्टा इंडिका	बीज पत्ती	43.82 45.74
बाहरी	वाकोपा मोनिएरी	सम्पूर्ण पौधा	216.66
सलाई	बोसवेल्लिया सेरटा	गोंद	312.36
सनाय	कैसिया अंगुस्टीफोलीया	पत्ती	91.91
सफेद मूसली	क्लोरोफायटम अरुण्डिनेसीयम	जड़	885.89
गुग्गुल	कोम्मीफोरा मुकुल	गोंद	826.5
चित्रक	प्लम्बागो जेलानिका	जड़	99.64
नीबू घास	सिम्बोपोगान सिट्रेटस	वाह्यभाग	64.62
आंवला	एमडिलिका ऑफिसिनेलिस	फल	138.18
मुलेठी	ग्लीसिरिहजा ग्लवरा	जड़	183.38
गम्हार	मेलाइना अरवोरिया	छाल	122.1
गुडमार	जिमनेमा सिन्वेस्ट्रिस	पत्ती	121.14
मेहंदी	लांसोनिया इनमीस	पत्ती	130.85
मोरिंगा ओलिफेरा	मोरिंगा ओलिफेरा	बीज पत्ती	139.91 237.81
तुलसी	ओसीमम सैक्टम	पौधा बीज	73.58 119.78
ईसवगोल	प्लाटेगो ओवेटा	भूसी	463.42
करंज	पोंगामिया पिन्नाटा	बीज	94.67
सर्पगंधा	रौवोल्फिया सेपेटिना	जड़	660.83
अशोक	सराका अशोका	छाल	42.64

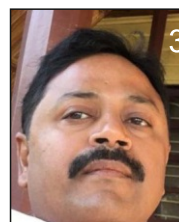
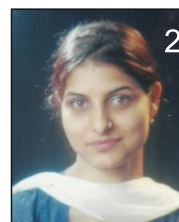
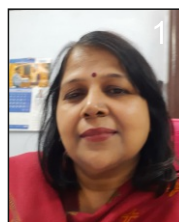
निष्कर्ष

पूर्वी उत्तर प्रदेश क्षेत्र में ग्रामीण तथा शहरी स्तर की चारा, लकड़ी तथा जलौनी की मांग निरन्तर बढ़ती जा रही है। ग्रामीण अपनी दैनिक आवश्यकताओं जैसे— जलौनी, लकड़ी की पूर्ति व्यापक स्तर पर बाजार में उपलब्ध लकड़ी से करते हैं जो विभिन्न ग्रामीण तथा शहरी बाजारों में वनों तथा अन्य स्रोतों से उचित मूल्य में उपलब्ध है। वनों पर ग्रामीणों की निर्भरता दिन प्रतिदिन बढ़ती जा रही है। बाजार के माध्यम से वन उत्पाद, उपभोक्ताओं तक पहुँचता है। प्रजातियों की मांग और आपूर्ति के आधार पर पौधारोपण कार्यक्रमों में प्रजातियों का चयन विलुप्त हो रही प्रजातियों को सूचीबद्ध करके किया जा सकता है। क्षेत्र विशेष में कृषकों हेतु कृषिवानिकी तकनीक जैसे प्रजातियों का उचित चयन, वृक्ष कृषि फसल माडलो की जानकारी, मृदा परीक्षण, वृक्ष का रखरखाव, विपणन कटान तथा ढुलान जैसे व्यवहारिक बिंदुओं की जानकारी आवश्यक है, यथा: पूर्वी मैदानी कृषि जलवायु क्षेत्र के जिलों में कृषिवानिकी की वर्तमान स्थिति, प्रदर्शन कृषिवानिकी माडलो को विकास, प्रशिक्षण तथा प्रदर्शन कार्यक्रमों के माध्यम से कृषकों को कृषिवानिकी अपनाने हेतु कृषिवानिकी तकनीक का प्रसार।

