



#### ABSTRACT

This report compiles secondary data on the nutrition situation in Pune to inform the new partnership between Birmingham and Pune on smart nutrition

Courtney Scott

The Food Foundation

# PUNE

Nutrition situation analysis

## About BINDI

BINDI – Birmingham India Nutrition Initiative is a ‘Nutrition Smart City’ initiative involves the development of policies and practices through a learning partnership between Birmingham, UK and Pune, India.

In the first 18-month phase, The Food Foundation will work with local authorities in both cities to design the partnership, based on citizen engagement and evidence from elsewhere around the globe. A platform will be created to enable joint learning, experience sharing and piloting of specific initiatives.

The initiative aligns with Sustainable Development Goals 2, 5 and 12 and the Smart City movement. Birmingham and Pune will work together to establish ‘Smart Nutrition’ as a key topic on the Smart City agenda.

The initiative is led by the Food Foundation and funded by the Tata Trusts and the UK Department for International Development (DFID) through its [Maximising the Quality of Scaling Up Nutrition Plus \(MQSUN+\)](#) project. MQSUN+ provides technical expertise in multisectoral nutrition policy and programming to DFID and Scaling Up Nutrition countries.

# Nutrition Situation Analysis – Pune

## Background

*“After Indian independence, the city grew remarkably in connection with the city’s regional and agricultural embedding, the national policy for the diversification of industries and the existing renowned educational facilities.” (Butsch et al 2017)*

Pune is the name of a city and a district in the Indian state of Maharashtra, located in the west of India. The city is situated in the foothills of the western coastal mountains about 100 miles southeast of Mumbai. It is the ninth largest city in India with a population of 3.1 million people (2011). It has been referred to as the “Oxford of the East” due to the presence of multiple universities, and also being a “cultural capital” in Maharashtra (Kelkar 2008). It is part of an “urban development corridor stretching from Ahmedabad via Mumbai to Pune” (Butsch et al. 2017).

The urban population in India is increasing, and the majority of Pune (district) is now urban (61%) – it is the fifth most urbanised district in Maharashtra. Migration from rural to urban areas has increased as the population seeks better livelihoods, as urban areas are offering more and diverse occupational opportunities and increasing education facilities. Pune (city) is entirely urbanised (Mundhe and Jaybahye, 2014). Population growth in Pune (city) is expected to slow to from 3.4% (2007-2012) to 2.1% (2022-2027) (Butsch 2017 citing PMC development plan). 18.5% of the population are in their youth (15-24 years) and 67% are in the working age group (15-59) (Smart Cities Mission India 2016).

In Maharashtra, 17.4% of the population was estimated to be in poverty in 2011-12. (citation) In Pune (district), wealth and income are “distributed unevenly” by caste group and class, and there is a growing divide between the poor and the upper and upper middle class. These inequalities are borne out in access to infrastructure (drinking water and toilets), and Pune shows a higher correlation between caste status and access to infrastructure (drinking water and toilets) than other large cities in India (Sidhwani, P. Spatial inequalities in big Indian Cities. Econ. Political Wkly. 2015, 50, 55–62.) In Pune (city) 22% of the population live in slums and the literacy rate is 89.6% (Smart Cities Mission India 2016).

The main industries in the city of Pune are automobile part manufacturing, the Indian Air Force, IT and education. The average per capita income is 88,341 Rs. (2004/5), compared to an average in the urban areas of the state of 60, 431 and an average of 35,947 in urban areas of India. 20% of the population are professionals – compared to 11.6% in the state and 8.8% in India (urban areas); only 0.28% of the population work in skilled agriculture or fisheries – compared to 3% and 4.6% in the urban areas of Pune State and India respectively. The unemployment rate is 3.3% (2011/12) (Smart Cities Mission India 2016).

The infrastructure in Pune (city) is well developed. Almost all households in Pune (city) have access to tap water from treated sources and electricity (99% and 98%), but only 76% of households have toilet facilities. 39% of households have a computer/laptop, and a quarter of these have access to the internet, which is significantly higher than urban areas in the State and in India (Smart Cities Mission India 2016).

The Pune Municipal Corporation is the local government, and has 157 elected representatives. It is led by the Mayor, and administratively led by the Municipal Commissioner (Smart Cities Mission India 2016). The Municipal Corporation has set an aim to make Pune a “smart city” that is “the most liveable city in India” (punsmartcity.in), and in 2015 developed a smart city strategy.

