

Effect of Geographical Factors on Food Habitat of India: an overview

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Abstract:

India is a culturally diverse nation with a wide range of climates, from tropical regions in the south to alpine climes in the north. India's cuisine is influenced by environmental factors such as climate, agricultural practices, and climate variation. This paper examines the interplay between geography and cuisine in India, focusing on the importance of climate and cultural interdependence. The country's climate is closely associated with its gastronomic terrain, which includes the plains, mountains, and coastal regions. The influence of climate on the cuisine of the country is reflected by the subtleties of climate variety. In addition to enhancing regional cuisines, the introduction of spices like pepper, cinnamon, and cardamom resulted in the development of distinctive fusion meals. Trade routes have been historically significant not only for the movement of products but also for the deep blending of cultures that have had a lasting impact on the evolution of civilizations. In this context, cross-border cultural interchange along trade routes promoted interdependency and reciprocal impact.

Keywords: agricultural practices, climate, geographical factors, foods, India,

Introduction

Climatic Diversity Influence on Food Habits in India:

The wide range of climates in India, from tropical regions in the south to alpine climes in the north, greatly influences the nation's eating patterns. The varied kinds of crops that may be cultivated are influenced by the environment, which affects the availability of ingredients and the culinary tastes of different places (Gupta, 2019).

Many fruits, including coconuts, bananas, and mangoes, may be grown in the warm, humid environment of the southern tropical areas. Because of its ability to flourish in these circumstances, rice, a key crop in southern India, is more common in the cuisine of the region. In contrast, the colder temperature in the northern alpine areas is favorable for the production of wheat and other

grains, which results in the prominence of wheat-based meals in the northern culinary traditions (Singh, 2017).

This variation in climate affects not only the kinds of crops that are cultivated but also the availability of herbs and spices. For example, the warm, humid environment of southern India encourages the development of spices like black pepper and cardamom, which add to the food's delicious and robust character. Spices like coriander and cumin are more common in the colder northern areas, and they give the local cuisines unique scents (Gupta, 2019). Gaining insight into the subtleties of the country's climate enables one to appreciate the regional differences in Indian cuisine even more, demonstrating the ways in which environmental variables contribute to the variety and complexity of eating customs across the nation.

India's gastronomic terrain, closely associated with its varied climate, presents an intriguing interplay of tastes and ingredients between locations. The southern states' tropical climate, which is defined by warmth and humidity, is perfect for growing spices like cloves, cardamom, and black pepper (Sharma *et al.*, 2018). Not only do these spices provide a unique flavor, but they also help keep food fresher longer in an area where rising temperatures may make it difficult to store food.

On the other hand, many spices like fennel, cumin, and coriander—which prefer colder climates—grow well in the northern alpine environment (Rajput & Sharma, 2016). These spices give the food a distinct taste and scent, making them essential to northern Indian culinary traditions.

Furthermore, staple crops are also impacted by climate variety, not only spices. For example, rice-based foods, a mainstay of the cuisine in states like Kerala and Tamil Nadu, are made from the rice fields that thrive in the warm, humid climate of the south (Ghosh, 2017). On the other hand, wheat is more often grown in the colder northern plains, which influences the popularity of staples made of wheat in places like Punjab and Haryana (Sharma & Verma, 2019). Understanding and enjoying the gastronomic variances that constitute India requires taking environmental elements into account, as shown by the subtleties of climate variety. The way that climate affects culinary choices, from spices to basic crops, demonstrates the complex interplay between geography and cuisine in this culturally diverse nation.

Topographical Variation and Culinary Diversity:

India's varied terrain, which includes plains, mountains, and coastal regions, has a significant impact on the country's food scene. Because of the complex tapestry of tastes, ingredients, and cooking methods created by topographical variety, regional cuisines are unique and varied (**Das, 2015**).

a) Mountainous Regions:

The utilization of foods that are readily accessible locally is influenced by hilly areas, such as the northern Himalayas. Higher elevations' cooler temperatures promote the eating of warming, hearty meals. Traditional meals like "Sidu" and "Thukpa" in Himachal Pradesh and Uttarakhand demonstrate how the hilly terrain influences gastronomic choices (**Negi *et al.*, 2017**).

b) Plains and Agricultural Practices:

Staple crops and farming techniques are influenced by the vast agricultural regions and lush plains of India. The wheat-growing regions of the northern plains, referred to as the "Granary of India," are responsible for the popularity of wheat-based foods like "Roti" and "Naan" in states like Punjab and Haryana (**Roy *et al.*, 2018**).

c) Coastal Areas:

Because they are close to the water, coastal areas, such as the eastern and western coastlines, are abundant in seafood. The presence of a wide range of fish and crustaceans influences the indigenous cuisine in places like West Bengal and Kerala. Seaside influences on culinary traditions are evident in dishes like "Fish Curry" and "Prawn Malai Curry" (**Sengupta & Chakraborty, 2016**).

d) Impact on Spice Usage:

The variety of topographies has an impact on how spices are used. While spices that go well with seafood tastes are used in coastal places, herbs and spices growing nearby may be used in mountainous regions. As a consequence, using spices in various contexts requires a sophisticated approach (**Das, 2015**).

