Chapter 1

# India's National Food Security Act (NFSA)

## Early experiences

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In her article "Food Security in India: The Imperative and Its Challenges", Narayanan (2015) highlights the "stubborn persistence of malnutrition" in India despite the rapid economic growth over the past three decades. According to her, the "crux of India's food problem today pertains not so much on increasing food availability or production but with the distribution of food". The World Food Programme (WFP) defines food security as the "availability and adequate access at all times to sufficient, safe, nutritious food to maintain a healthy and active life". As Narayanan points out, it is access to food that is of concern to many low-income households in India.

Despite that Article 42 of the Constitution of India states that the State must "raise the level of nutrition … to improve public health", the right to food remained unaddressed for over seven decades. However, a sustained campaign by civil society for a rights-based approach to food (or the right to food movement) led to the enactment of the National Food Security Act (NFSA) by the Indian Parliament in 2013. The NFSA aims to provide "food and nutritional security in human life cycle approach, by ensuring access to adequate quantity of quality food at affordable prices to people to live a life with dignity" (Government of India, 2013). It does so by increasing coverage (i.e. the number of eligible beneficiaries) and improving the implementation of existing social programmes to provide food security for all citizens at different stages of life (the *human life cycle approach*). These include maternity benefits through the Pradhan Mantri Matru Vandana Yojana (PMMVY, previously known as Indira Gandhi Matritva Sahyog Yojana, or Indira Gandhi Motherhood Support Programme), child nutrition through the Integrated Child Development Services (ICDS), school meals through the Mid-Day Meal (MDM) programme and subsidized food grain distribution through the Targeted Public Distribution System (TPDS). While the PMMVY provides a maternity benefit of Rs 5,000 for the first birth to all women, the ICDS and MDM programmes ensure that all children aged six months to 14 years get a free meal at their *Anganwadi* (childcare centre) or school. The TPDS provides highly subsidized food grain to approximately 813.4 million Indians under the NFSA. As the

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NFSA converts all four welfare benefits into entitlements, the government is legally required to provide resources for the implementation of these programmes. This chapter aims to document the important innovations and challenges emerging from different states and union territories (UTs) in the early years of NFSA rollout.

On 1 November 2016 – three and a half years after the Act came into effect – all states and UTs in India had either implemented or started the process of implementing the NFSA. This chapter reviews the early experiences of different states and UTs in rolling out the NFSA. The first section provides a brief overview of the important provisions of the NFSA. The second section highlights three important obstacles to the effective implementation of the NFSA. The third section discusses three issues emerging from early experiences of NFSA implementation: first, issues in identification of beneficiaries; second, use of technology; and third, the experience of using cash transfers instead of in-kind food transfers.

## The National Food Security Act: a brief introduction

The National Food Security Act (NFSA) aims to ensure food and nutritional security by introducing a maternity benefit for all pregnant women and building on three existing programmes (maternal and child nutrition through the ICDS, school meals through the MDM scheme and subsidized food through the PDS). By converting the existing programmes to legal entitlements, the NFSA aims to increase coverage and improve the implementation of nutrition-related interventions in India.

### *Maternity benefits*

Under Section 4 of the NFSA, all pregnant and lactating women are entitled to a maternity benefit of "not less than rupees six thousand" and a free meal at their *Anganwadi* (government-run childcare centre) during pregnancy and six months after childbirth. While free meals at *Anganwadis* were available to all women before the enactment of the NFSA, maternity benefits were only accessible to women covered under the Indira Gandhi Matritva Sahyog Yojana (IGMSY), which provided a benefit of Rs 4,000 as partial wage compensation for wage loss during childbirth and childcare. However, IGMSY was rolled out in only 52 of India's 640 districts and was limited to the first two live births. In 2013, the government increased the maternity benefit under IGMSY to Rs 6,000 per live birth as mandated under the NFSA, but the coverage remained limited to 52 districts (Falcao and Khanuja, 2016). In 2017, the government renamed IGMSY the Pradhan Mantri Matru Vandana Yojana (PMMVY) and expanded its coverage to all districts of India. However, the benefit was limited to the first child only.

### *Nutrition for children*

Section 5 of the NFSA entitles all children within the age group of six months to 14 years to an age-appropriate, free of charge, daily meal. Children aged six months to six years receive this meal at their *Anganwadi* through the ICDS programme, while those between 6 and 14 years receive the meal at their school, through the MDM programme.

