

## Background

POSHAN Abhiyaan aims to reduce malnutrition, through a life-cycle concept, adopting a synergised and result-oriented approach. Implemented by the Ministry of Women and Child Development (MWCD), Government of India, the target of the mission is to bring down stunting in children 0-6 years of age from 38.4% to 25% by 2022. It also aims to reduce anaemia among women and adolescent girls in the age group of 15-49 years and reduce low birth weight.

Leveraging technology, POSHAN Abhiyaan introduces an innovative mobile phone-based application to improve service delivery and programme management. The application aids anganwadi workers (AWWs) in their daily tasks, specifically in prioritising services during the critical first 1,000-day period from conception to two years for improved nutrition. It also helps programme officials track performance and take informed decisions. This learning note outlines steps and key lessons learnt in rolling out this technological innovation at scale.



LEARNING NOTE

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INDIA'S POSHAN ABHIYAAN

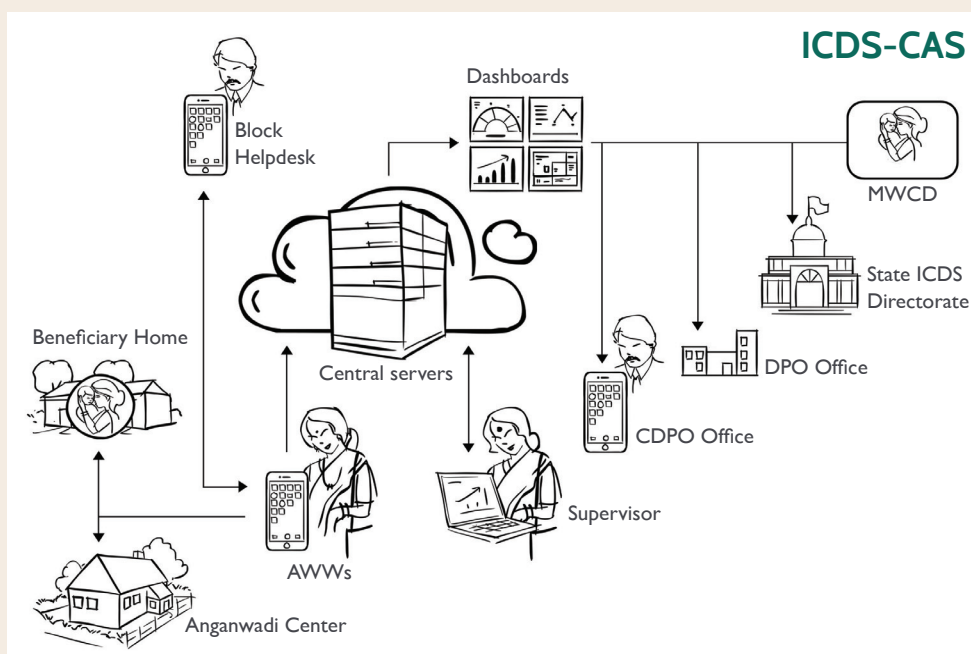
## Using Mobile Technology to Strengthen Service Delivery and Monitor Nutrition Services

### ICDS-CAS: A Technological Harbinger of Change

ICDS-Common Application Software (CAS) is an innovative mobile and web-based application that helps deliver services more effectively and efficiently. It enables better supervision and monitoring, and facilitates use of data for decision-making (Figure 1). It also helps improve beneficiary outreach through direct system-generated SMS alerts.

The application has a user-centric design, works both offline and online, is multilingual and has features such as GPS tagging and multimedia. It supports the four key stakeholders, namely, the beneficiaries, the AWWs, the ICDS supervisors and ICDS officials in different ways as discussed later.

Figure 1: ICDS-CAS – The Application Flow



## For Beneficiaries

The application triggers SMS alerts to parents whose children are identified as undernourished, motivating them to take additional care of their children and make the utmost use of ICDS services. Alerts to beneficiaries are sent to remind them to access services and corrective actions such as immunisation, health check-ups and referrals, are also planned.

## For AWWs

The mobile application acts as a job aid for the AWW, guiding her to take timely, prioritised actions through eight key modules:

- |                         |                                  |
|-------------------------|----------------------------------|
| 1. Household Management | 5. Take Home Rations             |
| 2. Home Visit Scheduler | 6. Due List                      |
| 3. Daily Nutrition      | 7. AWC Management                |
| 4. Growth Monitoring    | 8. Monthly Progress Report (MPR) |

It helps the AWW become a more effective worker with the modules replacing 10 out of the 11 paper-based registers that she earlier maintained at the centre.