पौधारोपण कार्यक्रमों में इन प्रजातियों का रोपण ग्रामीण विकास में काष्ठीय प्रजातियों की सतत उपलब्धता में उपयोगी सिद्ध हो सकता है। गैर—काष्ठ वन उत्पाद, वन के आसपास रहने वाले निर्धन व्यक्तियों के लिए रोजगार तथा आय का एक अत्यधिक महत्वपूर्ण स्रोत है। इसका वार्षिक रोजगार 6—8 मिलियन ६ वर्ष से अधिक होने का अनुमान है तथा गैर—काष्ठ वन उत्पाद काराज्य वन राजस्वों का लेखा—जोखा लगभग—30: से 50: होने तथा वन उत्पाद से लगभग 80: होने का अनुमान है। बेहतर अर्थव्यवस्था तथा पर्यावरण में गैर—काष्ठ वन उत्पाद की सार्थकता वर्तमान समय में लगातार अनुभव की जा रही है। वन उत्पादों के लिए बाजार की पसंद तथा प्राकृतिक संसाधनों के कुशल उपयोग ने इन उत्पादों को महत्व को बढ़ा दिया है।

संपर्क

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भा. वा. अ. शि. प. — पारिस्थितिक पुनर्स्थापन केन्द्र, प्रयागराज

वन एवं वन्यप्राणी संरक्षण/प्रबंधन में लैंगिक समानता से सतत विकास

—जगदीश चन्द्रा

लिंग (GENDER) क्या है?

लिंग शब्द का तात्पर्य (पुरुष/महिला) से है, जो कि समाज के भीतर महिलाओं/पुरुषों के लिए जाना जाता है।

(भारत संघ (2014) ने भारत के सर्वोच्च न्यायालय के एक ऐतिहासिक निर्णय में, उन्हें (तीसरे लिंग) को पुरुष के रूप में अपने लिंग को आत्म-पहचान का अधिकार दिया है)

कानूनी प्रावधान: भारत के संविधान में अनुच्छेद 14 एवं 15 के अनुसार कहता है:

* अनुच्छेद 14 कानून के समक्ष समानता और कानूनों के समान संरक्षण के सामान्य सिद्धांतों का प्रतीक है।

* अनुच्छेद 15(1) और (2) राज्य को किसी भी नागरिक के खिलाफ धर्म, नस्ल, जाति, लिंग, जन्म स्थान या इनमें से किसी एक या अधिक पहलुओं के आधार पर भेदभाव करने से रोकता है।

सतत विकास लक्ष्य और वन एवं वन्य जीव संरक्षण, संरक्षण और प्रबंधन में लैंगिक समानता।

• भारत में आम तौर पर वनों के प्रबंधन, वन्यजीव संरक्षण और सुरक्षा में महिलाओं की अनदेखी की जाती है।

• यह देखा गया है कि पूरे देश में महिलाएँ वनों के प्रबंधन, पानी, भोजन और ईंधन की व्यवस्था सहित वन्यजीव संरक्षण की देखरेख करती हैं। ग्रामीण महिलाएँ अपनी रणनीतियों के रूप में प्राकृतिक संसाधनों, जैव विविधता और पारिस्थितिकी तंत्र के प्रबंधन पर ध्यान केंद्रित करती हैं। स्वस्थ वन पारिस्थितिकी तंत्र को बनाए रखने के लिए स्थायी नीतिगत निर्णय लेने के लिए उनका पारंपरिक ज्ञान, अनुभव और राय महत्वपूर्ण हैं।

* जितना अधिक वे पर्यावरण को बचाने में शामिल होंगे, उससे बचने का

कलंक दूर होकर लैंगिक असमानता कम होगी। इस प्रकार, सतत विकास लक्ष्यों को प्राप्त करने के लिए महिलाओं की अधिक से अधिक भागीदारी सुनिश्चित की जानी चाहिए।

* महिलाएँ जैव विविधता के संरक्षण के लिए सक्रिय रूप से काम करती हैं, उनके प्रयासों को महत्व नहीं दिया जाता है। यदि वैश्विक समुदाय को एक स्थायी भविष्य प्राप्त करना है तो हमें महिलाओं के योगदान को आश्वस्त करना होगा।