### *Subsidized food grain*

The TPDS, which provides subsidized food grain to more than 800 million people, is the main pillar of the NFSA. Most provisions of the NFSA aim to increase food security through TPDS reforms that focus on increasing coverage and improving the implementation of the subsidized food distribution system. The TPDS was introduced in 1997 when it replaced the Revamped Public Distribution System (RPDS). While the RPDS was targeted based on location (drought-prone, tribal, hilly and remote areas), the TPDS used income (household poverty) to identify those eligible for food subsidies. Before the NFSA, the central government provided 25–35 kilograms of subsidized food grain through the TPDS to households living "below the poverty line (BPL)". Over the years, the TPDS in most states became synonymous with corruption (see Bhattacharya et al., 2017; Drèze and Khera, 2015a), due to high levels of diversion of food grain (i.e. subsidized food grain from the TPDS was sold in the open market) and poor targeting (i.e. erroneous exclusion of poor households and inclusion of non-poor households). Khera (2011) uses data from the National Sample Surveys (NSS) between 1999 and 2008 to estimate the trends in the diversion of TPDS grains at the state level. Using these estimates, she classifies states into three categories: (a) "functioning" (Andhra Pradesh, Himachal Pradesh, Jammu and Kashmir, Karnataka, Kerala, Maharashtra and Tamil Nadu); (b) "reviving" (Chhattisgarh, Madhya Pradesh, Odisha, Uttarakhand and Uttar Pradesh); and (c) "languishing" (Assam, Bihar, Gujarat, Haryana, Jharkhand, Punjab, Rajasthan and West Bengal). States designated as "functioning" were those where per capita purchase of food grain remained above 1 kg per month during the study period. States designated as "reviving" were those where the per capita purchase of food grain was below one kg per month in the beginning of the study period but rose above 1 kg per month by the end of the period. States designated as "languishing" were states where per capita purchase of food grain remained above 1 kg per month during the study period. This study raises three important points about TPDS performance: first, there is significant variation at the state level; second, there is variation over time; and third, many states experiencing a "revival" are low-income states. Over the past decade, various studies have highlighted the success of state-level TPDS reforms in low-income states such as Chhattisgarh (Puri, 2012), Odisha (Aggarwal, 2015) and Bihar (Drèze et al., 2015). The NFSA incorporates many of these lessons from the reviving states. Important changes proposed to the TPDS under the NFSA are discussed below.

## Increased coverage of the TPDS

Section 3(2) of the NFSA extends TPDS coverage to 75% of the rural population and 50% of the urban population. This is a large increase from the pre-NFSA coverage of the TPDS, which was limited to households living below the poverty line (BPL). According to a report for the Planning Commission (Rangarajan, 2014), in 2014–2015, a person earning Rs 47 per day in urban areas and Rs 32 per day in rural areas was considered living below the poverty line. Approximately, 29.5% of the Indian population was hence in the BPL category. It is important to note that many states and UTs had expanded TPDS coverage before the NFSA was enacted, by introducing a "state-BPL" category that covered households that were poor but did not meet the central government's BPL "cut-off" (see Karat, 2011). For example, in Chhattisgarh, only 1.3 million households were receiving TPDS food grain subsidized by the central government in 2012 (Puri, 2012). The state government created a "state-BPL" category to expand the coverage of the TPDS to an additional 1.9 million households (not considered BPL by the central government). The NFSA also simplifies the different categories of beneficiaries from three categories in the pre-NFSA TPDS to two categories, by merging the Above Poverty Line (APL) and BPL categories into a single "priority" category and retaining the Antyodaya Anna Yojana (AAY) category. The AAY category was introduced in 2000 to target additional food subsidies to the "poorest of poor" households. Merging the APL and BPL categories was an important PDS reform, as one of the major criticisms of the pre-NFSA TPDS was the high diversion of food grain in the APL category (Drèze and Khera, 2015b).

### *Uniform entitlement of 5 kilograms of food grain per person*

Under Section 3(1) of the NFSA, every person belonging to a priority household is entitled to receive 5 kilograms of rice per person per month from the TPDS. In the pre-NFSA period, all BPL households would receive 25–35 kilograms of food grain, irrespective of the number of members in each household. The NFSA accounts for the differences in the number of members in each household by providing "per person" rather than "per household" entitlements. However, the NFSA retains pre-NFSA entitlements for AAY households that continue to receive 35 kilograms of food grain per household. This provision ensures that AAY households do not see a reduction in their pre-NFSA entitlements, as many AAY households have less than seven members.

### *Reduction in prices of food grain*

In the pre-NFSA period, the central government set "central issue prices (CIP)" for subsidized food grain distributed through the TPDS. The prices were Rs 5.65, 4.15 and 3 per kilogram for rice, wheat and coarse grains, respectively. However, many state governments provided state subsidies to further reduce prices (for example, Chhattisgarh reduced the price of TPDS rice from Rs 5.65/kg to Rs 3/kg in 2007 and Rs 2/kg in 2012). According to Schedule I of the NFSA, all eligible households shall be entitled to food grain at subsidized prices not exceeding Rs 3, 2 and 1 per kilogram for rice, wheat and coarse grains, respectively, for the first three years since the commencement of the Act. Subsequently, the central government may set prices that should not exceed the minimum support prices of each of the three food grains.

