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Food and nutrition security among kharwar tribals of Bihar

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Abstract
Tribals or Scheduled Tribes is the word used for descendants of original inhabitants of the place A large number of tribes are spread all over the world. In India itself there are 588 scheduled tribes with areas either predominant of tribal population, sub plan areas and in pockets. Tribals communities, traditionally were either occupied as hunters, gatherers (food, snakes etc), artisans or engaged in shift agriculture (Jhum cultivation). These tribes have been reported to have their own regulations and methods of ensuring food and nutritional security which are mainly governed by their traditional ways. Irulas of Nilgiri Hills are snake catchers, Oraons are expertise in making beer especially from Mahua, the Kharwars of Bihar were food gathers like wise every tribe has their distinct lifestyle and food security system. With time there are a number of factors that are affecting their livelihood and the food and nutritional availability. Acculturation, Government interventions and policies, social and legal regulations are some of the prominent factors. A study with Kharwar tribes of Kaimur Bihar, revealed that they were basically forest based tribes who were expertise in the knowledge of flora and fauna of their habitat and gathered a number of plant and animal based produce from the forest for their family food security and nutritional intake. With forest regulations, the Kharwars have adopted agriculture as their main occupation but they still are involved in gathering of different produce like mahua flowers and many uncommon foods rich in nutrition but not popular or known to the general public. The paper bring out these uncommon food that are based on ITK and some have scope for analysis for their nutritional properties.

Keywords: Food and nutrition, tribal population.

Introduction
The Food security is defined by FAO as 'a situation that exist when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preference for an active and healthy life . In India, Food security is most deficient among the tribal population and among the Scheduled Tribes. UNICEF's reports that 47 % tribal women suffer from chronic energy and 68 % were anaemic, undernourished in Andra and Telangana (www.unicef.in/tribal children, 2015). They have lost their habitat, livelihood Das and Saha (2016) based on the National Commission for Scheduled Tribes survey brought forth that many tribal groups are facing threat to their existence. In Jharkhand, the Particular Vulnerable Tribal Groups (PVTG) the pregnant women were either not beneficiary in Janani Surakha Yojana or were unaware of programme that support the mothers and their food security. In Orrisa, Jena (2008) reported that food security among the tribal communities of Rayagada district suffers periodic outbreaks of disease, food scarcity, lack of health care facilities and absence of tribal voice to demand accountability from policy makers.

Methodology
A total of 300 families were selected consisting of Kharwars (222 families) and Oraon tribes (78 families) from 35 villages randomly selected through two stage stratified sampling from the Adhaura block of Kaimur (Bhabua) district of Bihar, India. Survey and interview schedule were the tools used to collect data related to food security among the samples.

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Results and Discussion

The study found that 83.3 per cent of tribal household was nuclear in nature while 16.7 per cent lived jointly. The family size varied from 3-15 members irrespective of the family type. The Kharwars were traditionally food gathers and hunters and their food security was the forest around them or nearby them. But the Forest Act and regulations had restricted their hunting of animals to traditional ways only to collect specific forest produce which can fetch those cash and wildly available food sources which were investigated in the study. The Government had given them land which they had to grow despite the low income from it due to attacks of the wild animals that ate away their produce on the land. Thus, the sources of food security among Kharwars tribes of the study were multi-sourced. They were found to survive mainly their own produce harvested from their farms, collection from minor produce from forest, and as agriculture labour on others field. All the families were small farmers but a few cultivated additional land on rehan (contract basis). Their lands were either upland (tanr) or/and lowland (don).

Paddy was their main crop grown on the lowlands while other crops like redgram, madua (ragi), kodu (varagu), jeneri (jowar), and maize were grown on the uplands. Vegetables were also part of their food security and were grown in patches. These produce were grown for self-consumption and was not sold. Yet to assess the worth of the food produced at farmer's field, an attempt was made to calculate the produce of the farmers at local price of the grains. Earnings thus, calculated is tabulated in Table 1.

