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# An assessment of level of food absorption among people of Purvanchal

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**Abstract**
The paper focuses on the food absorption index (FAI) in the Purvanchal, geographically a very fertile land in the lap of Ganga, but the situation about the term in food is far behind the average of India. Taking into account the current situation of population benefitting with government policies as well as their own efforts and choices author has tried to extract a picture on the canvas of reality. The food absorption index (FAI) is a true indicator of any region in identifying and analyzing the progress and development over a period of time in real sense. Despite India's recent record of high rates of economic growth, there is a major concern with the failure of that growth to translate itself into proportionate reduction in poverty and malnutrition (Food Security Atlas, 2010).

**Keywords:** Food absorption index, safe drinking water, primary health centre, women education

## Introduction
Food security is defined in the World Food Summit (1974) as *'availability at all times of adequate world food supplies of basic foodstuffs to sustain a steady expansion of food consumption and to offset fluctuations in production and prices'* (UN 1975). Initially the focus and the global concern were only on the volume and stability of food supplies. Later it became clear that availability and supply alone can't ensure food security and people need access to that food to gain their 'entitlement' (Sen 1981). Even if availability and accessibility is satisfactory, the biological absorption of food in the body will be determined by the consumption of safe drinking water, primary health care and women education.

For instance, we find that female literacy is consistently higher in food secure districts and consistently lower in food insecure districts that only show a co-relation between female literacy and food security. Whether it is empowerment of women agency contributing to a better utilization of household income, or through literate women having a better knowledge of improved nutritional practices, or some other relation, it is for analysis to bring out these relations.

Food absorption means being able to assimilate the food consumed for a healthy life. Availability of food is the first step. Livelihood access and physical access to food constitute the second step. "*Food absorption or assimilation of the food into the body is the final step in achieving food security for a healthy and long life*" (Swaminathan, 2003) [9].

The ability of the body to translate the food intake into nutritional status is mediated by a number of factors, some genetic and others related to hygiene and morbidity. It has been estimated that in the developing countries, one out of five people do not use safe water, and roughly half are without adequate sanitation (WHO, 2007). Clearly, in countries where a large part of the population does not have access to safe drinking water, a substantial number of these infections will be waterborne, indeed, Hunter (1997). Drinking water supply and sanitation in India continue to be inadequate, despite long-standing efforts by the various levels of government organizations and communities at improving coverage. The level of investment in water and sanitation, albeit low by international standards, has increased during the 2000s. Access has also increased significantly. For example, in 1980 rural sanitation coverage was estimated at 1 per cent and reached 21 per cent in 2008.

**Study Area**

Geographically Purvanchal is a very fertile land in the lap of Ganga, The region extends between 28˚44″ N to 24˚26″ N latitude and 80˚03″E to 83˚00″E longitude covering an area of about 85,845 sq. kms. Purvanchal consists of 27 districts of Uttar Pradesh but the situation about the term in food is far behind these geographical location and average of India. Taking into account the current situation of population benefitting with government policies as well as their own efforts and choices author has tried to extract a picture on the canvas of reality.

