



Food Security Issues in Uttarakhand: Problem and Challenges

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ABSTRACT: Uttarakhand also known as Uttaranchal is a state in northern India. It is often referred to as the "Devbhumi" (lit. 'Land of the Gods')^[22] due to its religious significance and numerous Hindu temples and pilgrimage centres found throughout the state. Uttarakhand is known for the natural environment of the Himalayas, the Bhabar and the Terai regions. It borders the Tibet Autonomous Region of China to the north; the Sudurpashchim Province of Nepal to the east; the Indian states of Uttar Pradesh to the south and Himachal Pradesh to the west and north-west. The state is divided into two divisions, Garhwal and Kumaon, with a total of 13 districts. The winter capital of Uttarakhand is Dehradun, the largest city of the state, which is a rail head. Gairsain, a town in Chamoli district, is the summer capital of Uttarakhand declared on 5 March 2020.^{[23][24]} The High Court of the state is located in Nainital, but is to be moved to Haldwani in future.^[25]

KEYWORDS-Uttarakhand, food security, issues, problems , challenges

I. INTRODUCTION

Archaeological evidence supports the existence of humans in the region since prehistoric times. The region formed a part of the Uttarakuru Kingdom during the Vedic age of Ancient India. Among the first major dynasties of Kumaon were the Kunindas in the second century BCE who practiced an early form of Shaivism. Ashokan edicts at Kalsi show the early presence of Buddhism in this region. During the medieval period, the region was consolidated under the Katyuri rulers of Kumaon also known as 'Kurmanchal Kingdom'.^[26] After the fall of Katyuris, the region was divided into the Kumaon Kingdom and the Garhwal Kingdom. In 1816, most of modern Uttarakhand was ceded to the British as part of the Treaty of Sugauli. Although the erstwhile hill kingdoms of Garhwal and Kumaon were traditional rivals, the proximity of different neighbouring ethnic groups and the inseparable and complementary nature of their geography, economy, culture, language, and traditions created strong bonds between the two regions, which further strengthened during the Uttarakhand movement for statehood in the 1990s.^[1,2,3]

The natives of the state are generally called Uttarakhandi, or more specifically either Garhwali or Kumaoni by their region of origin. According to the 2011 Census of India, Uttarakhand has a population of 10,086,292, making it the 20th most populous state in India.^[27]

Uttarakhand's name is derived from the Sanskrit words *uttara* (उत्तर) meaning 'north', and *khaṇḍa* (खण्ड) meaning 'land', altogether simply meaning 'Northern Land'. The name finds mention in early Hindu scriptures as the combined region of "Kedarkhand" (present day Garhwal) and "Manaskhand" (present day Kumaon). Uttarakhand was also the ancient Puranic term for the central stretch of the Indian Himalayas.^[28]

However, the region was given the name *Uttaranchal* by the Bharatiya Janata Party-led union government and Uttarakhand state government when they started a new round of state reorganisation in 1998. Chosen for its allegedly less-separatist connotations, the name change generated enormous controversy among many activists for a separate state who saw it as a political act.^[29] The name Uttarakhand remained popular in the region, even while Uttaranchal was promulgated through official usage.^[citation needed]

In August 2006, Union Council of Ministers assented to the demands of the Uttaranchal Legislative Assembly and leading members of the Uttarakhand statehood movement to rename Uttaranchal state as Uttarakhand. Legislation to that effect was passed by the Uttaranchal Legislative Assembly in October 2006,^[30] and the Union Council of Ministers brought in the bill in the winter session of Parliament. The bill was passed by the Parliament and signed into law by then President A. P. J. Abdul Kalam in December 2006, and since 1 January 2007 the state has been known as Uttarakhand.^[31]

Uttarakhand has a diversity of flora and fauna. It has a recorded forest area of 34,666 km² (13,385 sq mi), which constitutes 65% of the total area of the state.^[57] Uttarakhand is home to rare species of plants and animals, many of which are protected by sanctuaries and reserves. National parks in Uttarakhand include the Jim Corbett National



Park (the oldest national park of India) in Nainital and Pauri Garhwal District, and Valley of Flowers National Park & Nanda Devi National Park in Chamoli District, which together are a UNESCO World Heritage Site. A number of plant species in the valley are internationally threatened, including several that have not been recorded from elsewhere in Uttarakhand.^[58] Rajaji National Park in Haridwar, Dehradun and Pauri Garhwal District and Govind Pashu Vihar National Park & Gangotri National Park in Uttarkashi District are some other protected areas in the state.^[59]