### *Identification of eligible households by state governments*

Under Section 10(1a and 1b) of the NFSA, state governments are required to identify the households to be covered under AAY and priority categories, within a year of the commencement of the Act. Once households have been identified, the list of eligible households is made available to the public. This provision addresses the high prevalence of inclusion and exclusion errors that were synonymous with the pre-NFSA TPDS due to its reliance on the 2002 BPL survey for rural areas and the 2007 BPL survey for urban areas (as mentioned earlier, some states expanded the coverage of their TPDS to non-BPL households through state subsidies).

### *Reforms of the TPDS*

Besides increasing coverage, reducing prices and streamlining entitlements, the NFSA places major emphasis on increasing the effectiveness of the TPDS by improving "last-mile" delivery. Section 12 of the NFSA makes it the responsibility of central and state governments to "progressively undertake necessary reforms of the TPDS". These include "doorstep delivery" of food grain from warehouses to TPDS fair price shops (FPSs), application of information and communication technologies (ICTs) with the aim of end-to-end computerization of the TPDS, transparency of records, shifting management of FPSs from private owners to public bodies such as women's cooperatives, diversification of commodities distributed (selling pulses and cooking oil at the FPS), leveraging Aadhaar (unique biometric ID) for identification of beneficiaries, and introducing programmes such as cash transfers and food coupons. "Doorstep delivery" of food grain involves transporting food grain from central government warehouses to TPDS shops. This replaced the practice of FPS managers being responsible for transporting food grain, which would often result in the diversion of grain (Puri, 2012).

The NFSA also makes provision for a food security allowance (to be paid in case food entitlements are not provided), sets up grievance redress mechanisms (for monitoring the implementation of the NFSA) and requires the central government to provide financial assistance to state governments for intra-state movement of food grain.

These provisions of the NFSA aim to improve the performance of the TPDS by improving targeting, increasing coverage and reducing corruption. It should be noted that while the NFSA covers four social programmes (child nutrition, school meals, maternity benefits and subsidized food grain distribution), this chapter primarily focuses on the subsidized food grain distribution programme (TPDS) as it is the largest component of the NFSA.

## Rollout of the NFSA

In this section, three important issues related to the rollout of the NFSA are discussed. These include the delay in the implementation of the Act, the lack of universal maternity benefits and the impact of fiscal devolution resulting from the recommendations of the 14th Finance Commission on NFSA-related programmes. Table 1.1 provides a detailed timeline of the major events relating to the rollout of the NFSA.

### *Delay in implementation*

One of the first setbacks in the rollout of the NFSA was the delay in its implementation as state governments were unable to complete the identification process. According to Section 10(1b) of the NFSA, state governments are required to identify eligible households within a year of the commencement of the Act. Table 1.2 provides a timeline to indicate when states and UTs started NFSA implementation. Only 11 of the 36 states and UTs had started receiving an allocation of food grain under the NFSA (i.e. based on the number of eligible NFSA beneficiaries rather than the pre-NFSA TPDS households) from the central government by 4 July 2014. Of these, six states and UTs (Chhattisgarh, Haryana, Karnataka, Maharashtra, Punjab and Rajasthan) had completed the process of identifying beneficiaries while the remaining five (Bihar, Delhi, Himachal Pradesh, Madhya Pradesh and Chandigarh) were still in the process of identifying beneficiaries.

Despite three extensions, moving the deadline to implement the NFSA to 30 September 2015, only 18 states and UTs were able to meet the deadline (Comptroller and Auditor General of India, 2015). In the following nine months, 16 more states and UTs implemented the NFSA. It was not until November 2016 that all states and UTs were implementing the NFSA.