Table 1: Income of tribals from farm produce

Agriculture produce	Families	
	Count	Percentage
0	10	3.3
240-10842	236	78.7
10843-21444	36	12.0
21445-32046	12	04.
32047-42648	4	1.3
42649-53250	2	0.7

The table 1 reveals that evaluated income from food grains worth less than Rs. 10842/- annually for most of the tribal families while only 12% grew produce worth between Rs. 10842/- and Rs. 21444/-. Discussion with the families and recently established KVK scientists brought out that the farmers crops got destroyed by wild animals, cattle grazing and rains.

Income from forest

Forest form an integral part of tribal family ecology that distinguished it from rural and urban areas. They were the supplementary source of food security and income. The tribal families gathered wild fruits, vegetables and fodder for their subsistence. They collected minor forest produce like mahua (*Madhuea longifolia koen*), piyar (*Buchanania latifolia*), tendu leaves (*Diospyros melanoxylon Roxb*), jangi (*Terminalia*), Alma (*Amblica*) during various months of the year. The tribal families were reported to collect forest produce worth Rs. 50/- to Rs. 15200/- during the year of study. Some of the tribal's value added the Piyar by shelling them manually to obtain chironji and sold it for much needed cash. Fabrication of simple tools or implements for shelling could encourage the other tribals to increase their income as chironji fetched those more cash than chironji.

Income from animal wealth

The Kharwars had animal wealth of cows, goat and oxen. The cows were reared for milk, goat for meat and oxen for ploughing their lands and fetching firewood, bringing shrub and branches for fencing their fields. A few farmers reared hen for sale or for religious sacrifice. The animal heads in families were as low as one and high as 35. Kharwar tribe men preferred to keep more number of local cows (some had 25 cows) than a few better breed cows as they believed in more cows more calves better money. Local cows had low milk production i.e., ½ to 1 kg per animal for 2-4 months only) and was consumed by the family themselves. The Kharwars also preferred local breeds as the animals were able to graze in the plateau. They were of the opinion that the high yielding breeds shall not be able to graze in the hill areas. The KVK scientists proposed them for rearing high yielding cow breeds for increasing their income but with their lifestyle tribal they were not ready to feed the cows in the shed. The scientists of animal science need to research for breeds that have increased milk production yet are able to graze on hill areas. Only 28% of the families earned Rs 30/- to Rs 2000/- only during the year of study.

Income as agricultural labour

The study found that 60% of the families worked only on their own land only but rest (40%) provided their services on Government and private fields. At private fields they received their remuneration in kind (usually agriculture produce) while the Governmental institutes paid those cash. The female labours earned 2.5 kgs of rice and two meals on the field while male labourers received remuneration in cash.

Other sources of income

For their food security, 22% of the selected tribes families were earning at institutes through non-traditional occupations like cook, attendant, driver etc. A few families also earned from their ITKs skills in carpentry, earthen pots and tiles.

Total annual income of the tribal families

Total Annual Family Income (Rs.)	Number	Per cent
<6400 (below proverty line)	136	45
6401 – 15770	120	40.00
15771 – 25140	20	6.67
25141 – 34510	16	5.33
34511-43880	6	2.00
43881 – 53250	2	0.67

The study found that almost half of the families (45%) were below poverty line while 40 % were just above the poverty line with their annual income less than Rs. 15770/- to Rs. 25140/-. Only five percent families earned income between Rs. 25141/- to Rs. 34510/-. Rest (2.6%) earned between Rs. 34511-Rs.53250/-.

The percentage contribution from each source to the total family income is presented in Table 2.

Table 2: Income from various sources and their contribution to total Family Income

Percentage contribution to family income	Percentage of families				
	Agriculture	Forest	Animals	Labour	Services
0	2.7	5.7	72.3	59.4	91.3
1-20	6.6	45.6	27.0	23.3	3.3
21-40	12.7	31.3	0.7	10.7	0.7
41-60	22.0	10.7	-	3.3	2.0
61-80	27.0	4.0	-	3.3	2.0
81-100	29.0	2.7	-	-	0.7
Total	100.0	100.0	100.0	100.0	100.0

Thus, the food security for Kharwar tribes comes from agriculture produce with 29 % of the families depended on agriculture that contributed to 80-100 % of their income. For 27% and 22 % families the percentage contribution from agriculture was 61-80 and 41-60 respectively. Gathering forest produce was basically for subsistence only a few families (6.7%) earning were 60-100 % of their income.