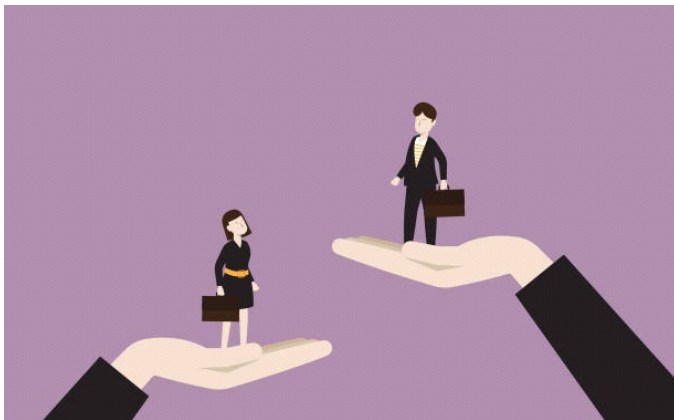
* ऐसे उदाहरण हैं जब महिलाओं ने चरागाह भूमि और जंगलों की रक्षा के लिए संघर्ष करके ढाल के रूप में काम किया, जहां १९७४ में गढ़वाल (हिमालय) में जंगलों की सुरक्षा से संबंधित चिपको आंदोलन में महिलाओं की भागीदारी थी, जब स्थानीय महिलाओं ने पेड़ों को बचाने में जबरदस्त बहादुरी दिखाई थी।

* एक गृहिणी के रूप में, ग्रामीण महिलाएँ पर्यावरण संबंधी मुद्दों के बारे में अधिक चिंतित रहती हैं। इनका प्रकृति और जैव विविधता से गहरा रिश्ता है। प्रकृति संरक्षण के प्रति उनका प्रतिनिधित्व इस बात को प्रभावित करता है कि वे पर्यावरणीय चुनौतियों का प्रबंधन कैसे करते हैं।

जेंडर बजटिंग से हम क्या समझते हैं? पर्यावरण, वन एवं वन्यजीव संरक्षण के क्षेत्र में महिलाओं की क्या भूमिका है?

* जेंडर बजटिंग में कार्यक्रम और नीति निर्माण, लक्ष्य समूहों की जरूरतों का आकलन, मौजूदा नीतियों और दिशा निर्देशों की समीक्षा, संसाधनों का आवंटन, कार्यक्रमों का कार्यान्वयन, प्रभाव मूल्यांकन, संसाधनों का प्राथमिकता जैसे विभिन्न लिंग अनुपात बनाए रखना शामिल है।

* वन, वन्यजीव और पर्यावरण संरक्षण बहुत महत्वपूर्ण है। हमें जानना चाहिए कि पर्यावरण का क्षरण वनस्पतियों और जीवों सहित मनुष्यों के लिए अत्यधिक हानिकारक है। एक क्षतिग्रस्त पारिस्थितिकी तंत्र को बहाल होने में सैकड़ों साल लग सकते हैं।





ध्यान से देखें और A और B फोटो में अंतर खोजें

* प्राकृतिक संसाधन प्रबंधन रणनीतियाँ, जहाँ महिलाएँ गृह निर्माता के रूप में प्रमुख भूमिका निभाती हैं। वन, वन्य जीव एवं पर्यावरण संरक्षण की गतिविधियों में आज भी महिलाएँ वंचित हैं। इससे हमारे समग्र पर्यावरण पर गंभीर बुरा प्रभाव पड़ेगा।

लैंगिक असमानताएं/अंतर स्थानीय स्तर पर वन्य जीवों के प्रबंधन एवं संरक्षण में नकारात्मक भूमिका निभाते हैं।

* लैंगिक असमानता संसाधनों और निर्णय लेने के अवसरों तक महिलाओं की पहुंच को सीमित या प्रतिबंधित करके प्रभावी सतत विकास और आजीविका में बाधा उत्पन्न करती है। इस प्रकार, संरक्षण संरक्षण लक्ष्यों, सामुदायिक भलाई और मानवाधिकारों को प्राप्त करने के लिए पारिस्थितिक तंत्र प्रबंधन में लिंग अंतर को संबोधित करना आवश्यक है।

* भूमि तक पहुंच, अधिकार और उस पर नियंत्रण अक्सर पुरुषों और महिलाओं के लिए अलग-अलग होते हैं। उदाहरण के लिए, महिलाओं के पास आमतौर पर कार्य के अधिकार का अभाव होता है। यही बात पेड़ों और जंगलों जैसे संसाधनों पर भी लागू होती है।