*Table 1.1* Important NFSA-related dates

| *Date* | *Event* |
|---|---|
| 5 July 2013 | National Food Security Ordinance (NFSO) promulgated. |
| 20 August 2013 | Haryana becomes first state to implement NFSA. |
| 26 August 2013 | National Food Security Act (NFSA) passed by Lok Sabha. |
| 10 September 2013 | NFSA receives assent from President of India. |
| 11 February 2014 | Press note issued by central government indicating that ICDS, MDM and PMMVY will deliver entitlements listed in Sections 4–6 of NFSA. |
| 30 June 2014 | First extension of NFSA deadline by three months to 4 October 2014. |
| 28 November 2014 | Second extension of NFSA deadline by six months to 4 April 2015. |
| 25 January 2015 | Food Security Allowance Rules, 2015 notified by government. |
| 20 March 2015 | Targeted Public Distribution System (Control) Order, 2015 published – Section 3 (3) stated that no new AAY households will be identified. |
| 4 April 2015 | Third extension of NFSA deadline by six months to 30 September 2015. |
| 21 August 2015 | Cash Transfer of Food Subsidy Rules, 2015 notified by central government. |
| 28 October 2015 | Targeted Public Distribution System (Control) Amendment Order, 2015 published – Section 3(3) limiting AAY removed. |
| 1 November, 2015 | All states/UTs implementing NFSA (as Kerala and Tamil Nadu agree to implement NFSA). |
| 31 December 2016 | Prime minister announces maternal entitlement of Rs 6,000 for all pregnant women under PMMVY. |

Source: Compiled by author using information from the Government of India's Press Information Bureau (PIB)

*Table 1.2* Timeline of NFSA Implementation

| *Month and Year* | *State/UT* |
|---|---|
| September 2013 | Haryana |
| October 2013 | Delhi, Himachal Pradesh, Rajasthan |
| December 2013 | Punjab |
| January 2014 | Chhattisgarh, Karnataka |
| February 2014 | Chandigarh, Maharashtra |
| March 2014 | Bihar, Madhya Pradesh |
| August 2014 | Lakshadweep |
| June 2015 | West Bengal |
| September 2015 | Puducherry, Tripura |
| October 2015 | Jharkhand, Telangana, Uttarakhand |
| November 2015 | Odisha, Daman & Diu |
| December 2015 | Goa, Assam, Andhra Pradesh |
| January 2016 | Sikkim |
| February 2016 | Jammu & Kashmir, Andaman & Nicobar Islands |
| March 2016 | Meghalaya, Mizoram, Uttar Pradesh, Dadra & Nagar Haveli |
| April 2016 | Gujarat, Manipur, Arunachal Pradesh |
| July 2016 | Nagaland |
| November 2016 | Kerala, Tamil Nadu |

Compiled by author from various sources

One of the major reasons for the delay was the lack of transparency in the release of Socio-Economic Caste Census (SECC) data. According to a writ petition filed in May 2015 (Peoples' Union of Civil Liberties, 2015), the central government was "grossly negligent in releasing this data". As the latest census data available, it could have played a pivotal role in identifying beneficiaries. According to PUCL, of the 640 districts in India, final SECC data was only available for 141 districts in February 2015. The NFSA provided states and UTs with an opportunity to address the high inclusion and exclusion errors, one of the most pressing concerns that had ailed the TPDS. However, given the delay in the availability of SECC data, many states and UTs had no option but to use old data.

The delay raises important questions regarding the inability of states and UTs to deliver food grain to all eligible beneficiaries under the NFSA within a year of its coming into effect. As highlighted in the public interest petition filed by PUCL, the validity of these extensions provided by the central government is questionable. Millions of eligible beneficiaries in the 25 states and UTs that did not implement the Act on time were denied their food grain entitlement for more than a year.

### ***Lack of universal maternity benefits***

Maternity benefits play a pivotal role in the NFSA's "human life cycle" approach to nutrition by ensuring that all women have access to nutrition when they are pregnant. Section 4 of the NFSA requires the central government to provide all pregnant and lactating (until six months after childbirth) women a hot meal at their local *Anganwadi* and a cash entitlement of no less than Rs 6,000. Though the Ministry of Women and Child Development (MoWCD), that had been implementing the Indira Gandhi Matritva Sahyog Yojana (IGMSY) before the NFSA was enacted, the cash-based maternity benefit only provided Rs 4,000 and was limited to 52 "pilot" districts. With the enactment of the NFSA, the MoWCD increased the maternity benefit to Rs 6,000 but did not expand its geographic coverage. By limiting the programme to 52 of India's 640 districts and only the first two live births, the central government failed to ensure universal maternity benefits under the NFSA.

In 2015, the government announced plans to expand the coverage of IGMSY to 200 "high burden" districts, but no additional budgetary allocations were made to fund this expansion (Falcao and Khanuja, 2016). Instead, the allocation for maternity benefits declined from Rs 2,334 million in 2015–2016 to Rs 754 million in 2016–2017 (see Table 1.3 for budgetary allocations for maternity benefits). It was not until December 2016 that the Government of India announced plans to universalize maternity benefits. Under the PMMVY, or the Prime Minister's Maternity Benefit Programme),