*“...the goal of the Smart City Mission in India is to create cities with smart physical, social, institutional and economic infrastructure including clean technology use, widespread information and communication technology reliance, financing via public private partnerships and private sector investments, improved citizen consultation and ‘smart’ or e-governance initiatives.” (Butsch et al. 2017)*

*“Leveraging its rich cultural and natural heritage, strong human capital and strong business environment as key strengths, Pune aspires to become the most liveable city in India by solving its core infrastructure issues in a ‘future proof’ way and by making its neighborhoods beautiful, clean, green and liveable” (Pune Smart City Development Corporation Ltd. 2018).*

## What should people in Pune be eating?

The Dietary Guidelines for Indians from the National Institute of Nutrition set out broad guidelines for what Indians should be eating. This guidance was revised in 2011, is endorsed by the Ministry of Health and is used by the general public and health/nutrition professionals. The guidance is summarised into a pyramid with four layers: cereals/legumes (consume adequately), vegetables and fruit (eat liberally), animal source foods and oils (eat moderately) and highly processed foods (eat sparingly) (National Institute of Nutrition 2011).

## Malnutrition in all its forms

### Undernutrition

Data from the National Family Health Survey (2015/16) reports data on child undernutrition in both Maharashtra state and Pune (district). In Maharashtra state, child malnutrition is typically higher in rural areas than urban. Compared to the state level, child undernutrition is prevalent to a lesser extent in Pune (District) but still found in nearly a quarter of children under 5. However, compared to the State level, apart from child underweight child undernutrition is equally or more prevalent in urban than rural areas of Pune (District). Though the figures in Table 1 are stark, it is important to note that Maharashtra has seen a 15% decline in stunting between 2006 and 2012 (Haddad 2014).

The National Family Health Survey (2015/16) also reports on underweight in adults. In Pune (District), adult underweight is more prevalent in rural areas, and significantly more prevalent among women than men. Adult underweight is less prevalent in Pune (District) than at the State level.

	Maharashtra – Urban	Maharashtra – Rural	Maharashtra - Total	Pune (District) – Urban	Pune (District) - Rural	Pune (District) - Total
Children under 5 who are stunted	29.3	38.4	34.4	22.3	22.5	22.4
Children under 5 who are wasted	24.9	26.1	25.6	26.7	19.3	23.4
Children under 5 who are severely wasted	9.5	9.4	9.4	9.7	8.1	9.0
Children under 5 who are underweight	30.7	40.0	36.0	23.6	27.9	25.6
Women with below normal BMI	16.8	30.0	23.5	14.7	23.4	17.8

Men with below normal BMI	14.5	23.7	19.1	9.0	13.9	10.7
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### Overnutrition and Chronic Diseases

In Maharashtra and Pune (District) data on adult overweight/obesity and select indicators of non-communicable diseases are available from the National Family Health Survey (2015/16). In contrast to the underweight data presented above, overweight and obesity are more prevalent in urban areas compared to rural. It is prevalent to roughly the same levels among men and women. However, men have a significantly higher prevalence of raised blood pressure than women.

Compared to the survey done in 2005/6, the rates of overweight and obesity have increased significantly in Maharashtra. In 2005/6, 14.5% of women and 11.9% of men in Maharashtra were overweight or obese; this has increased to 23.4% and 23.8% in 2015/16. In 2005/6,

	Maharashtra – Urban	Maharashtra – Rural	Maharashtra - Total	Pune (District) – Urban	Pune (District) - Rural	Pune (District) - Total
Women who are overweight or obese	32.4	14.6	23.4	22.3	22.5	30.2
Men who are overweight or obese	31.2	16.4	23.8	26.7	19.3	33.4
Women with high blood sugar	5.7	4.4	5.0	4.6	4.5	4.6
Men with high blood sugar	6.5	5.4	5.9	5.2	1.6	4.0
Women with above normal, high or very high blood pressure	9.5	8.7	9.1	6.6	9.4	7.8
Men with above normal, high or very high blood pressure	17.6	14.6	16.1	14.0	13.4	13.8

The National Family Health Survey does not report data on levels of childhood overweight or obesity. However, a few studies have been conducted in Pune (city and district) assessing overweight and obesity among children.