* लैंगिक असमानता महिलाओं की भूमि, वेतन, वेतन अधिकारों पर जागरूकता बढ़ाना है। जो ऐसे दावों पर स्वामित्व, उपयोग, के असमान अधिकार उन्हें समानता से वंचित करते हैं।

वन, वन्यजीव क्षति और विनाश के कारण :

* प्रकृति से हर चीज़ पाने की लालची जीवनशैली और, उसे वापस पुनर्जीवित करने का कोई विचार नहीं? वनों के विनाश से हमारे पर्यावरण को बहुत खतरा है। वनस्पतियों और जीवों का विलुप्त होना, और वायु, जल और मिट्टी का प्रदूषण।

* मानवजनित अवैध कटाई, शिकार, खनन जैसी गतिविधियाँ।

538 प्रजातियों में से लगभग 44 प्रतिशत पहले ही विलुप्त हो चुकी। पौधों की प्रजातियाँ जैसे मिल्कवॉर्ट, दुर्लभ, (गुजरात), असम कैटकिन यू, संकटग्रस्त, एबोनी, लुप्तप्राय स्पाइडर वॉर्ट, (मध्य प्रदेश), मालाबार

लिली, संकटग्रस्त, (तमिलनाडु)।

* जंगली जानवरों में एशियाई शेर, भारतीय बाघ, हिम तेंदुआ, एक सींग वाला गैंडा, शेर की पूंछ वाला मकाक, कश्मीर बारहसिंगा आदि शामिल हैं।

वन संरक्षण में महिलाओं का योगदान:

मध्य प्रदेश में वनों के कुशल प्रबंधन के लिए वन क्षेत्र को 16 वन वृत्तों, 62 वन प्रभागों, 473 वन उप-विभागों, 1871 रेंजों और 8286 उप-श्रेणियों में विभाजित किया गया है।

• यदि 33% लैंगिक समानता की गति से महिलाओं को वन प्रबंधन जेएफएम समितियों में शामिल किया जाता है। वन प्रबंधन गतिविधियों में 3600 से अधिक महिलाओं को शामिल किया जाएगा।

• इसी प्रकार, लघु वन उपज में भी यदि लिंग समानता अनुपात का पालन किया जाता है तो उनका संग्रह, दैनिक वेज कार्य और वेतन; एक उचित टिकाऊ प्रबंधन और बजट हासिल किया जा सकता है।

जेएफएम कार्यक्रम के तहत वन खराब :

जेएफएम संयुक्त वन प्रबंधन के अंतर्गत तीन प्रकार की समितियाँ होती हैं 1. ग्राम वन समिति (VFC) 2. वन संरक्षण समिति (EPC) 3. इको डवलपमेंट समिति (EDC) कहा ता है।

मध्य प्रदेश राज्य में कुल 12038 संयुक्त वन समितियाँ हैं।

• ग्राम वन समितियों का गठन गांवों को छोड़कर, निम्नीकृत वन क्षेत्रों के वन ब्लॉक सीमाओं के 5 किलोमीटर के भीतर के गांवों में किया जाता है।

• वन सुरक्षा समितियों का गठन गाँवों को छोड़कर घने वन क्षेत्रों के वन ब्लॉक सीमाओं के 5 किलोमीटर के भीतर के गाँवों में किया जाता है।