Data from the 'household management module' allows individual beneficiary tracking and auto-generates priorities for the AWW under the 'home visit scheduler'. The scheduler guides her about which beneficiaries to prioritise for home visits, counselling and follow-up. This automatic prioritised list is based on time-periods identified as being critical during a woman's pregnancy and a child's early life. For example, home visits during the first week of a child's birth is critical in helping the mother establish exclusive breastfeeding and to identify danger signs of infection and illness in a child. Similarly, home visits to counsel and help initiate complementary feeding are critical when the child completes six months. The tool auto-lists households in the home visit scheduler based on these criteria, making it easier for the AWW to carry out timely home visits. It also supports her in beneficiary counselling through videos, facilitating the uptake of appropriate maternal, infant and young child nutrition practices.

Similarly, the 'due list module' auto-generates a list of children due for immunisation, to help her mobilise target families and administer vaccination much more effectively. The 'growth monitoring module' in turn aims to improve the accuracy of growth monitoring data, as the application auto-calculates a child's nutritional status and plots its growth chart on entering the child's weight. Accuracy is thus no longer contingent on an AWW's ability to physically plot a paper-graph.

The application also improves time and process efficiency by doing away with registers and making the electronic data thus collected more useful for service delivery.

## For ICDS Supervisors

ICDS supervisors are responsible for providing mentoring and supervision support to a group of 20-25 AWWs. ICDS-CAS includes a specific mobile-based supportive supervision application, allowing supervisors to easily identify good and poor performing centres in their respective sectors against key performance indicators. It also has a built-in checklist for use while conducting supervisory visits, which allows the supervisor to capture information based on observations and home visits. The supervisory application also allows data-driven discussions in the monthly sector meeting.

## For ICDS Officials

ICDS-CAS provides a combination of mobile and web-based applications and dashboards, making real-time information available on service delivery and beneficiary nutritional status at sector, block, district, state and national levels. This improves management and facilitates an early identification of gaps for informed decision-making and timely action.

# Rolling out the ICDS-CAS

## Step 1: Application design

The application design drew upon a small mHealth randomised control trial in district Saharsa in Bihar, India, to have positive impact on service delivery. MWCD, Government of India, customised this pilot application to the requirements of the ICDS programme and added dashboards to enable effective programme monitoring which would enhance service deliveries and impactful interventions on the ground.

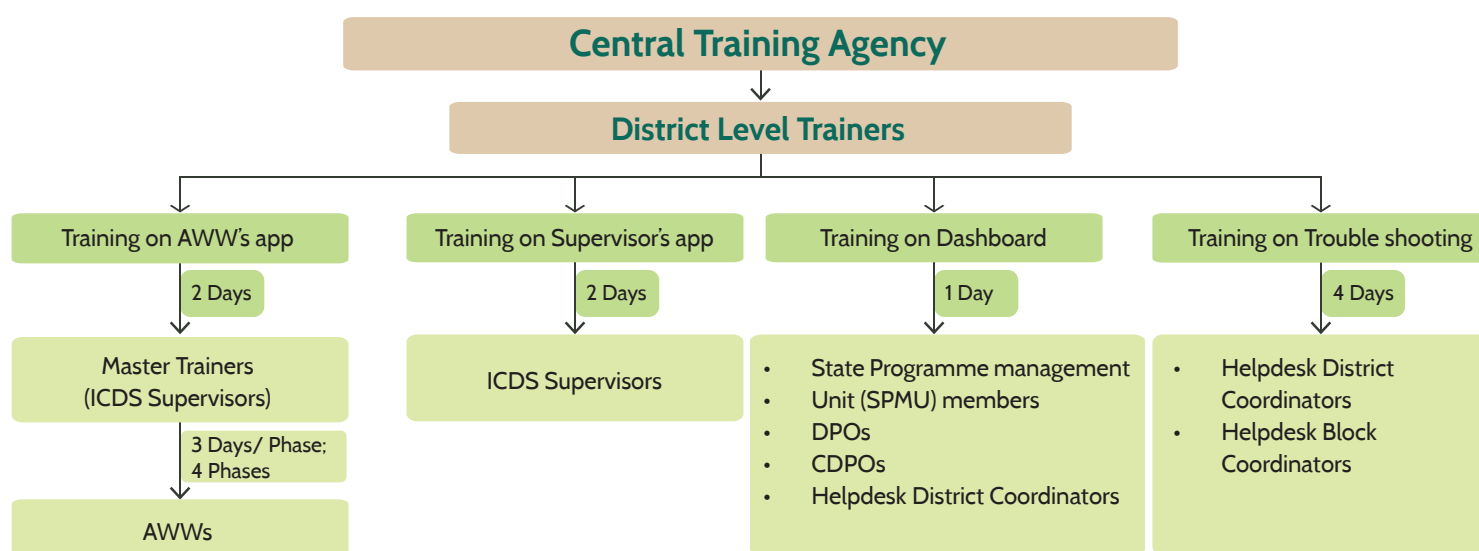
## Step 2: Procurement of mobiles, servers and recruitment of technical human resource