A cross-sectional survey conducted between 2007 and 2011 on 1281 school children aged 10-15 years old in Pune (city) found that 10% of participants were overweight an additional 5.6% were obese (based on measured height and weight) (Ghonge et al. 2017). The study also collected self-reported data on physical activity, sedentary behaviour, dietary intake, and family history of overweight and obesity. Of these, sedentary behaviour, more frequent consumption of “junk food”, high calorie diet and family history of obesity were associated with prevalence of overweight/obesity. However, it is not clear how the dietary intake data was collected.

A similar survey conducted on 536 students from the same age range in a school in rural Pune (district) found that 7.1% of participants were overweight and an additional 3.6% were obese (Kurlekar et al. 2016). Though cross-sectional in nature and without multiple time points for comparison, these two studies suggest that childhood overweight and obesity are higher in urban areas of Pune (district) compared to rural. This pattern was also present in the adult obesity data described above from the National Family Health Survey.

Among adolescents aged 12-15 in Pune (City), one study of 1652 students found that 6.2% were overweight and an additional 4.8% were obese. However it is not clear how the height/weight data for this study was collected (Arora et al. 2017).

### Micronutrient Deficiencies

The National Family Health Survey (2015/16) also reports on key indicators of micronutrient deficiency and treatment. Vitamin A supplementation is slightly higher in Maharashtra state than in Pune (district). The two areas are roughly equivalent in terms of anaemia for women, but slightly higher among men in Pune (district) than Maharashtra state. Reducing levels of anaemia is a priority for the Indian government who have launched specific programmes to address it, as will be described below.

	Maharashtra – Urban	Maharashtra – Rural	Maharashtra - Total	Pune (District) – Urban	Pune (District) - Rural	Pune (District) - Total
Children vitamin A supplementation in last 6 months (9-59 months)	72.2	69.2	70.5	60.7	59.3	60.0
Children with anaemia (6-59 months)	53.6	54.0	53.8	53.1	53.8	53.4
Non-pregnant women with anaemia (15-49 years)	48.2	47.7	47.9	50.5	50.0	50.4
Pregnant women with anaemia (15-49 years)	48.5	49.9	49.3	n/a	n/a	40.0*
All women who are anaemic (15-49 years)	48.2	47.8	48.0	50.4	49.3	50.0
Men who are anaemic (15-49 years)	15.5	19.7	17.6	18.3	15.5	17.4

\*Low sample size, unweighted sample of 25-49 cases

In a survey of 600 adolescent girls in Pune (City), the majority were consuming less than the recommended amount of calories per day, and 50-70% below recommended levels of micronutrients. This survey was cross-sectional in nature, with the dietary data was assessed using a series of 24-hour recalls on 3 non-consecutive days. Data from the recalls were assessed according

to the Adolescent Micronutrient Quality Index, and fasting blood samples were also taken (Chiplonkar & Tupe 2010).

Another study of 2100 children aged 5-7 in Pune (City) assessed dietary intake by giving their parents a questionnaire on dietary patterns and food habits. The dietary assessment in this study was not very robust, but it gives further indication that dietary quality among children in Pune (City) needs improvement. This was particularly notable for vegetable consumption, as the survey found that only 5% of young children in Pune consume green leafy vegetables on a daily basis (Mukherjee & Chaturvedi 2017).

### Other Indicators

Breastfeeding and healthy diet in early life are strongly correlated with improved health outcomes which carry into later life. The National Family Health Survey reports on breastfeeding rates as well as “adequate diet” for young children less than 59 months. In both Maharashtra and Pune (district) breastfeeding rates are higher in rural areas compared to urban. Rates of children under 59 months consuming an “adequate diet” are particularly, ranging from 2.5% to 13.8%. However the data on breastfeeding and diet adequacy for Pune (District) is more limited than for Maharashtra. These are worrying figures, as the transition from breastfeeding to complementary foods is a key intervention period for preventing malnutrition across the life course.