• राष्ट्रीय उद्यानों और अभयारण्यों के भीतर स्थित सभी गांवों और उनकी



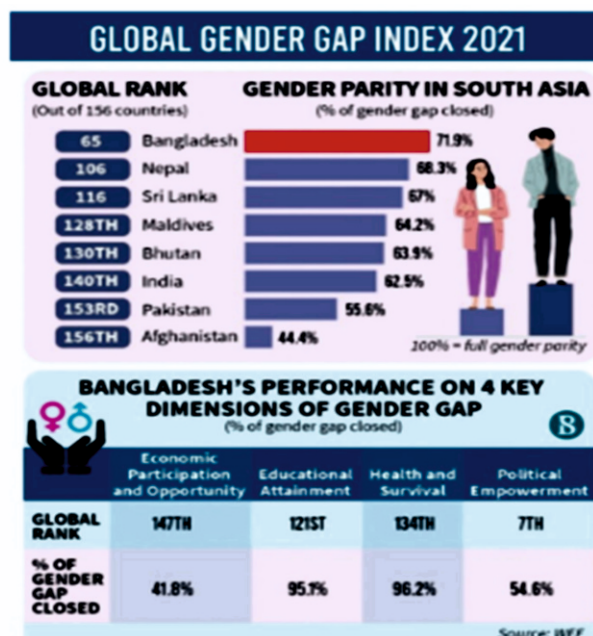
महिलाओं का योगदान भी समय के बदलाव के साथ अब जरूरी है

Global Gender Gap Index

Gender gap

India jumped eight spots to rank 127 in the Global Gender Gap Index, 2023. A look at how select countries fared

Rank	Country	Score	Rank change
1	Iceland	0.912	-
2	Norway	0.879	+1
59	Bangladesh	0.722	+12
103	Bhutan	0.682	+23
107	China	0.678	-5
115	Sri Lanka	0.663	-5
116	Nepal	0.659	-20
127	India	0.643	+8
142	Pakistan	0.575	+3



सीमाओं के बाहर 5 किलोमीटर के भीतर स्थित गांवों में इको विकास समितियां गठित की जाती हैं।

निष्कर्ष :

प्राकृतिक संसाधन प्रबंधन, वाटरशेड और कृषि प्रबंधन में भी महिलाएँ महत्वपूर्ण भूमिका निभाती हैं। इसलिए, प्रशासकों, मानव संसाधन प्रबंधकों और वन विभाग को उचित संसाधन प्रबंधन विकसित करने में अपनी सामानुपातिक भागीदारी सुनिश्चित करनी होगी और तदनुसार रणनीति / योजना बनानी होगी। इसी प्रकार, लघु वन उपज में भी यदि लिंग समानता अनुपात का पालन किया जाता है तो उनका संग्रह, दैनिक वेज कार्य और वेतन; एक उचित टिकाऊ प्रबंधन और बजट हासिल किया जाए

ताकि वे पर्यावरण और वन एवं वन्यजीव समग्र प्रबंधन में लैंगिक असमानता से वंचित न रहें।



Author :
Editor, Publisher and Owner of
ME & MY EARTH Magazine.



मुखी

पहला जन्मा चीता शावक

लेख साभार उत्तम कुमार आई.एफ.एस.



Cheetah ReIntroduction

29th March 2024

Kuno National Park



भारत में जन्मी पहली मादा शावक ,29 मार्च 2024 को एक साल की हो रही है। इसकी देख भाल करने वाले फील्ड स्टाफ इसे प्यार से 'मुखी' कहते हैं। मुखी उम्मीद और मजबूत संकल्प का प्रतीक बन गया है: चीता परियोजना का सफलता की उम्मीद और इसे चलाने वाले लोगों का संकल्प।

मादा चीता "ज्वाला" से जन्मी, मुखी के तीन और भाई-बहन थे। लेकिन जन्म के दो महीने के भीतर, उसने अपने भाई-बहनों को खो दिया। खुद भी वह कूनों प्रबंधन के प्रयासों से मौत के कगार से वापस आई। इस पूरी प्रक्रिया में, मुखी और उसकी माँ का साथ छूट गया। यह मुखी के लिए सब से कठिन दौर था लेकिन पशुचिकित्सकों और फील्ड स्टाफ की कड़ी मेहनत एवं देख भाल के फल स्वरूप वह इस कठिन दौर से

निकल पाई।

मुखी को इस उम्मीद में उसकी माँ के करीब रखा गया था कि एक दिन पुर्निलन हो सकता है, लेकिन सभी प्रयास व्यर्थ रहे। हालाँकि ज्वाला कभी-कभार मुखी के पास जाती थी,



माँ से अलग होने के बाद मुखी के शुरुआती दिन (मई 2023)



मुखी को मासा मिलाने का असफल प्रयास (जून 2023)

लेकिन उसने कभी भी मुखी को अपने पास वापस लेने में कोई दिलचस्पी नहीं दिखाई। छोटे उम्र से ही मुखी को एकाक जीवन जीना पड़ा।