The procurement of mobile phones for the AWWs and supervisors and required support infrastructure (such as servers and cloud storage for data etc.) was a critical step in initiating roll out of the application. Equally important was the hiring of technical human resources (for helpdesks) to manage and troubleshoot technical issues faced by the workers and officials. Helpdesks, comprising 1-2 persons, were set up at the state, district and block levels.

## Step 3: Training of workers

The third critical step in rolling out the ICDS-CAS was the training of workers. Training on the application was delivered in a cascade manner, starting with the training of master trainers (MT), who are active ICDS supervisors. A central training agency (CTA), supported the training of MTs. The MTs in turn trained the AWWs on the application. The CTA also directly trained the ICDS supervisors, block and district officials, and helpdesk personnel on their applications viz., supervisor application, dashboard and issue tracker/ troubleshooting. (Figure 2)

Figure 2: ICDS-CAS Training Cascade



The training, specifically for the AWWs, was designed to allow first-time users to learn and assimilate at an easy pace. Implemented in four phases, each phase introduced the worker to a module, required her to go back to her village and use the application, and return to the next phase with questions on challenges faced. This made workers confident and comfortable with the application. Fears regarding the ability of semi-literate, technologically naive AWWs to use smart phones and the application dissipated as even aged workers easily picked up its use. In fact, learning to use the mobile phones generated a sense of empowerment in and of itself for many of the workers.

### Step 4: Using data for decision-making

The roll out is considered complete only once the AWWs starts using the application, after the training, and the ICDS officials start reviewing the dashboard to monitor progress, identify gaps and take corrective action. Monthly reviews at the state, district and block levels, using the dashboard data, help assess performance and actions required.

## Results

A process evaluation of the ICDS-CAS was carried out from September 2017 to February 2018 in Madhya Pradesh and Bihar. Conducted by independent external evaluators, the evaluation pointed out that central and state leadership, support from development partners and the AWW's acceptance of the tool facilitated effective roll out of CAS in the states. The majority of workers prefer the mobile application to the paper registers.

*“It’s easier to work with mobiles than registers.” - AWW, Madhya Pradesh*

*“Automating growth charts... was a huge win in getting AWWs and Supervisors to accept this as a tool. Within a month, phones were replacing registers.” - State ICDS official*

The application was well used by the AWWs, with 80% workers using it daily. The training was effective, with AWWs possessing good knowledge of the application: 94% workers correctly identified the home visit scheduler, with over 80% further correctly identifying the symbols signifying priority and timeliness of home visits. (Figure 3)

*“Home visit module shows who is to be visited... During home visits, we show videos and beneficiaries understand it (information) immediately.” - AWW, Madhya Pradesh*

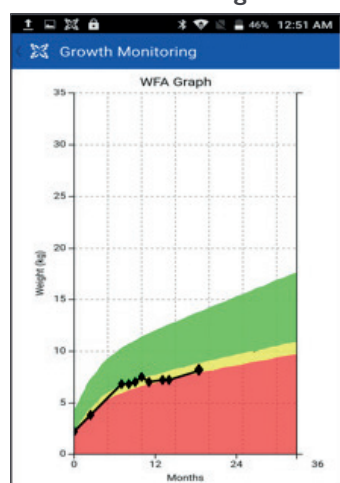
*“Earlier, I had to see the growth chart, which child lost weight, or in which group to include it. But now it is shown directly in the app.” - AWW, Madhya Pradesh (Figure 4)*

Nearly all AWWs report at least one challenge in using the app, but these challenges are primarily related to infrastructure – for example, hardware, application and network issues. With respect to service delivery, positive feedback was received from both AWWs and programme beneficiaries with AWWs in intervention areas conducting

Figure 3: Home Visit Module



Figure 4: Growth Monitoring Module



more home visits in the last one month compared to those in other areas. The application was also found to be helpful in facilitating counselling during home visits. However, no difference was seen in the frequency of growth monitoring between the intervention and control areas, except that older children were weighed in the intervention areas.