	Maharashtra – Urban	Maharashtra – Rural	Maharashtra - Total	Pune (District) – Urban	Pune (District) - Rural	Pune (District) - Total
Children under age 3 breastfed within one hour of birth	55.0	59.5	57.5	53.8*	70.4	62.0
Children under age 6 months exclusively breastfed	51.3	60.6	56.6	n/a	n/a	n/a
Breastfeeding children age 6-23 months receiving an adequate diet	6.9	4.1	5.3	n/a	2.5*	4.0
Non-breastfeeding children age 6-23 months receiving an adequate diet	13.8	10.0	12.2	n/a	n/a	n/a
All children age 6-23 months receiving an adequate diet	8.5	5.0	6.5	n/a	7.0*	8.2

\* Low sample size, unweighted sample of 25-49 cases

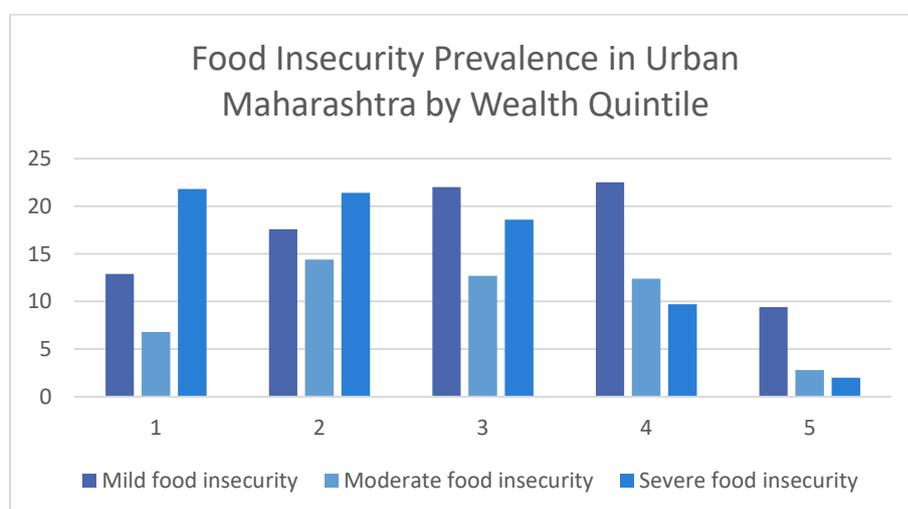
## Causes of Malnutrition in Pune

### Food Insecurity

Data from the Comprehensive Nutrition Survey in the State of Maharashtra India (2012) shows that 12.6% and 11.7% of households in the State are severely or moderately food insecure, respectively. The survey had a sample size of 2630 households. Household food insecurity was measured using the Household Food Insecurity Access Scale (HFIAS), which is tailored for use in low income countries. It asks respondents 9 questions to assess whether they had experienced food insecurity in the last month. Severe food insecurity would mean that a household had “no food to eat or have to starve day and night,” whereas moderate food insecurity would indicate a household frequently experienced a “limited choice: and had to “eat lesser quantity (sic) of food” (Unisa et al. 2016).

In the urban areas of Maharashtra, including Pune (city), there is a clear gradient in food insecurity prevalence by wealth quintile (Figure 1).

Figure 1: Food Insecurity Prevalence in Urban Maharashtra by Wealth Quintile (Unisa et al. 2016)



The survey also found that children living in moderately to severely food insecure households have lower dietary diversity. Dietary diversity is a key indicator for nutritional status as there is evidence that it is correlated with sufficient nutrient intake (Arimond & Ruel 2004). It was measured using a 21-item food frequency questionnaire of the last 24 hours; the 21 items were grouped in to 7 food groups. A child’s diet was then categorised by how many of these 7 food groups it contained, which was used as an indicator of dietary diversity (Chandrasekhar et al. 2017).

Severe food insecurity was also associated with higher odds of a child (6-23 months) being severely stunted, underweight or wasted, and dietary diversity was significantly associated with childhood stunting and underweight. The majority of children in the survey (75%) were fed two food groups or fewer (Chandrasekhar et al. 2017).

In Pune (District), data from the Comprehensive Nutrition Survey showed that 42% of households in Pune reported worrying about insufficient food availability/intake. 15% of household were moderately food insecure and an additional 10% were severely food insecure. This is roughly equivalent to Maharashtra as a whole, though moderate food insecurity is higher in Pune (district) than Maharashtra (Unisa et al. 2016).

## Changing diet

India, like much of Asia, is undergoing a nutrition and epidemiological transition, characterised by a shift away from traditional diets and increasing prevalence of non-communicable diseases, fuelled in part by rapid urbanisation and change of lifestyles (Dang & Meenakshi 2017; Shetty 2002; Anoop et al. 2011). In Maharashtra, non-communicable diseases increased 25% between 1990 and 2006 (Kholi et al. 2014).