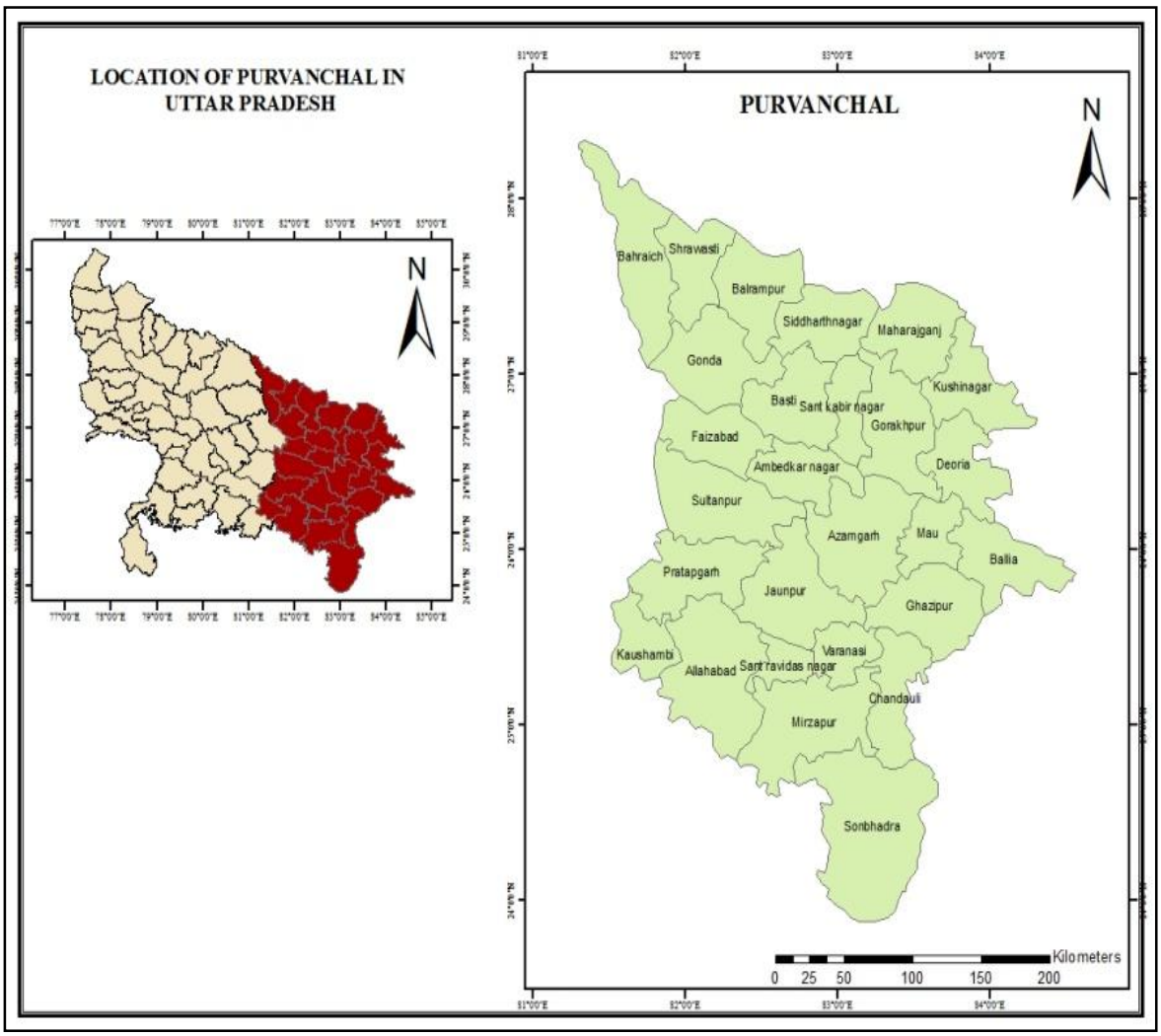


**Fig 1:** Study Area

The food absorption index (FAI) is a true indicator of any region in identifying and analyzing the progress and development over a period of time in real sense. A widely accepted and comprehensive definition of Food Security of World Food Summit 1996 [FAO1996] "*Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food which meets their dietary needs and food preferences for an active and healthy life*", the definition clearly defines that this navigates between capacity of the body to absorb food and the availability of that food in a hygienic way. Taking into account the twin indicators of access to safe drinking water and primary health centers, an absorption index has been calculated. (Table 1) shows the Indicators of Food Absorption index of the Purvanchal.

**Materials Data Base and Methodology**

The study is entirely based on secondary data obtained from Economic and Statistics Department Lucknow (Statistical Bulletins) of all the districts of Purvanchal. Besides, these data of water and sanitary has been obtained from NIC department of Lucknow, Uttar Pradesh and Census of India for different periods. For the calculation of Food Absorption Index (FAI) Max-Min (range estimation method) approach has been adopted. An index for each variable has been constructed. This is calculated by applying the following general Range Equalization Method (REM) adopted by the UNDP (HDR, 2005).