*Table 1.3* Allocations for NFSA-related programmes, 2011–2012 to 2017–2018 (in INR millions)

| *Year* | *Total Food Subsidy* | *ICDS Services* | *Maternity Benefit* | *Mid-Day Meal* |
|---|---|---|---|---|
| 2011–2012 | 7,28,221 | 1,42,662 | 2,898 | 98,907 |
| 2012–2013 | 8,50,000 | 1,57,116 | 821 | 1,08,492 |
| 2013–2014 | 9,20,000 | 1,63,626 | 2,319 | 1,09,176 |
| 2014–2015 | 11,76,712 | 1,65,523 | 3,425 | 1,04,466 |
| 2015–2016 | 13,94,190 | 1,54,331 | 2,334 | 91,449 |
| 2016–2017 | 11,01,729 | 144,331 | 754 | 94,754 |
| 2017–2018 | 10,02,816 | 1,51,554 | 20,483 | 90,923 |
| 2018–2019 | 10,13,270 | 1,68,147 | 10,549 | 95,143 |
| 2019–2020 (RE) | 10,86,885 | 1,77,045 | 23,000 | 9,91,221 |
| 2020–2021 (BE) | 11,55,696 | 2,05,323 | 25,000 | 1,10,000 |

Source: Government of India, online at http://indiabudget.gov.in

a beneficiary is eligible for a cash incentive of Rs 5,000 for the "first living child of the family" and an additional Rs 1,000 from the *Janani Suraksha Yojana* (JSY) for institutional delivery. There are two major concerns regarding this programme, first, it limits maternity benefits to the first birth despite the NFSA requiring universal maternity benefits; and second, it does not provide the full amount required under the NFSA. If an individual does not have access to institutional healthcare, it would be impossible to claim the additional maternity benefit of Rs 1,000 under JSY.

### *Impact of fiscal devolution on NFSA implementation*

Two years after the enactment of the NFSA, the central government accepted the 14th Finance Commission's recommendation to increase tax devolution to states from 32% to 42%. Accordingly, states started receiving a larger share of the divisible pool of taxes. This was followed by the central government accepting the recommendation of the Sub-Group of Chief Ministers on Rationalization of Centrally Sponsored Schemes (CSSs) to reduce the number of CSSs from 66 to 30. Centrally Sponsored Schemes are social programmes designed and funded by the central government and implemented by state governments. The Sub-Group further recommended grouping CSSs under three groups: "Core of Core" (programmes for "social protection and social inclusion"), "Core" (programmes where the centre and states can work together) and "Optional" (programmes that states can choose to implement). This classification had major financial implications as the "Core of Core" programs would follow the existing funding pattern and "Core" programs would require states to fund 40% of the expenditure (10% in the case of 11 mountainous states). Three important NFSA-related programmes – Mid-Day Meal (MDM), Integrated Child Development Services (ICDS) and Maternity Benefits – were classified as "Core" programmes, implying that states would have to fund two-fifth of the expenditures incurred in implementing these programmes. This move by the central government raises two important concerns: first, should the central government exclude "legally mandated" programmes from the "Core of Core" programmes and second, will the states be able to bear the additional costs with the extra 10% of taxes that devolve to them.

Table 1.3 provides details of budget allocations made for the four main NFSA-related programmes: TPDS (food subsidy), ICDS, Maternity Benefit and MDM. While the food subsidy has seen a considerable increase owing to NFSA implementation starting in 2014–2015, ICDS and MDM have seen a slight decline. Though it is too early to assess the impact of fiscal devolution on NFSA implementation, there are concerns regarding the ability of low-income states to finance these programmes, as they are now legal entitlements.

## Innovations and challenges in NFSA implementation

With the rollout of the NFSA, state governments got a larger role in the design and implementation of the TPDS. This led to the emergence of state-level innovations and challenges during the implementation process. This section discusses three important issues: (a) identification of beneficiaries (which the NFSA delegates to state governments), (b) use of technology (a requirement under the NFSA) and (c) and an option to shift from in-kind food subsidy to cash transfers.

### *Identification of beneficiaries*

One of the main objectives of the NFSA is to reduce the high inclusion errors that had become synonymous with the TPDS over the past two decades. As most states used BPL survey data from 2002 and 2007 to identify rural and urban beneficiaries, respectively, the list of TPDS beneficiaries was fraught with errors. The NFSA provided an opportunity to rectify this problem by allowing states to use more recent data and new eligibility criteria to identify beneficiaries. Commonly used identification methods included recently collected data (such as SECC and state social security databases), the self-declaration process and, in some cases, using the old TPDS database with new additions. In most cases, states created eligibility criteria and used one of these methods to identify eligible beneficiaries. Each of these methods is discussed below with the help of examples.