आस-पास अन्य चीतों से घिरा हुआ, मुखी का छोटा बोमा (50मीटर x 30मीटर) उसका घर एवम खेल का मैदान था। उसके खाने से लेकर हर दूसरी जरूरत का ख्याल रखा जाता था। एक चंचल बच्चों की तरह उसे अपने भोजन खाने को आने वाले पिंक्षियों विशेष रूप से ट्री-पाई के पीछे भागना पसंद है। अनजान लोगों से शर्मिली होने के कारण, वह अपने नियमित देखभाल करने वालों के अलावा किसी अन्य व्यक्तियों के समीप आने पर अपने बोमा में छुप जाती है। मुखी ने भारतीय परिस्थितियों को बहुत अच्छी तरह से अनुकूलित किया, जबकि अन्य वयस्क चीते भारतीय मौसम विशेष रूप से अपने आगमन के पहले वर्ष के दौरान, मानसून के महीनों का गम और आर्द्र मौसम, की स्थित के साथ ताल मेल बिठाने के लिए संघर्ष कर रहे थे। अन्य चीतों की गतिविधियों पर गहरी नजर रखने वाले मुखी ने बारीक से देखा कि दूसरे चीते क्या कर रहे हैं। अलग-अलग तरह कि आवाजें या पुकार, वह हर पल जंगली चीते के व्यवहार को समझती नजर आती है।

जंगल में जीवित रहना अत्यंत किठन और चुनौती पूर्ण है। प्रत्येक जंगली जानवर को जीवित रहने के लिए दो आवश्यक कौशल सीखने कि जरूरत है: खुद कि रक्षा करना और अपने भोजन के लिए शिकार करना। चीता जैसे मध्यम स्तर के शिकारी जानवर के लिए, खुद को बड़े शिकारी से बचाना

और भोजन के लिए शिकार करना, दोनों के लिए विशेष कौशल कि आवश्यकता होती है जो एक शावक अपनी माँ से सीखता है।

मुखी को दुर्भाग्य से इन कौशल को सीखने में अपनी माँ का सहयोग नहीं मिला और इसलिए यह जिम्मेदारी पूरी तरह से कूनों प्रशासन के कंधों पर आ जाती है जो उसे एक सफल जंगली चीता बनाने के लिए प्रतिबद्ध है। आत्म-सुरक्षा और संरक्षण केवल स्वयं जंगल में ही कठिन तरीके से सीखा जा सकता है, लेकिन शिकार कौशल को हैंडल द्वारा सूक्ष्म तरीकों से सिखाया जा सकता है शिकार के लिए विशेष कौशल सीखने कि आवश्यकता होती है और स्वाभाविक प्रवृत्ति एक महत्वपूर्ण भूमिका निभाती है। हालाँकि, मुखी को अपनी माँ का साथ नहीं मिल रहा है, लेकिन ऐसा लगता है कि वह आस-पास के बोमा में अन्य चीतों के द्वारा किए जा रहे शिकार के बारे में हमेशा जागरूक रहती है। वह हमेशा पास के बोमा में चीता द्वारा शिकार किये जाने को महसूस करते है एक सक्रिय (एनमेटेड) हो जाती है जैसा कि कार्रवाई में शामिल होने के लिए तैयार हो। मुखी को इस कौशल को सीखने और उसमें महारत हासिल करने का अवसर मिलेगा।

जैसे-जैसे महीने बीतते गए, मुखी और अधिक सक्रिय हो गई। वह अपने छोटे से बोमा में आने वाले हर पक्षी को भगाती है जैसे कि वह अपने क्षेत्र कि रखवाली कर रही हो। माह नवम्बर में इसी तरह कि एक दुर्भाग्य पूर्ण घटना में उसने खुद को घायल कर लिया। तत्काल चिकित्सा एवम देखभाल तथा पशु चिकित्सको को टीम और फिल्ड स्टाफ के लगातार प्रयासों