Leopards are found in areas that are abundant in hills but may also venture into the lowland jungles. Smaller felines include the jungle cat, fishing cat, and leopard cat. Other mammals include four kinds of deer (barking, sambar, hog and chital), sloth, Brown and Himalayan black bears, Indian grey mongooses, otters, yellow-throated martens, bharal, Indian pangolins, [4,5,6] and langur and rhesus monkeys. In the summer, elephants can be seen in herds of several hundred. Marsh crocodiles (*Crocodylus palustris*), gharia (*Gavialis gangeticus*) and other reptiles are also found in the region. Local crocodiles were saved from extinction by captive breeding programs and subsequently re-released into the Ramganga river.^[60] Several freshwater terrapins and turtles like the Indian sawback turtle (*Kachuga tecta*), brahminy river turtle (*Hardella thurjii*), and Ganges softshell turtle (*Trionyx gangeticus*) are found in the rivers. Butterflies and birds of the region include red helen (*Papilio helenus*), the great eggfly (*Hypolimnos bolina*), common tiger (*Danaus genutia*), pale wanderer (*Pareronia avatar*), jungle babbler, tawny-bellied babbler, great slaty woodpecker, red-breasted parakeet, orange-breasted green pigeon and chestnut-winged cuckoo.^[61] In 2011, a rare migratory bird, the bean goose, was also seen in the Jim Corbett National Park. A critically endangered bird, last seen in 1876 is the Himalayan quail endemic to the western Himalayas of the state.^[62]

Evergreen oaks, rhododendrons, and conifers predominate in the hills. *sal* (*Shorea robusta*), silk cotton tree (*Bombax ciliata*), *Dalbergia sissoo*, *Mallotus philippensis*, *Acacia catechu*, *Bauhinia racemosa*, and *Bauhinia variegata* (camel's foot tree) are some other trees of the region. *Albizia chinensis*, the sweet sticky flowers of which are favoured by sloth bears, are also part of the region's flora.^[61] A decade long study by Prof. Chandra Prakash Kala concluded that the Valley of Flowers is endowed with 520 species of higher plants (*angiosperms*, *gymnosperms* and *pteridophytes*), of these 498 are flowering plants. The park has many species of medicinal plants including *Dactylorhiza hatagirea*, *Picrorhiza kurroa*, *Aconitum violaceum*, *Polygonatum multiflorum*, *Fritillaria roylei*, and *Podophyllum hexandrum*.^{[63][64]} In the summer season of 2016, a large portion of forests in Uttarakhand caught fires and rubbed to ashes during Uttarakhand forest fires incident, which resulted in the damage of forest resources worth billions of rupees and death of 7 people with hundreds of wild animals died during fires. During the 2021 Uttarakhand forest fires, there was widespread damage to the forested areas in Tehri district.^[65]

A number of native plants are deemed to be of medicinal value.^[66] The government-run Herbal Research and Development Institute carries out research and helps conserve medicinal herbs that are found in abundance in the region. Local traditional healers still use herbs, in accordance with classical Ayurvedic texts, for diseases that are usually cured by modern medicine.^[67]

II. DISCUSSION

The primary food of Uttarakhand is vegetables with wheat being a staple, although non-vegetarian food is also served. A distinctive characteristic of Uttarakhand cuisine is the sparing use of tomatoes, milk, and milk-based products. Coarse grain with high fibre content is very common in Uttarakhand due to the harsh terrain. Crops most commonly associated with Uttarakhand are Buckwheat (locally called *Kotu* or *Kuttu*) and the regional crops, *Maduwa* and *Jhangora*, particularly in the interior regions of Kumaon and Garhwal. Generally, either Desi Ghee or Mustard oil is used for the purpose of cooking food. Simple recipes are made interesting with the use of hash seeds *Jakhya* as spice, chutney made of Bhang is also a regional cuisine. Bal Mithai is a popular fudge-like sweet. Other popular dishes include Dubuk, Chains, Kap, Bhatiya, Jaula, Phana, Paliyo, Chutkani and Sei. In sweets; Swal, Ghughut/Khajur, Arsa, Mishri, Gatta and Gulgulas are popular. A regional variation of Kadhi called *Jhoi* or *Jholi* is also popular.^[87]