Around the year the Kharwar tribe of Bihar gathered various food, fodder and fuel from forest, which was as follows:

Month of food security (calendar)		Food and nutrition secured	Remarks
Indian	Christian		
Chaita	March-April	Mahua flowers collected as family affair.	The tribe have an unwritten understanding of reserving the trees of Mahua (*Madhuea longifolia koen*) when the season is near for dropping of its flowers by placing a personal cloth on the tree. By doing so the tribal family takes away all the mahua produce that drop under the tree. The family – adult males, females and children of school age. They leave their homes as early as 6.00 a.m and come back home after collection by 12.30 pm. The succulent flowers are spread in sun for drying and later stored for future consumption. The produce are a good source of nutrition, oil and cash (it fetches them much needed cash for food and nutrition security).
Baiskha	April-May)	Piyar fruits and banyan figs	While piyar (*Buchanania latifolia*) ensures nutrition, at the same time the tribals sell it for either cash or kind (cereals, other food items and health services).
Jeth	May-June	Fuel and water, tendu leaves	The family members collect dry twigs for fuel from forest to cook and water from the river and other sources for their cooking and other needs. The Tendu leaves are collected to sell for making of 'beedis' (for smoking) or personal consumption.
Asadh	June-july)	Water, fish,	Travel long distance to rivers stream to collect fish for their family, they crack the Mahua fruit (koina) and its kernel in sun to dry for extraction of its oil which is used for cooking.
Sawan	July-August	Wild fruits and vegetables, fish	Tribals collect wild vegetables like chakwar leaves (*Cassia tora*), kena sag (*Commulina benghalensis*), konar sag (*Bhuhinia purpureal*), wild colocacia leaves locally called as hail-hail (*Colocasia anti-quorum*), putuka (*puffball mushroom cycoperdon sp.*) and kekasa (*Momordica cochin clinesis*). Time to time they go fishing for nutrition and food security.
Badho	August-September	2.5 kgs of rice per day, forest vegetables, mushroom (Kukundi), kaniya leaves	For transplanting paddy as agricultural labour, on the days no transplanting is done the tribal family is depended on forest produce for their food security.
Kuwar	September-October)	Harvest maize and vegetables, daily wager.	They consume maize and vegetables grown on their own land, collect remunerations as daily wager and purchase necessary groceries for their family.
Kartika	October-November	Harvest maize and vegetables, daily wager, collect amla fruits.	Amla collected from forest are sold to the local contractor or shopkeeper in exchange of their needs.
Pus	December-January	Rice (paddy) from their own fields	They harvested the produce with the help of their community members on providing services for each-others land.
Magh	January-Feburary	agricultural produce	Post-harvest activities at home and on other farms that fetch them part of the agriculture produce.
Fagun	February-March	Agriculture produce – grains, potatoes etc.	Post-harvest activities at home and on other farms that fetch them part of the agriculture produce.

Conclusion

Kharwar tribes who were traditionally hunters are now engaged in farming. Their food security is poor for their subsistence. At the time when efforts are being made to double farmers' income, the needs of tribal communities engaged in agriculture should also be attended. The Socio-economic status and their income profiles should be researched and examined for doubling of their income and ensuring food security through sustainable agriculture. Efforts for research on the agrarian tribes with special focus on the tribe that are in pocket areas are need of the hour to help them grow with time and contribute in the mainstream. Researches on value addition of food and other forest produce (common and uncommon) are needed so that the capacity building of the tribals through these technologies can sustain them. Their agriculture ITKs and improvements in their technologies will not only preserve their knowledge but also provide opportunities for tribal to grow and development.

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