The formula is as under;

Variable Index = (Xi –Min X) / (Max X-Min X)

Where Xi = value of the variable

Min X= Minimum value of X in the scaling

Max X = Maximum value of X in the scaling

**Table 1:** Indicators of Food Absorption, Purvanchal 1991, 2001

| Districts | PHCs (Per Lakh Population) | PHCs (Per Lakh Population) | Safe Water (Per Lakh Population) | Safe Water (Per Lakh Population) |
|---|---|---|---|---|
| | 1991 | 2001 | 1991 | 2001 |
| Bahraich | 23.85 | 62.86 | 808 | 1195 |
| Shrawasti | 7.63 | 27.05 | 419 | 598 |
| Balrampur | 23.18 | 40.88 | 998 | 998 |
| Gonda | 46.65 | 76.88 | 1811 | 1811 |
| Siddharthnagar | 38.59 | 62.01 | 121 | 1693 |
| Basti | 48.38 | 70.46 | 126 | 142 |
| Santkabirnagar | 17.03 | 30.96 | 605 | 1561 |
| Maharajganj | 32.8 | 55.21 | 218 | 1185 |
| Gorakhpur | 8.78 | 36.2 | 2879 | 2865 |
| Deoria | 44.09 | 58.43 | 2004 | 1990 |
| Kushinagar | 43.84 | 72.04 | 1546 | 1546 |
| Ballia | 42.08 | 56.49 | 301 | 796 |
| Mau | 21.26 | 54.23 | 156 | 1472 |
| Azamgarh | 46.6 | 82.8 | 3661 | 3721 |
| Faizabad | 22.77 | 62.04 | 2636 | 1233 |
| Ambedkarnagar | 16.52 | 34.05 | 1652 | 1677 |
| Sultanpur | 51.94 | 77.73 | 2495 | 2495 |
| Pratapgarh | 45.03 | 83.02 | 206 | 180 |
| Jaunpur | 58.79 | 98.02 | 785 | 2192 |
| Allahabad | 69.63 | 97.8 | 154 | 1539 |
| Kaushambi | 23.94 | 46.94 | 200 | 747 |
| Mirzapur | 34.06 | 70.04 | 1168 | 1168 |
| Ghazipur | 43.88 | 85.65 | 1663 | 3461 |
| Varanasi | 50.91 | 92.59 | 623 | 771 |
| Chandauli | 21.91 | 38.12 | 400 | 818 |
| Sant Ravidas Nagar | 6.85 | 22.06 | 210 | 484 |
| Sonbhadra | 20.95 | 48 | 212 | 1120 |

**Source:** Calculated by Author Data Economic and Statistics Department Lucknow

Based on the twin indicators of access to safe drinking water and primary health centers, an absorption index has been calculated. (Table: 2) (Figure: 2a, b) show the pattern of Food Absorption capacity index of the study area.