Over the past 50 years, the diet in India has changed significantly, with the average Indian eating on average more than 400 calories more than they work in the 1960s, and with a bigger proportion of calories coming from sugar and fat, dairy and eggs and produce (National Geographic n.d.). The consumption of processed foods and sugary drinks has increased significantly in Asia, which are key drivers of non-communicable diseases and obesity (Baker & Friel 2014).

A recent systematic review of dietary patterns in India found 11 distinct patterns, or ways, in which people in India were eating. They were predominantly vegetarian, with a high intake of cereals and pulses. However, as further indication of the nutrition transition described above, a number of the dietary patterns identified also included high fat, sugar, and salt products along with increased meat consumption. Dietary patterns that were high in fat and sweets/snacks were found to be associated with increased risk of obesity and diabetes (Green et al. 2016).

People living in urban areas of India like Pune (city) have decreased their share of total expenditure on food in total, and specifically on cereals, pulses, and vegetables. In rural areas, the share of expenditure has also decreased in a similar pattern but remains higher than in urban areas (48.6% v 38.6%) (Government of Maharashtra 2015).

In Pune (district), on average households spend 39.5% of their total expenditure on food. Overtime, households in urban areas of Maharashtra, such as Pune (city), have decreased the proportion of their expenditure on food overall (63.3% in 1972/3 to 38% in 2011/12), and particularly on cereals (16.8% to 7.0%). In contrast, household expenditure on non-food items including fuel and clothing has increased from 36.4% to 62%. Per capita expenditure on vegetables and fruit remained steady between 2004/5 and 2011/12 at just over 9% and 7% of total food expenditure respectively (Government of Maharashtra 2015).

## Agricultural Production

In Maharashtra state, agriculture represents 5.13% of GDP. It is the third largest state producing Maize, total coarse cereals, and sunflower, and the second largest in total pulses, soybeans, sugarcane, and cotton (Directorate of Economics and Statistics 2015). 15.9% of households in Pune (district) are involved in agriculture (POSHAN 2017).

Food grain production per person has declined 45% since the 1960s. In the inland western region of Maharashtra, which is where Pune (district + city) is located, it has decreased by 54%. These declines have been attributed to increasing population and decreasing amount of land used in production (Tagade 2011)

As Pune (city) has urbanised, and had increasing population growth, the availability of natural resources to sustain this population has not kept pace (Butsch et al. 2017). Pune's fresh water comes from the Mula and Mutha rivers and is dependent on the rainfall during monsoon season filling up catchment dams. Domestic water use in urban Pune (district) has increased with population growth, but water from these dams is also needed for industrial energy and irrigation. Agricultural areas in Pune (district) increased 4% between 1989 and 2009, placing further demands on the water supply (Butsch et al. 2017).

However, as more of the population moves into urban areas, the percent of agricultural land in Pune (district) is predicted to decrease 8% by 2028. This will have positive impacts on water use, but it may negatively affect food availability and sufficiency in the district (Butsch et al. 2017).

## Changing food environment (obesity)

### *Eating Out of Home*

Food and grocery sales account for 60-65% of the total retail market in India, of which 70% of sales come from 'unorganised' or informal outlets. The 'food retail sector' in India has been growing at a rate of 15% per year (KPMG 2016).

Eating out is more common among younger, more affluent populations in India. When Indian consumers eat out, they prefer to eat-in (rather than get delivery/take out), and they most frequently do so at full service and quick service or fast food restaurants, which account for 73% of food service sales. In a study of the food environment in Delhi, the majority of full service and fast food restaurants were of Indian rather than Western cuisine. The majority of food service sales (two-thirds) also remain in the 'unorganised' sector, however 'organised' or larger/multinational outlets are looking to expand in India. In a study of 100 participants in two cities in India, participants reported eating fast food on average three times per month. The primary motivations cited for eating fast food were taste and convenience (Prabhavathi et al. 2014).

Increasing fast food consumption has been linked with increasing obesity in India. Density of full service and quick service restaurants in Delhi has been associated with increased prevalence of obesity, however this association was attenuated when socioeconomic status was taken into account (Patel et al. 2018). In a multi-country study of fast food consumption among adolescents, 60% of those surveyed in India reported eating fast food 'frequently or very frequently', meaning once or twice per week or three times or more per week. The study included 72,900 children globally, and showed a positive association between more frequent fast food consumption and a higher body mass index (Braithwaite et al. 2014).