### *Using recently collected data*

As most states used a combination of inclusion and exclusion criteria for determining eligibility for the NFSA, the SECC database provided the most updated and detailed information for this purpose. Bihar was one of the first states to use SECC for identifying NFSA beneficiaries. The government of Bihar used a set of exclusion criteria to determine NFSA eligibility (Drèze et al., 2015). For example, all households that had government employees or any members with a monthly income above Rs 10,000 were excluded from the NFSA. Similarly, households owning motorized vehicles or agricultural land above a certain limit were also excluded. Once identification of eligible households was completed, the state government printed NFSA ration cards for all households (with details of all beneficiaries) and distributed them to beneficiaries.

Unlike Bihar, many states were unable to use the SECC data due to delays in the processing of data. In Madhya Pradesh, the state government used a set of inclusion criteria to identify eligible beneficiaries from the Samagra Samajik Suraksha (comprehensive social security) mission database. The inclusion criteria included all old TPDS beneficiaries and all scheduled tribe/caste households. Again, there was no application process as the state government used the existing comprehensive social security mission database to print and distribute NFSA ration cards to eligible households.

### *Using a self-declaration process*

A self-declaration process requires all eligible beneficiaries to apply for a new NFSA ration card if they meet the eligibility criteria set by their state government. The governments of Chhattisgarh and Odisha adopted this approach. In Odisha, the department of food supplies and consumer welfare published six inclusion (homeless, destitute, primitive tribal group, widow pensioner, disabled or transgender) and nine exclusion (income taxpayer, government employee, owner of a motorized vehicle, owner of house with more than three permanent rooms) criteria to determine the eligibility for the NFSA.

A self-declaration process, combined with a post-application verification procedure, helps circumvent the problem of high exclusion errors (as was the case with the old BPL survey data) by ensuring that all eligible beneficiaries have an opportunity to apply. The government of Odisha digitized and de-duplicated all applications using the National Population Register (NPR) database. To identify applicants who were not eligible, the state linked the applicant database to external databases with information on inclusion and exclusion criteria (Satpathy, 2016).

### *Using the old TPDS beneficiary database*

The NFSA provided a great opportunity to rectify the inclusion and exclusion errors resulting from the use of old BPL lists. However, some states, such as Karnataka, Madhya Pradesh, Himachal Pradesh and Maharashtra included all old TPDS beneficiaries besides adding new beneficiaries due to increased coverage under the NFSA (Comptroller and Auditor General of India, 2015). This results in high inclusion errors due to two reasons: first, it includes non-poor households that were incorrectly included in the old BPL lists and second, it includes households that were poor during the BPL surveys conducted more than a decade ago but are not poor anymore.

## Use of technology in the TPDS

The use of ICTs is pivotal to the success of TPDS reforms. The NFSA makes provisions for states and UTs to increase transparency and reduce the diversion of food grain by "end-to-end computerization" of the TPDS. End-to-end computerization of the TPDS involves modernization (moving from paper-based to electronic systems) of the four main processes involved in providing food grain to beneficiaries: procurement, storage, transportation and distribution of food grain. While most states have computerized their procurement, storage and transportation processes over the past decade, the distribution process remains manual. Distribution of food grain refers to the final transaction that takes place between the fair price shop (FPS) manager and the TPDS beneficiary. Most states rely on "sales registers" for recording this transaction (beneficiaries buy their food grain entitlement and sign in the register) and this makes it a major avenue for diversion of food grain. One of the main sources of "leakage" of TPDS food grain involves the forging of sales information by FPS managers. If beneficiaries do not purchase their food grain entitlement for the month, a practice common among APL households, FPS managers forge entries in the sales register and sell this excess food grain in the open market (Drèze and Khera, 2011). FPS managers can also forge sales information by using fake or "ghost" beneficiaries (these are beneficiaries who either do not exist or have died).

Chhattisgarh has emerged as a front-runner in solving this last-mile delivery problem. In 2011, the government of Chhattisgarh launched the Centralized Online Real-Time Electronic Public Distribution System (COREPDS) that uses point of sale (PoS) machines and chip-based smart cards to record transactions between FPSs and TPDS beneficiaries. Unlike a conventional FPS, where transactions are recorded in a sales register, COREPDS transactions are recorded online (Vaidya and Somashekhar, 2017). When the beneficiary arrives at the FPS with her COREPDS smart card, the FPS manager inserts the smart card into the PoS machine. The PoS machine retrieves the information of the beneficiary from the server (the PoS machines require internet) and allows the beneficiary to purchase NFSA entitlements. Once the transaction is complete, the beneficiary gets a receipt with details of the quantity purchased and the price paid for each item.