The Uttarakhand state is the second fastest growing state in India.^[100] Its gross state domestic product (GSDP) (at constant prices) [7,8,9] more than doubled from ₹24,786 crore in FY2005 to ₹60,898 crore in FY2012. The real GSDP grew at 13.7% (CAGR) during the FY2005–FY2012 period. The contribution of the service sector to the GSDP of Uttarakhand was just over 50% during FY 2012. Per capita income in Uttarakhand is ₹ 198738 (FY 2018–19), which is higher than the national average of ₹ 126406 (FY 2018–19).^{[101][102]} According to the Reserve Bank of India, the total foreign direct investment in the state from April 2000 to October 2009 amounted to US\$46.7 million.^[103]

Like most of India, agriculture is one of the most significant sectors of the economy of Uttarakhand. Basmati rice, wheat, soybeans, groundnuts, coarse cereals, pulses, and oil seeds are the most widely grown crops. Fruits like apples, oranges, pears, peaches, lychees, and plums are widely grown and important to the large food processing industry. Agricultural export zones have been set up in the state for lychees, horticulture, herbs, medicinal plants, and basmati



rice. During 2010, wheat production was 831 thousand tonnes and rice production was 610 thousand tonnes, while the main cash crop of the state, sugarcane, had a production of 5058 thousand tonnes. As 86% of the state consists of hills, the yield per hectare is not very high. 86% of all croplands are in the plains while the remaining is from the hills.^[104] The state also holds the GI tag for Tejpatta (*Cinnamomum tamala*) or Indian bay leaf, which is known to add flavour to dishes and also possesses several medicinal properties.^[105]

Economy of Uttarakhand at a Glance ^[106]	
figures in crores of Indian rupees	
Economy at a Glance (FY-2012)	In Indian rupees
GSDP (current)	₹95,201
Per capita income	₹103,000

Other key industries include tourism and hydropower, and there is prospective development in IT, ITES, biotechnology, pharmaceuticals and automobile industries. The service sector of Uttarakhand mainly includes tourism, information technology, higher education, and banking.^[104]

During 2005–2006, the state successfully developed three Integrated Industrial Estates (IIEs) at Haridwar, Pantnagar, and Sitarganj; Pharma City at Selakui; Information Technology Park at Sahastradhara (Dehradun); and a growth centre at Sigaddi (Kotdwar). Also in 2006, 20 industrial sectors in public private partnership mode were developed in the state.^[107]

On the occasion of World Food Day Union Health Minister Mansukh Mandaviya released the 4th State Food Safety Index (SFSI) of the Food Safety and Standards Authority of India (FSSAI), in which Uttarakhand has been ranked 7th.

Mandaviya launched various innovative initiatives including The Eat Right Research Awards and Grants Phase-II, Eat Right Creativity Challenge Phase-III, a competition at the school level by FSSAI.

Tamil Nadu topped the Food Security Index, 2021-22 among 17 large states with 82 points, while Gujarat is second with 77.5 points and Maharashtra is third with 70 points.[10,11,12]

Uttarakhand is at the 7th position with 55 points in the category of big states.

Among the smaller states, Goa retained its top ranking, while Manipur and Sikkim secured the second and third positions. Among the Union Territories, Jammu and Kashmir, Delhi and Chandigarh secured the top three ranks.

It may be recalled that the states have been assessed on five parameters of food security - human resources and institutional data, compliance, food testing facilities, training and capacity building and consumer empowerment.

The Food Security Index was launched in 2018-19 with the aim of bringing about a competitive and positive change in the food security ecosystem in the country. The move was also taken to motivate the states and Union Territories to work towards ensuring safe food for citizens.[13,14,15]

III. RESULTS

There is an urgent need for location-specific interventions to address the critical issue of household food insecurity in the hilly terrains of rural Uttarakhand. That is the conclusion of researchers from Govind Ballabh Pant University of Agriculture and Technology, Pantnagar, in a new study published in *Ecology of Food and Nutrition*.