The voices of the beneficiaries also echoed the positive impact of the programme.

*“Earlier AWW did not visit [my] home. But now she visits and explains about sanitation and feeding children. She provides information during the monthly home visit.” - ICDS Beneficiary, Madhya Pradesh (Figure 3)*

The benefit of the application has also been voiced by programme officials in the states:

*“Earlier the focus was not on quality of services being delivered. Now, with this system, I get a complete dataset on the dashboard in one place which helps me prioritize the interventions to be made.” - State ICDS Official, Madhya Pradesh*

## Lessons Learnt

Today the ICDS-CAS is being used by more than 1,50,000 AWWs, with plans to scale it up to 14,00,000 by mid-2019. At its current scale, it is already the largest mobile technology deployment in public health and nutrition programme delivery in the world. Many lessons have been learnt in rolling out a programme on such an unprecedented scale, which presented several challenges:

### 1. Application design

Despite rigorous field tests, the need for dashboard improvement has been almost constant since its roll out. This has been based on (i) feedback from ICDS officials, to make the dashboards more management friendly, allowing them to easily list and identify AWCs that need attention (ii) inconsistencies in indicator definitions making interpretation of dashboard level data difficult; and (iii) the emergence of new needs following new interventions and/or programme design modifications. Having a team, that is well versed in programme interventions and technical nutrition knowledge, working with the application design team is helpful to address some of these challenges.

### 2. Balance between a focus on outcomes and service delivery indicators

The CAS dashboard originally focused on outcome level indicators such as nutritional status of children whose growth was being monitored at the AWC. However, the need for inclusion of service delivery indicators became apparent with the need for actionable follow-up by ICDS officials. For example, information on whether an AWW was conducting mandated home visits, conducting monthly community-based events etc., helped officials identify AWCs with poor service delivery, identify specific lag areas and take required supportive action. Thus in order to drive better governance and accountability across each state, inclusion of an actionable view of service delivery indicators along with nutrition outcome indicators, provides a more comprehensive real-time performance management tool for the programme.

### 3. Infrastructure for operations

One of the biggest challenges was putting in place the required infrastructure, both in terms of hardware (server capacity to handle data eventually expected from 14,00,000 AWWs) and human resources for district and block helpdesks and a technical team to organise training of MTs. Planning and budgeting for this within the programme is critical, without which scale up is not

possible. Having high capacity, top grade infrastructure available from the start, without adopting stopgap solutions, is important. To address this issue, the MWCD recently engaged a private cloud service provider to host the system.

### 4. Data access

The roll out of the ICDS-CAS was meant to help the programme move towards paper-less reporting. However, this continues to be a challenge. Currently, data is downloadable from the dashboard in .csv / excel / .pdf formats. There, however, remains a dependency on the support from the software development agency to provide raw data in a usable and readable format. Without comfortable access to data, transforming to a paper-less system is unlikely. The software development agency has recently initiated design changes to make data access easier, catering to raw data requirements of the government.

### 5. Using data for decision making

For effective use of data for programme review and decision making, it is important for all elements of CAS to be functional including the AWW and the ICDS supervisor applications and the web-based dashboards so that monthly/quarterly reviews can be institutionalised from national to the block level. This enforces a system where ICDS officials are mandated to view the dashboard data and use it for programme decision-making. With ICDS programme data becoming available in almost real-time in a user-friendly format for the first time, simultaneous steps to create a culture of using the data for decision-making is essential to bring out a changed data-driven management style. This is yet to get instituted and requires conscious efforts to actualise.

### 6. Sustainability

Sustainability of a technological intervention that currently involves multiple partners and requires many elements is challenging and costly. The programme has the required budget for rolling out the ICDS-CAS, however, it has been tapping grant support for the various level training/refreshers needs. The transition of this externally financed grant support to direct on-budget support is critical for sustained roll out and scale-up to the envisaged levels across 1.4 million AWWs. Building in plans for periodic hardware replacement is also critical. The actions for sustainability are now being considered by MWCD such as contracting a professional programme management agency to support management and maintenance of servers, roll out management, software updates and training-of-trainer support.