के कारण, वह अगले कुछ दिनों में अपनी चोटों से पूरी तरह से ठीक हो गई।

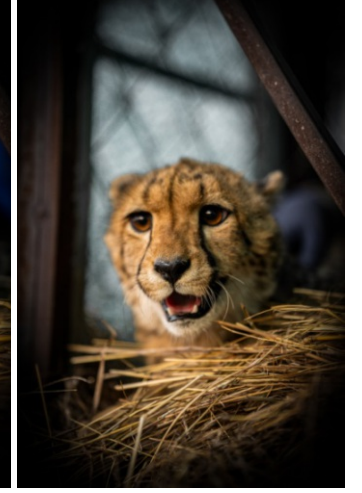
ऊजा से भरपूर मुखी वापस एक्शन में आ गई है। उसे पिक्षियों का पीछा करना और पड़ोसी चीतों के करीब आने पर उन से बातचीत करना पसंद है। हालाँकि वह वर्तमान में शिकार नहीं कर रही है फिर भी वह शिकार में अत्यधिक रुचि दिखाती है। वह



मुखी और ज्वाला कभी-कभार एक साथ समय बिताते दिखाई देते हैं



मुखी के घायल होने पर चिकित्सा देखभाल



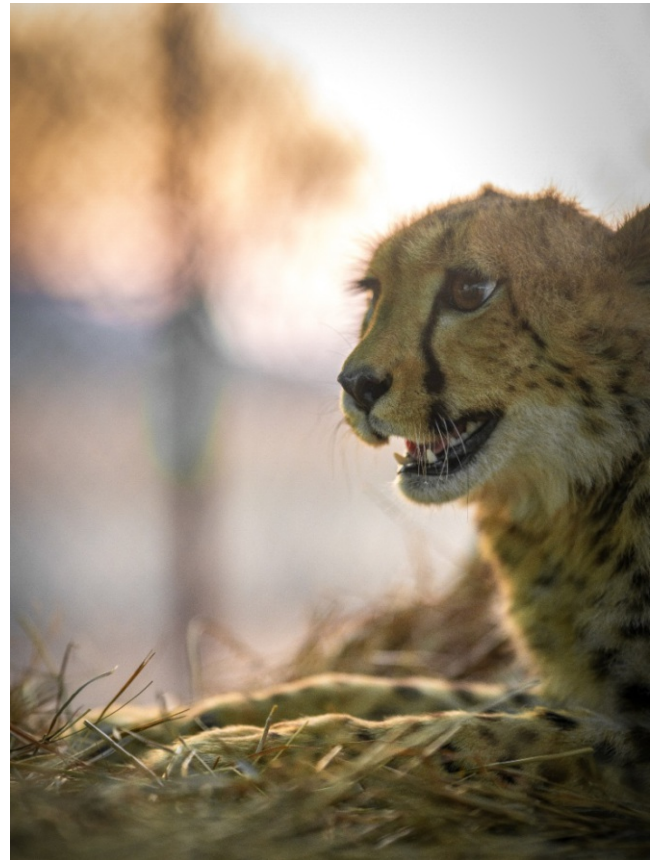
छुपकर पीछा करना, आक्रमण करना और पकड़ना सब कुछ अकेले ही सीख रही है।

29 मार्च 2023 संरक्षण क क्षेत्र में एक एताहसिक एक अंतर-महाद्वीपीय संरक्षण स्थानांतरण परियोजना, के महत्व को दर्शाता है।

मुखी के पास एक विरासत है। 75 वर्ष के बाद भारत में जन्मे पहले चीता होने की विरासत। उसे यह पता न हो, लेकिन वह जीवन भर इस विरासत को लेकर चलेगी। भारतीय धरती पर जन्मी पहली भारतीय चीता होने के कारण उसका हर भारतीय के दिल में एक विशेष स्थान है, और उन लोगों को दिलों में तो और भी अधिक, जो पिछले एक साल में उसके करीब रहे हैं।



लेखक: वर्तमान में चीता प्रोजेक्ट कूलो राष्ट्रीय उद्यान में क्षेत्र-संचालक हैं



*An Afghan girl kept a snow leopard cub that she thought that was a cat's.
That is now a big snow leopard. That Afghan girl still visits the mountain of
Pamir Badakhshan and playing with her friends.
#animals #Leopards #tigers #Afghanistan #Afghan-Kabul*