### *Food Marketing*

Globally, increased exposure to marketing for unhealthy foods has been associated with increased risk of a less healthy diet and obesity, particularly among children. In India, food marketing can be seen on television, on average, 15 times per hour. More than 90% of these advertisements are for foods high in fat, sugar and/or salt (Kaushal & Dudeja 2017).

### *Grocery Shopping*

The grocery shopping market in India is changing. The majority of outlets remain small corner stores called *kirana stores*, however large, organised grocery retailers are increasing in India. *Kirana stores* have the advantage of being very local and accessible, but larger grocery stores are providing an increasing variety of products, including international products (Zameer & Mukherjee 2011). The growth of supermarkets in India, however, has been limited as consumers continue to shop more frequently at their local stores. This is particularly true among urban residents with lower levels of income (The Economist 2014).

The market for online food retail is small in India, accounting for only 2% of total sales, but is projected to grow (KPMG 2016). Indian-based outlets such as Big Basket, which operates in Pune, function as online grocery retailers and feature a wide variety of fresh food and produce, international brands and processed food products. However online grocery shopping in other markets, such as in Europe and the US, has typically been used by customers with more disposable income including two-income households. Thus, while increasing opportunities for online shopping diversify the ways in which people can access their food service provided, these opportunities may

not be equally accessible to all in society. This is reflected in Big Basket's website, which operates in English and offers a number of higher cost imported goods (Sharma Punit 2017)

## Current Public Health / Food Interventions

### National Nutrition Mission

The National Nutrition Mission was launched by the Government of India in 2017 year to better coordinate and strengthen the nutrition related schemes run by the MWCD. Its aim is to reduce undernutrition in children under the age of 6, adolescent girls and pregnant and lactating women. It is a three-year programme that takes the life cycle approach, and will have a focus on improving the efficiency and monitoring of existing nutrition schemes. States/UTs will be provided with a monetary incentivized for meeting a set of annual targets and goals.

The programmes to be monitored include:

- Targeted Public Distribution System (described below)
- *Anganwadi centres* providing programmes under the Integrated Child Development Programme (described below)
- Midday Meal programme (Described below)
- Conditional cash transfers to pregnant and lactating women (Pradhan Mantri Matru Vandana Yojana)
- National Creche Scheme
- Scheme for Adolescent Girls
- National Health Mission
- The food fortification programme
- Various water and sanitation programmes: Swachh Bahrat Mission (water sanitation), the National Rural Drinking Water Programme, and the Panchayati Raj Institutions (rural water/toilets)
- National Rural Livelihood Mission
- Mahatma Gandhi National Rural Employment Guarantee Scheme
- Urban local bodies (responsible for construction of Anganwadi centres and water sanitation in urban areas)
- Save SikshaAbhiyaan (education)
- Home-based Young Child Care

The NNM contains a number of components that are consistent with a smart cities approach, including its overarching aim of coordinating across multiple government programmes. A core component of the NNM is integrating information technology to enable monitoring of nutrition schemes through a mobile application and web-based dashboard. It will also incorporate a programme of citizen engagement through a call centre in which beneficiaries can provide feedback on challenges with the programmes.

### Targeted Public Distribution System

Given the prevalence of food insecurity in Maharashtra State, the Targeted Public Distribution Scheme (TPDS) is an important food and public health intervention. India's National Food Security Act (2013) set the ambition for 75% of the rural population and 50% of the urban population in India to be participating in the TPDS. The TPDS provides subsidised food and fuel to people in poverty. Ration shops sell grains at reduced prices to beneficiaries who are below the poverty line.

Country-wide, almost 75% of the population is eligible to participate in TPDS. In Pune (district), 12.5% of households have access to the Public Distribution System (described below) (POSHAN

2017). However in Maharashtra, and therefore likely in Pune as well, more than 20% of eligible beneficiaries are not participating in the programme.

Using data from the India Human Development Survey, a 2016 report on the TPDS from NITI Aayog concludes that there have been “significant qualitative and quantitative changes in the PDS since its advent in the 1970s.” However, the report also highlights “bureaucratic difficulties” with the programme, and that despite increasing the number of households using the PDS the total grain consumed has remained stable. The impact of the TPDS was found to depend on fluctuations in the household’s income – with the system having more of a beneficial impact when households have suffered “economic distress.” The report also highlighted that households using the TDPS system do not necessarily increase their dietary diversity, but use the benefit to obtain more calories from cereals without “increasing investments in other food groups.” It concludes that the role of the TPDS in “skewing dietary composition of the households by increasing their cereal composition” “poses a critical problem”, as it may be contributing to a rise in non-communicable diseases (NITI Aayog 2016).