**Table 2:** Food Absorption Capacity Index and Per cent Change of Purvanchal

| Districts | 1991 | | 2001 | | Change in Rank 1991-2001 | |
|---|---|---|---|---|---|---|
| | Index | Rank | Index | Rank | Index | Rank |
| Bahraich | 0.23 | 19 | 0.42 | 14 | 78.84 | 5 |
| Shrawasti | 0.05 | 26 | 0.10 | 26 | 99.89 | 0 |
| Balrampur | 0.25 | 17 | 0.24 | 24 | -4.12 | -7 |
| Gonda | 0.56 | 4 | 0.59 | 6 | 6.90 | -2 |
| Siddharthnagar | 0.25 | 18 | 0.48 | 11 | 89.74 | 7 |
| Basti | 0.33 | 13 | 0.32 | 18 | -3.88 | -5 |
| Santkabirnagar | 0.15 | 22 | 0.26 | 22 | 71.86 | 0 |
| Maharajganj | 0.22 | 20 | 0.36 | 17 | 65.14 | 3 |
| Gorakhpur | 0.40 | 11 | 0.47 | 12 | 16.93 | -1 |
| Deoria | 0.56 | 3 | 0.50 | 10 | -11.55 | -7 |
| Kushinagar | 0.50 | 8 | 0.53 | 9 | 5.90 | -1 |
| Ballia | 0.31 | 15 | 0.32 | 19 | 3.92 | -4 |
| Mau | 0.12 | 25 | 0.40 | 16 | 232.11 | 9 |
| Azamgarh | 0.82 | 1 | 0.90 | 1 | 10.19 | 0 |
| Faizabad | 0.48 | 9 | 0.55 | 8 | 13.85 | 1 |
| Ambedkarnagar | 0.29 | 16 | 0.29 | 21 | 0.04 | -5 |
| Sultanpur | 0.69 | 2 | 0.70 | 4 | 0.11 | -2 |
| Pratapgarh | 0.32 | 14 | 0.41 | 15 | 28.63 | -1 |
| Jaunpur | 0.51 | 6 | 0.79 | 3 | 54.97 | 3 |
| Allahabad | 0.50 | 7 | 0.69 | 5 | 37.46 | 2 |
| Kaushambi | 0.15 | 23 | 0.25 | 23 | 68.60 | 0 |
| Mirzapur | 0.36 | 12 | 0.46 | 13 | 25.94 | -1 |
| Ghazipur | 0.51 | 5 | 0.88 | 2 | 72.07 | 3 |
| Varanasi | 0.42 | 10 | 0.55 | 7 | 30.90 | 3 |
| Chandauli | 0.16 | 21 | 0.20 | 25 | 25.61 | -4 |
| Sant Ravidas Nagar | 0.01 | 27 | 0.05 | 27 | 280.08 | 0 |
| Sonbhadra | 0.13 | 24 | 0.31 | 20 | 145.61 | 4 |

**Analysis of Absorption Index**

In 1991 (Table: 2, Figure: 2a) though only four districts are categorized as very high yet the index value is also very high ranging between 0.53 and 0.83. Highly secure in terms of food absorption account for about 30 per cent districts. These are largely confined to the southern part of Purvanchal and make a large contiguous region. Remaining districts are either moderate or low in absorption index. The important feature of moderate category is that except Ballia, all are located in the northern Tarai whereas least secure districts are confined to Bundelkhand region but sporadic in 1991.