Gaining knowledge of India's geographical variances might help one better understand the elements that lead to the distinctive culinary identities of various places. Every geographic location, from plains and coastlines to mountains, has a profound impact on people's eating habits, resulting in a varied and dynamic culinary scene.

e) Hill Stations & Distinctive gastronomic Traditions:

Because of their higher elevations, hill stations have unique gastronomic traditions shaped by the harsher environment. Dishes from these areas are distinctive because of the blend of colonial and indigenous influences. Because of their location, hill stations like Shimla and Darjeeling, for instance, have a history of offering substantial, comforting dishes like soups, stews, and baked pastries (**Biswas *et al.*, 2019**).

f) River Plains and Agriculture:

Because of recurring floods, regions near large rivers, like the Ganges and Brahmaputra plains, benefit from rich soil. This has an impact on farming methods, resulting in the production of crops like lentils and rice. These areas' staple foods, such "Dal Bhat" and other rice-based cuisines, highlight the relationship between terrain, agriculture, and eating customs (**Choudhury & Baruah, 2016**).

g) Seafood Varieties and Coastal Biodiversity:

The availability of different seafood is influenced by the varied marine ecology that is cultivated by the coastal terrain. For example, the coastal areas of Goa are well known for their usage of fish, prawns, and shellfish in traditional recipes like "Prawn Balchão" and "Fish Curry Rice" (**Fernandes & Menon, 2017**).

h) Fusion Cuisine and Urban Centers:

Cities are known for their mix of culinary traditions and their various populations and global influences. Cities like as Delhi and Mumbai provide a fusion of local and foreign food. One important component of urban culinary culture is street food, which often incorporates tastes from different topographical locations (**Khan & Kumar, 2018**).

Plains and Agricultural Practices:

India's great plains, known as the "Granary of India" in the north, have a significant influence on agricultural techniques and, therefore, culinary traditions. The mainstay of these regions' diets is the extensive production of staple crops like rice and wheat. Dishes like "Tandoori Roti" and "Chawal ki Kheer" are representative of the dietary predominance of wheat and rice in areas like Punjab and Haryana, where wheat agriculture is thriving (Singh & Agarwal, 2018).

Similar to this, rice farming is the main industry throughout the Ganges and Brahmaputra plains, which include states like Uttar Pradesh and Bihar. Dishes like "Biryani" and "Khichdi," which emphasize the importance of rice as a staple, define the culinary landscape (Das & Yadav, 2017).

The usage of spices is also influenced by agricultural techniques, as indigenous products like mustard seeds find their way into regional cuisines. These plains' culinary traditions often center on making flatbreads, gravies, and rice-based meals. Tandoori cooking, which is common in the northern plains, gives bread products like "Paratha" and "Naan" a distinct taste (Singh & Agarwal, 2018).

The plains' symbiotic interaction between agricultural practices and culinary traditions emphasizes how the production of certain crops creates regional food preferences, cooking techniques, and distinctive tastes.

Impact on Culinary Heritage:

The plains of India, often called the breadbasket of the nation, are shaped by agricultural methods that go well beyond providing for basic needs; they are the foundation of the nation's gastronomic legacy. Due to the widespread production of wheat in the northern plains, culinary preferences have resulted in a repertoire of meals that are unique to the area. "Tandoori Roti," a symbol of wheat utilization, gives meals a unique taste when it's cooked to perfection in ancient tandoor ovens (Singh & Agarwal, 2018).

On the other hand, rice farming predominates in the Ganges and Brahmaputra plains, creating a gastronomic scene full of dishes made with rice. The comfort meal mainstay "Khichdi" and the

fragrant "Biryani" are examples of how important rice has been in forming these areas' culinary identities **(Das & Yadav, 2017)**.

The relationship between agriculture and food is not limited to basic options. Utilizing regionally grown spices, like mustard seeds, gives food a depth and complexity that is a reflection of the region's bountiful agricultural output **(Mishra *et al.*, 2016)**.