Other than ensuring that all transactions are captured by the TPDS information system, COREPDS provides two benefits that have the potential to improve the quality of food grain and reduce corruption. First, COREPDS allows "portability of benefits" as beneficiaries can choose which FPS they want to purchase their NFSA entitlements from. Not only does this provide beneficiaries with a choice, but also increases competition among various FPSs. One of the major criticisms of the TPDS is the monopoly that FPS managers have over beneficiaries that are "attached" to their nearest FPS. With COREPDS, this attachment ceases to exist as beneficiaries can choose to purchase their NFSA entitlements from any FPS using their smart cards.

Second, COREPDS provides real-time information of stock availability at each FPS to the State Food Corporation (the government agency responsible for transporting food grain to all the FPSs) which helps streamline the transportation process. In the conventional TPDS, the SFC provides TPDS food grain to all FPSs at the beginning of each month based on the number of TPDS beneficiaries attached to each FPS. This leads to two problems: first, limited storage at the FPS does not allow for proper storage of food grain and second, this incentivizes corruption as FPS managers make fake entries for the leftover food grain and sell it off in the open market. Under COREPDS, there is real-time allocation of food grain based on the availability of stock at each FPS. As and when each FPS sells half of its existing stock, the respective FPS managers get an alert to place an order for more food grain, based on the information on the COREPDS server. Once the order for more allocation is received, food grain is dispatched to the concerned FPS.

COREPDS is only operational in urban areas of Chhattisgarh. An evaluation by the World Bank (Bhattacharya et al., 2017) found that, while COREPDS had improved the functioning of the TPDS, there were issues that need to be addressed before a similar system could be scaled up to rural areas and other states. First, internet connectivity is crucial for the success of a COREPDS-like system. Second, extensive training of all stakeholders (especially government agencies and FPS managers) must be a prerequisite for the adoption of any new technology. Third, there is a need to carry out widespread awareness campaigns to ensure that all beneficiaries have the required information to be able to access and use new technologies. Finally, for a system like COREPDS to work, the government must invest in good quality PoS machines and smart cards.

While COREPDS shows how technology can be used to improve the food distribution system by providing a choice to TPDS beneficiaries, ensuring timely delivery of food grain to FPSs and increasing accountability of all stakeholders, it is important to ensure that new technologies do not create hurdles in the effective implementation of the NFSA. The adoption of Aadhaar-Based Biometric Authentication (ABBA) for the identification of beneficiaries in the Rajasthan TPDS illustrates the limitations of new technologies when adopted without the necessary infrastructure and administrative preparedness.

Beginning in November 2015, the government of Rajasthan installed PoS machines in FPSs across seven districts and made biometric authentication mandatory for all purchases of NFSA food grain. Anumeha Yadav (2017) recounts her experiences in Ajmer and Baran districts where she met many beneficiaries who were unable to purchase food grain due to technical glitches. These included four problems: poor network leading to low internet connectivity (delaying distribution of food grain); errors in capturing fingerprints during Aadhaar enrolment; changes in fingerprints due to abrasions; and problems during "seeding" (i.e. linking of Aadhaar to NFSA ration card). Yadav also quoted the Additional Director of UIDAI who said that fingerprints for 10 to 15% of beneficiaries do not match and they are in the process of introducing iris scanners to address this problem.

Similar experiences have also emerged from Jharkhand, where the department of food and public distribution introduced biometric authentication in all FPSs of Ranchi district in mid-2016. Data from July and August (2016) show that beneficiaries received only half of their NFSA food grain entitlements after the introduction of PoS machines (Bhatnagar, 2016). Once again, common problems included "faulty seeding" (errors in data entry making authentication impossible), "biometric failure" (failure to recognize beneficiaries' fingerprints) and incorrect quantities being displayed in the PoS device due to errors in data entry.

It is important to mention that, in principle, the use of Aadhaar-based authentication can be used for ensuring that the intended beneficiary benefits from the NFSA. However, new technology can help improve the existing system only if the required prerequisites for it to function exist. In the case of Aadhaar-enabled PoS machines, the basic requirements are high-speed internet, uninterrupted power supply, good quality PoS devices, training for all stakeholders involved in the TPDS process, careful seeding of data and, most importantly, an effective grievance redressal system. The experience in both states suggests that these basic prerequisites were not in place before the new system was introduced.

## Cash vs. kind

Over the past decade, many academics and policymakers have suggested replacing in-kind food transfers with cash transfers to address the issues of leakage and poor quality of food grain from the TPDS (Saini and Gulati, 2015). Rather than going through the process of procurement, storage, transportation and distribution of food grain, which entails high costs, the government should transfer an equivalent amount of cash in all beneficiaries' bank accounts and let them buy the food grain themselves. Though this sounds very efficient in principle, many have raised concerns about the negative impacts of such a move on TPDS beneficiaries.