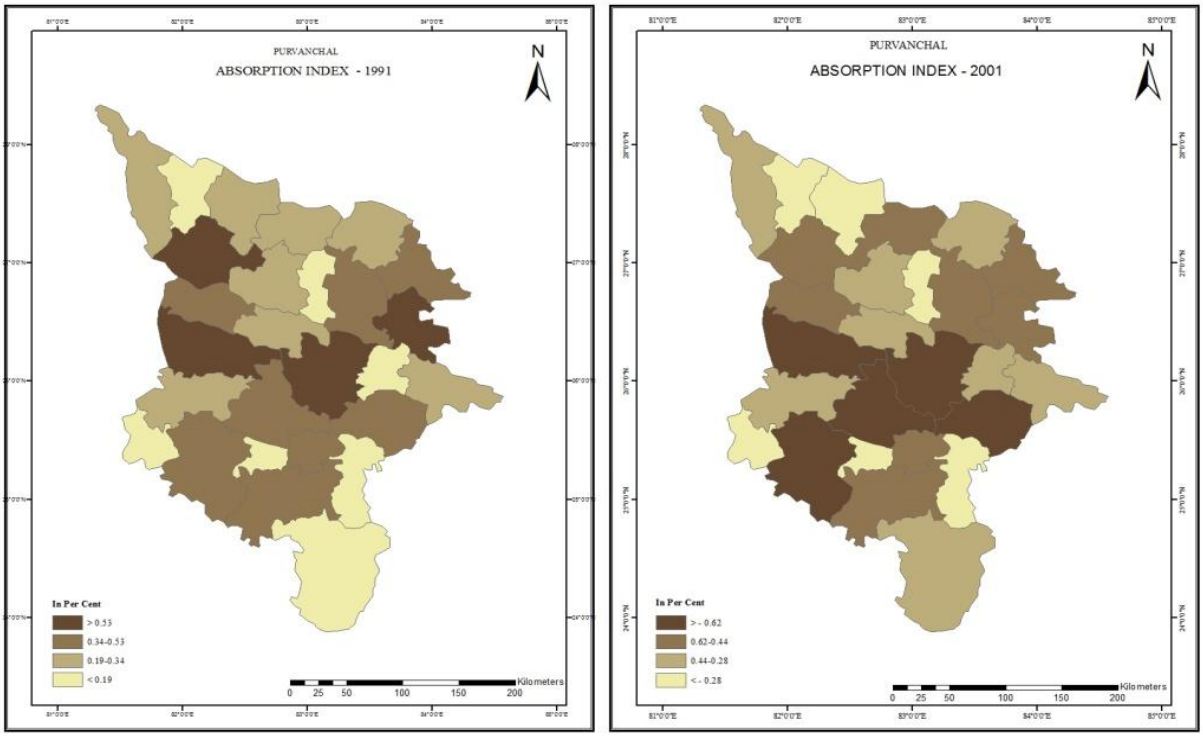


**Fig:** 2 a. b, Food Absorption Capacity Index 1991, 2001

In 2001, (Table: 2, Figure: 2b) the situation improved significantly as about 50 per cent districts recorded high to very level of index ranging between 0.44 and 0.90. Among them, Azamgarh with 0.90 followed by Ghazipur 0.88 and Jaunpur 0.62 are the leading districts. The remaining 50 per cent districts are put under moderate or low category. All such districts are scattered and don't follow any specific pattern. Sant Ravidas Nagar with an index of 0.05 followed by Shrawasti (0.09) is on the last ladder.

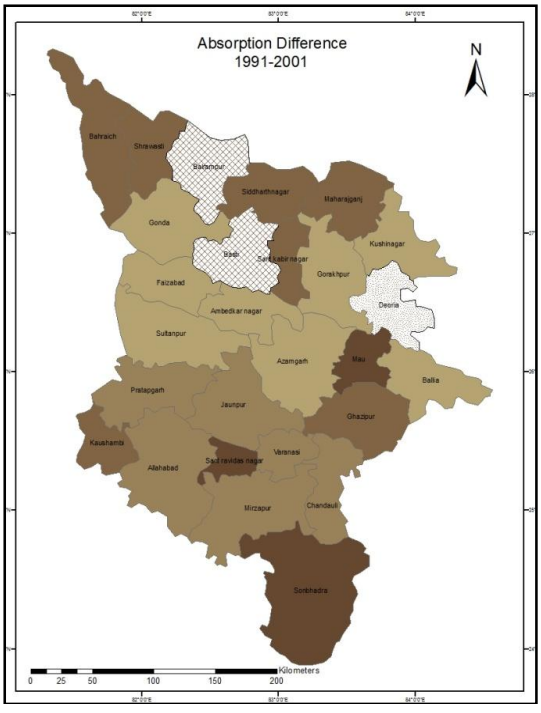


**Fig 3:** Purvanchal Absorption Index Change 1991-2001

**Change Analysis of Absorption Index**

The change analysis(Table: 2 Figure: 3) of absorption index signifies that it ranges between a high of 280 per cent in Sant Ravidas Nagar and a low of -3.88 per cent in Basti. All the districts except Balrampur, Basti and Deoria recorded a positive growth. The highlights of the change analysis are that Sant Ravidas Nagar with highest positive growth remained at 27th place and Azamgarh with merely 10 per cent growth in absorption index retained its first position. Similarly Mau with a growth of 232 per cent improved its rank from 25th to 16th only and Sharawasti with 99.89 per cent reported no change in its rank.

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