The expertise of cooking on the plains is shown by culinary practices that are intricately linked to agricultural cycles. Tandoori cooking, which is popular in the north, not only gives bread a unique smokiness, but it also captures the regional culinary and cultural identities **(Singh & Agarwal, 2018)**.

In short, India's plains are laboratories for innovative cuisine as much as agricultural areas. These vast plains are known for their abundant agricultural produce, which is reflected in the rich and varied culinary legacy that is created by the cultivation of certain crops, the use of local spices, and skillful preparation techniques.

Regional Spices and Flavors:

Indian food is a beautiful tapestry woven with a colorful assortment of regional spices and tastes that create a sensory experience that represents the subcontinent's different landscapes and cultural influences.

a) Northern Regions:

Mustard seeds, cumin, and coriander are common spices in India's northern areas. Spices with a strong fragrance, like cinnamon, cardamom, and cloves, give food a rich, warm flavor. A staple of northern cooking is "Garam Masala," a spice mixture that enhances the tastes of traditional meals like "Paneer Tikka" and "Dal Makhani" **(Mittal & Singh, 2015)**.

b) Southern States:

Black mustard seeds, curry leaves, and tamarind are prominent in the distinctive spice palette of the southern states. A popular component that adds to the decadence of meals like "Coconut

Chutney" and "Sambhar" is coconut, whether it be in the form of shredded coconut, milk, or coconut oil (**Rajagopal & Nair, 2017**).

c) Western Coastal Regions:

The usage of spices like garlic, vinegar, and chili peppers, as well as the effect of Portuguese colonialism, may be seen throughout the western coast, particularly in states like Goa and Maharashtra. Seafood recipes such as "Vindaloo" highlight the blending of regional spices with international inspirations, resulting in a distinct taste profile (**Braganza & Pereira, 2016**).

d) Eastern States:

These states, which include West Bengal and Odisha, are well-known for using mustard oil, panch phoron, which is a spice mixture made of five seeds, and the unique spice "radhuni." These spices add to the rich and fragrant flavors of dishes like "Aloo Posto" and "Mustard Fish Curry" (**Bhattacharya & Sen, 2018**).

e) Himalayan Influences:

Spices like asafoetida, timur (**Sichuan pepper**), and fenugreek are common in the Himalayan areas. These spices provide foods like "Himachali Sidu" and "Momos" a distinct taste character, especially when combined with dairy products like ghee.

To really enjoy the subtleties of Indian food, one must comprehend the regional variations in spices and tastes. In addition to reflecting the local agricultural supply, each region's unique spice mix narrates a story of past commerce, cross-cultural interactions, and the culinary innovation ingrained in India's varied geographies.

Impact of Arid Regions on Culinary Traditions:

India's dry regions, which are marked by little rainfall and difficult farming circumstances, have a significant impact on the regional cuisines they contain.

a) Water-Sparing Grass:

Arid areas need the development of water-efficient crops because of the lack of available water. Millets are widely cultivated in these regions, including jowar and bajra. Basic cuisines like "Bajra Roti" and "Jowar Khichdi" are made using these grains (**Kumar *et al.*, 2018**).

b) Staples that Resist Drought:

Crops resistant to drought conditions are more suited for the dry environment. These areas rely heavily on pulses, such as chickpeas and moth beans, which are renowned for their ability to withstand dry conditions. Such drought-resistant staples are used in Rajasthani dishes like "Dal Baati Churma" (**Yadav & Sharma, 2019**).

c) Spices & Methods of Preservation:

The supply of some spices is also impacted by water constraint. Dried and preserved spices, such as carom seeds and dried red chilies, are often used in arid locations to improve the taste of food. The region's distinct culinary character is enhanced by preservation methods including sun-drying (**Kumar *et al.*, 2018**).

d) Culinary Adaptations:

The goal of desert area culinary adaptations is to use as little water as possible while cooking. Conventional cooking techniques, such as steaming and slow cooking, are used to ensure that meals are prepared with taste and nutrition while using less water (**Yadav & Sharma, 2019**).