The result is based on a survey of 155 households in rural-hilly areas of Kumaon, Uttarakhand using a cross-culturally validated Household Food Insecurity Access Scale.[16,17,18]

Inadequate access to food both in terms of quantity and quality refers to food insecurity. Achieving food security is a global policy challenge in the view of population growth and limited resources. With a population of 1.01 crores, the state of Uttarakhand faces the challenge of migration, weak infrastructure, adverse climatic events, unemployment, and underdeveloped markets. Ensuring food security and food access to the state's inhabitants requires a coordinated framework of targeted policies and concerted actions. A healthy, balanced, and diverse diet can ensure both food and nutritional security. Availability, accessibility, stability, and utilization are the four pillars that entail the broad nature of



food security. Integration of stakeholders from various sectors is required to develop a holistic framework for ensuring food access and food security.

More than half of the households, *i.e.*, 63%, were food insecure in the reported study. One in every two families, at least one individual, consumed non-preferred kinds of foods. Due to a lack of resources, one out of four households ate undesirable food items. Inadequate food quality and lack of variety in the diet were identified as the primary food insecurity domain among the families. [19,20,21] Lack of access to markets and lower incomes are two significant factors deteriorating food security and food access in the reported study. The study also assessed the dietary diversity of the households and found lower intakes of fruits, vegetables, and animal foods.

The researchers examined the association of household food insecurity with socio-demographic factors, socioeconomic status, and dietary diversity. They found that households below the poverty line have higher odds of experiencing food insecurity than households from the above poverty line. The presence of two or more children or adolescents in the family increased the odds of food insecurity four times. Similarly, the lower educational status of the household head, fewer employed family members, and lower social class raised the likelihood of experiencing food insecurity. Income, social class, employment, and poverty are the critical determinants of the accessibility dimension of food security identified in the present study. Similarly, educational status and household composition are essential domains of the utilization dimension of food security that emerged through the reported analysis.

The study highlights the need for a multisectoral approach to solving the problem of food insecurity. The research suggests modification in the objectives of food security policies in India. Shift from food entitlement to education, employment, and household composition is required to ensure food access to the households in hilly terrains of rural Uttarakhand. [22,23,24]

IV. CONCLUSION

Uttarakhand slipped in the State Food Safety Index, got this place among 20 big states of the country.

State Food Safety Index: Serious efforts are needed in Uttarakhand regarding food safety. Based on the report released by FSSAI, Uttarakhand is at 11th place in the list of 20 biggest states of the country, while the neighboring state Uttar Pradesh is at fifth place. [25,26,27]

Serious efforts are needed in Uttarakhand regarding food safety. The State Food Safety Index (SFAI) report is also confirming this. Based on the report released by the Food Safety and Standards Authority of India (FSSAI), Uttarakhand is at 11th place in the list of 20 big states of the country, while the neighboring state Uttar Pradesh is at fifth place. It is a matter of concern that Uttarakhand has slipped four ranks compared to last year. The Food Safety Index has been determined in three categories, in which Uttarakhand is in the first category along with 20 big states of the country. The performance of the states has been done on the basis of 100 percent marks under five parameters of food security. [28,29,30] Among these, Uttarakhand has got relatively low marks in the category of infrastructure and human resources. If we look at the status of food testing in Uttarakhand, there is only one food testing lab in Rudrapur, which is responsible for testing samples of the entire state. The lab was established in Rudrapur in the year 2013. Since then, no serious efforts have been made to improve the standards of food safety in the state. This is the reason why sometimes it takes three to five years for the test report of a food sample to come.

List of duties during festive season

As soon as Holi-Diwali and other festivals approach, the Food Safety Department becomes active in Uttarakhand and checking is started in hotels, dhabas and shops. After this, food samples are taken and sent to the lab located in Rudrapur for testing. This continues for eight-ten days, then the department sleeps peacefully till the next festive season. The officials are not concerned with when the test report of the sample will come and why the report is being delayed. [31,32,33]

Flagrant violation of standards

The food safety department is also responsible for ensuring the quality of food along with its cleanliness. However, if we look at the capital Dehradun, food items are being sold openly in the streets without following the standards. Neither are they kept covered, nor is the cleanliness of the hands of the seller ensured while serving food, but the food safety department does not even go to look at the street food being sold on the roads and streets. Apart from this, it is also the responsibility of the Food Safety Department to make customers aware about food items. [34,35,36]



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