Khera (2016) presents findings from qualitative interviews across nine states that asked TPDS beneficiaries whether they preferred to buy food grain from the TPDS or a hypothetical cash transfer that allowed them to purchase the same quantity of food grain from the market. Approximately 67% preferred food over cash though the figure ranged from 91.3% in Andhra Pradesh (where the TPDS is functioning well) to 20.8% in Bihar (where TPDS was "languishing") when the survey was conducted in the summer of 2011. According to Khera, the respondents gave various reasons for preferring food over cash. These include food security (expenditure on non-food items), poorly developed rural markets (irregular supply of food grain), limited access to banks (costs involved in accessing faraway banks), experience with other cash transfers (delays in payment and hassles in accessing banks) and inflation (will the government be able to index the cash transfer to inflation).

This debate, as contentious as it is, relies heavily on hypothetical situations (or on the experience of other cash transfer programmes such as old age-, widow- and disability pensions) that makes it difficult to understand how cash transfers would work as a replacement for the TPDS. With Section 12(h) of the NFSA encouraging states and UTs to introduce "cash transfers and food coupons" as part of efforts to reform the TPDS and the Government of India notifying the "Cash Transfer of Food Subsidy Rules", states and UTs can now move from in-kind food transfers to cash (Khera, 2016; Government of India, 2015). However, despite notification of the cash transfer rules, no state has shown an interest in replacing the TPDS with cash transfers. As of early 2018, only three union territories (UTs) had implemented direct benefit transfers (DBT) of the food subsidy.

In September 2015, Chandigarh and Puducherry became the first state and UT to replace their TPDS with DBT. Six months later, Dadra and Nagar Haveli also introduced DBT. A study by the Jameel Poverty Action Lab (J-PAL) (Muralidharan et al., 2017) covering the first year of DBT implementation in the three UTs shows that in all three UTs, only two-thirds of the beneficiaries confirmed receiving the cash amount. Of the remaining, more than half reported not receiving any benefit. The report also mentions that on average, beneficiaries had to spend more time and money to purchase food grain and often spent more than the cash transfer amount, to purchase the same quantity of food grain that they would purchase from the TPDS. While any new programme experiences teething troubles, beneficiaries not receiving their full benefit amount one year after implementation is a major concern. More importantly, if cash transfers of food subsidies are not working in UTs, that are predominantly urban and have relatively well-functioning food grain markets, will they work in rural areas? The report goes on to recommend more pilots that test the feasibility of having a choice-based system that allows beneficiaries to opt for either in-kind transfers through the PDS or cash transfers through DBT.

## Conclusion

The National Food Security Act provides the right to food as a legal entitlement to all Indians. It does so by making provisions for universal maternity benefits, nutrition for children and access to highly subsidized food grain. Whether the provisions of this law translate into increased food and nutritional security depends on its successful implementation. This chapter has provided an overview of the early experiences of the rollout and implementation of the NFSA. It has highlighted the hurdles in the effective rollout of the programme and focused on the significant variation in NFSA implementation across states and UTs. This varied experience at the subnational level has resulted in innovation and posed challenges during the NFSA implementation process, that offer important lessons for ensuring food security through legislation. Two of these lessons include the need to ensure laws are implemented in letter and spirit and that a one-size-fits-all approach can do more harm than good.

Implementing the law in letter and spirit is essential for its success. The NFSA's implementation experience shows that delays in the rollout of the NFSA left millions of individuals without their legal entitlements. More importantly, the central government's attempts to reduce its financial liability resulting from the NFSA hampers the main objective of ensuring all individuals have the right to food. For instance, the law makes provisions for universal maternity benefits, but the new maternity benefits programme only covers the first child. Similarly, the government's attempt to phase out the Antyodaya Anna Yojana (AAY, a subsidized food programme for the poorest of poor households) by curtailing any new intake into the programme, shows how it goes against the letter and spirit of the NFSA, which makes special provisions for ensuring that AAY beneficiaries do not lose their coverage.

The initial experience of the NFSA also reveals that reforms of NFSA-linked social programs need to consider the local context rather than rely on a one-size-fits-all approach. More importantly, it is essential to ensure that all the prerequisites for the success of reforms are in place before the reform is initiated. A case in point is the use of new technologies to modernize the TPDS. The use of biometric authentication and point of sale devices to increase transparency and reduce diversion of food grain, though helpful in principle, has caused major disruptions in the TPDS. The experience with cash transfers in UTs further corroborates this as it shows how a sudden shift in the method of delivery without creating the required infrastructure can create problems for beneficiaries.

While the NFSA has provided the legal framework to ensure food and nutritional security in India, only the successful implementation of all its provisions can help achieve this goal. Hopefully, the NFSA will help the "languishing" states to revive their food and nutrition programmes, so they can become "functioning" again.

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