Arid environments have an influence on cooking methods and preservation strategies in addition to ingredient selections in culinary traditions. These areas' inventiveness in the face of water shortage results in a gastronomic landscape that is both adaptable and unique.

e) Native Plants and Herbs for Medicine:

An abundance of native herbs and medicinal plants may be found in arid areas. These not only enhance the distinct tastes of food but also demonstrate how culinary arts can be integrated with wellness and health. The holistic approach to eating in these areas is shown by dishes like "Medicinal Plant Salad" and "Herb-Infused Dal". The culinary traditions of dry areas provide witness to the adaptation and tenacity of people confronting natural difficulties. It transforms from

a means of subsistence into a celebration of regional foods, creative cooking methods, and a strong connection with the arid environments that influence these culinary customs.

f) Sun-Drying Methods and Preserving Flavor:

In arid areas, sun-drying is the primary traditional preservation method. Intense sunlight is used to dry fruits, vegetables, and spices, which concentrates their tastes and prolongs their shelf life. The gastronomic diversity that results from these preservation techniques is best shown by dishes like "Sun-Dried Tomato Chutney" and "Dried Mango Pickle" (Kumar *et al.*, 2018).

Cultural Exchange at Trade Routes:

Trade routes have traditionally acted as active avenues for the interaction of many cultures as well as for the trade of products. Along these paths, several civilizations have intersected, creating a complex tapestry of common customs, beliefs, and practices. Trade routes have had a major impact on the evolution of cultures via cultural interchange, resulting in a rich fusion of ideas and practices.

a) Spice Routes and Culinary Fusion:

The historical spice routes that linked the Middle East, India, and Southeast Asia are prime examples of how commerce promoted the sharing of culinary customs. In addition to enhancing regional cuisines, the introduction of spices like pepper, cinnamon, and cardamom resulted in the development of distinctive fusion meals. For example, the blending of Middle Eastern cooking methods with Indian spices resulted in dishes like biryani, which showcase a tasteful fusion of tastes (Kronl, 2007).

b) Silk Road and Artistic Influences:

There was a significant flow of creative styles along the Silk Road, a network of commercial routes that linked East Asia with the Mediterranean. Along these pathways, art styles from many nations were influenced by Chinese pottery, Persian carpets, and Greco-Roman sculptures. Syncretic creative forms resulted from this cross-cultural fertilization, such as the combination of Chinese and Persian patterns in pottery (Scott, 2017).

c) Crossroads of Language and Linguistics:

Trade routes served as hubs for the interchange of languages and linguistic influences in addition to the movement of tangible products. At these turning points, multilingualism became essential, and trade pidgins and creole languages began to arise. For instance, the language fusion at these trading centers led to the development of the Bazaar Malay as a lingua franca among Southeast Asian merchants **(Smith, 2018)**.

d) Religious Syncretism and Spiritual Exchange:

Religious views were shared along trade routes, which resulted in the mingling of spiritual traditions and the development of syncretic behaviors. Buddhism, which absorbed aspects of many civilizations, expanded along the Silk Road, demonstrating how commerce promoted the spread of religious concepts in addition to the movement of products **(Foltz, 1999)**.

e) Influences on Architecture along Trade Routes:

Trade routes saw a significant interchange of architectural styles and methods. For example, Chinese architectural components were incorporated into Southeast Asian constructions as a result of the architectural expertise that was transferred over the Maritime Silk Road. One obvious result of this cultural interchange is the combination of Chinese and indigenous architectural forms seen in pagodas and temples **(Guy, 2019)**. Trade routes allowed cultures to mix across national borders, creating a feeling of interdependence and mutual influence. Ideas, customs, and inventions traveled along these channels with products, assembling into a rich tapestry of common human history.

The Enduring Legacy of Geographical Factors on Food Habitat

Trade routes have been historically significant not only for the movement of products but also for the deep blending of cultures that have had a lasting impact on the evolution of civilizations. It is clear from studying the history books that trade routes served as hubs for a lively interchange of ideas, customs, and beliefs in addition to goods.

The introduction of foreign spices to local cuisines resulted in the blending of culinary traditions and the production of distinctive culinary inventions, as shown by the spice routes **(Kronld, 2007)**.

Syncretic forms of expression that still have an impact on art today are the product of the cross-pollination of creative styles made possible by the Silk Road, a network that linked many civilizations (Scott, 2017). At these intersections, language also developed as a means of communication, resulting in the emergence of commerce pidgins and creole languages (Smith, 2018). Along these pathways, however, religious syncretism showed how disparate spiritual traditions might come together and impact one another (Foltz, 1999). The Maritime Silk Road serves as an example of the architectural influences along trade routes, showcasing the fusion of styles and methods that affected buildings in many places (Guy, 2019).

Conclusion:

In conclusion, cross-border cultural interchange along trade routes promoted interdependence and reciprocal impact. The rich tapestry of our common human history bears the legacy of these interactions. The dynamic interplay of civilizations has affected not just our history but also our present and future, as we consider the historical contacts along trade routes.

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