### Programmes for Mothers and Young Children

The National Food Security Act also seeks to improve the health and quality of diets in India, particularly for mothers and young children through Integrated Child Development Services, the schools’ meals programme (Midday Meal programme), and the Anaemia Mukht Baharat Strategy.

#### Integrated child development services program

The Integrated Child Development Services (ICDS) programme is a national level welfare initiative run by the Commissioner of Women and Child Development. It aims to reduce malnutrition by providing supplementary food to children under the age of 6 and for pregnant and lactating women. It has been running since 1975, and now covers more than 60 million children and 12 million women. The programme also provides women and children with vitamin supplementation, health check-ups and education. These services are provided at *Anganwadi* community centres (SACHDEV & DASGUPTA 2001). The programme was initially targeted to rural communities, but is increasingly important in urban areas as well (Kumar & Banerjee 2015).

The food provided through the ICDS is determined at the State level, and thus varies across the country. However, the eligible women and children are provided with 300-600 protein-rich calories for 300 days a year, typically in the form of a cooked meal provided in the *Anganwadi* (SACHDEV & DASGUPTA 2001).

In Maharashtra there are 553 ICDS programmes, provided through more than 110,000 Anganwadi. Of these, however, only 18% of them are in urban areas, with the majority in rural areas of the state. In 2011, only 22% of mothers in the slums of Pune (city) received supplementary nutrition through an *anganwadi* (Kumar & Banerjee 2015). We were unable to find further statistics on the ICDS and anganwadi centres in Pune (city/district).

A number of challenges with the ICDS have been raised, including poor infrastructure and low levels of coverage and participation. The staff who provide services in the Anganwadi have also been found to be overstretched and undertrained. The budget provided for ICDS by the central Government of India has also been reduced significantly in recent years. ICDS has also not been incorporated into the Smart City Initiative spearheaded by the Government of India (Kumar & Banerjee 2015).

The Government of Maharashtra and Tata Trusts are currently working on a joint initiative to strengthen the ICDS in the Palghar district of Maharashtra. In particular, it is focused on improving the coverage of the ICDS services and on using information technology and data to improve the

governance of ICDS programmes. This is a model which could be potentially explored for application in Pune (Tata Trusts 2017).

#### Midday Meal Scheme

Following a Supreme Court mandate, since 2001 all government schools and schools that receive government assistance in India must provide a cooked meal for students. As a result, more than 100 million children in India are eligible for a free midday meal at school. The programme aims to reduce the prevalence of malnutrition, and meals need to provide a minimum of 300 calories and 8-12 grams of protein. A social audit of the Midday Meal Scheme in Pune (district) found a number of challenges with the programme, including inadequacy of the grain provided both in terms of quantity and quality, difficulty in maintaining records, and availability of drinking water (India Institute of Education 2015).

#### Anaemia Mukh Baharat Strategy

The Anaemia Mukh Baharat Strategy aims to reduce anaemia in India by 3 percent between 2016 and 2022. It proposes a 6-part strategy, including supplementation, fortification, deworming, testing for anaemia, behaviour change campaigns, and addressing non-nutritional causes of anaemia. It will be implemented through “existing delivery platforms as envisaged in the National Iron Plus Initiative and Weekly Iron Folic Acid Supplementation programme.”

#### Pune Specific Initiatives

The Social Development Department of the Pune Municipal Corporation is responsible for administering social, economic and poverty alleviating initiatives in the city. These include the Women and Child Welfare programmes described above. The Health Department oversees public health and medical services, including antenatal and postnatal care, and also houses the Food and License Department.

In addition to the programmes described above, Pune recently launched the Pune Food Hub funded by a host of partners including the International Bank for Reconstruction and Development and the UK’s Department for International Development. The Hub aims to “increase and improve the online presence of businesses associated with Food Processing Industry based in and around Pune.” It is an online portal designed to “bridge the gap between the prospective entrepreneurs, the suppliers, the vendors of the product, manufacturing equipments, and the public who is interested in buying the finished product at very competitive prices.” It is particularly focused on increasing the capacity of small and medium sized enterprises (<http://punefoodhub.com/about>)

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