

## Research Article

# Performance Index for Assessing Government Funded Nutritional Programme in India

**Ramamoorthy T<sup>1</sup>, Patil RR<sup>2\*</sup> and Joseph A<sup>2</sup>**<sup>1</sup>Division of Biostatistics, School of Public Health, SRM University, India<sup>2</sup>Division of Epidemiology, School of Public Health, SRM University, India**\*Corresponding author:** Rajan R Pati, Sr.

Epidemiologist School of Public Health, SRM University, Chennai, India

**Received:** November 13, 2017; **Accepted:** December 12, 2017; **Published:** December 19, 2017**Abstract**

**Introduction:** An index is a composite of indicators that produces a single calculation which can then be ranked. An indicator is a quantitative or a qualitative measure derived from a series of observations that can reveal relative positions. An Index can summarize complex, multi-dimensional realities with a view to supporting decision makers. It is easier to interpret than a battery of many separate indicators and it reduces the visible size of indicators without dropping the underlying information base. Integrated Child Development services (ICDS) Scheme is the largest nationwide programme for the promotion of mother and child health. The scheme services are rendered essentially through Anganwadi Centres (AWC), which plays a vital role in child health nutrition and maternal health. It becomes essential to assess these anganwadi centres based on its functions and this study attempted to develop an index for assessing the performance of Anganwadi centres across Tamil Nadu to facilitate inter and intra district comparison. The main objectives of the Performance index development are 1) to find complex inter-relationships between various dimensions of ICDS programme in Tamil Nadu and their current levels of outcomes. 2) To classify the Anganwadi Centers based on their performance 3) To rank the Districts based on the performance of the AWCS.

**Methodology:** The dimensions and the indicators for the index has been finalized by the experts which captures all the facets of AWC functioning and performance in terms of input, process and output. The theoretical framework aimed to capture an interrelated set of factors that represent the primary elements which combine to produce ICDS progress and performance. Data was being collected from 1600 AWC's across 32 districts in Tamil Nadu during April to September 2014 as part of independent evaluation of ICDS programme commissioned by Government of Tamilnadu and carried out by School of Public Health, SRM University. This study was an academic component of the survey carried out by the authors after taking due permission from state authorities. The number of sample AWCs in each district was proportional to the total AWCs in each district. The collected data is then normalized using Max – Min method of normalisation which resulted in a score ranging from 0 to 1, to preserve the comparability of the dimensions. To reflect the relative importance of indicators and dimensions, the dimension weights and indicator weights were allotted through multivariate technique called factor analysis. Weights were constructed using the matrix of factor loadings, given that the square of factor loadings represents the proportion of the total unit variance of the indicator which is explained by the factor. Finally, simple aggregation technique was used to arrive at the overall performance index score. Anganwadi centres with a score greater or equal to 75 were classified as “Good” performing centre, 60 – 74.99 as “Average” and less than 60 as “poor” performing centres. Also the districts were ranked based on the average (simple average scores of the centres in that district) dimension / index score with higher score indicating better performance of the district. IBM SPSS version 22.0 was used for the analysis.

**Results:** The ICDS performance index score resulted from the weighted sum of 35 indicators (chosen from 55 indicators) representing 7 dimensions of ICDS namely Infrastructure, Nutrition, Preschool Education, Health, Immunization, Referral services and Nutrition and Health Education. Dimension scores along with the overall index score has been calculated for each and every anganwadi centre. The districts were ranked based on the mean score obtained by the AWCs on each of the components and overall dimension score. The scores of individual districts ranged from 0.918 to 0.790. The best performing districts were Chennai, Dharmapuri, and Madurai. The least performing districts were Tiruvannamalai, Villupuram, Nagapattinam. The average ICDS Performance

score for Tamil Nadu state was 0.863. About 17 districts were above state average and 15 districts were below the state average. Overall efficiency of AWCs in providing ICDS Services was excellent across all AWCs in Tamil Nadu state. It was found that overwhelming majority of 95 per cent of AWCs in Tamil Nadu were classified under Good category, while only about 4 per cent were categorized as Average. It was noteworthy only 1 percent of the sample AWC could be classified as poor.

**Conclusion:** ICDS Performance Index is the first ever index developed to assess AWCs, to the best of our knowledge. The ICDS performance index which objectively assesses the Anganwadi centres based on its core functions provided a holistic, objective, transparent, outcome-based measure of ICDS performance right at the level of AWC. ICDS Index facilitated the comparison of AWCs and districts on different facets of Input, Process and Output indicators allowing the identification of specific areas of strength or weakness of AWCs. It also allows AWCs to benchmark themselves against other AWCs in same districts as well across the Tamil Nadu state. The index, when transformed into a self-assessment tool will help to understand the parameters on which each and every anganwadi center is performing well and also help identify focus areas for improvement. This performance Index can be easily customised to other states, so that rational Inter and Intra state comparison can be made on ICDS performance.

**Keywords:** Index; Anganwadi; ICDS; Evaluation

## Introduction

An index is a composite of indicators that produces a single calculation which can then be ranked. An indicator is a quantitative or a qualitative measure derived from a series of observations that can reveal relative positions. An Index can summarize complex, multi-dimensional realities with a view to supporting decision makers. It is easier to interpret than a battery of many separate indicators and it reduces the visible size of indicators without dropping the underlying information base.

Integrated Child Development Services (ICDS) in India is the largest nationwide programme launched in the year 1975, for the promotion of mother and child health. The beneficiaries of the scheme includes children below six years, pregnant and lactating women, adolescent girls in the age group of 14 – 18 years and women in the age group of 15 to 44 years [1,2]. The program provides an integrated approach for converging all the basic services for improved childcare, early stimulation and learning, health and nutrition, water and environmental sanitation aimed at the young children, expectant and lactating mothers, other women and adolescent girls in a community. The scheme services are rendered essentially through the Anganwadi Worker (AWW) at a village centre called “Anganwadi”. Anganwadi Centres (AWC) plays a vital role in child health nutrition and maternal health.

Researchers have evaluated various aspects of ICDS program like infrastructure of AWCs, characteristics of Anganwadi workers, utilization of services and coverage of various ICDS services provided [3-7] and found the program gaps in each of these aspects. It was found that none of these studies attempted to study all the functions of ICDS. It becomes essential to assess these anganwadi centres based on its functions and this study attempted to develop an index for assessing the performance of Anganwadi centres across Tamil Nadu based on input, process and output indicators to facilitate inter and intra district comparison.

The main objectives of the index development were 1) to find complex inter-relationships between various dimensions of ICDS programme in Tamil Nadu and their current levels of outcomes. 2) To classify the Anganwadi Centers based on the performance 3) to rank the Districts based on the performance of the AWCs.

## Methodology

Index development involved intense data mining of ICDS-SRM survey data to interpret composite indicators until they proved useful in benchmarking AWC at center level and district performance on core ICDS functions and services. Data was being collected from 1280 AWC's across 32 districts in Tamil Nadu. A sample of 40 AWCs was chosen from each district proportionately stratifying on rural, urban and tribal status of AWC. Data collection was done during April 2014 – June 2014. Pre designed pre tested questionnaire were used for the study. The input, process and output indicators of various functions were being collected from the Anganwadi workers and from the community. IBM SPSS version 22.0 was used for the analysis.

Following steps were followed in developing ICDS performance Index. It begins from the development of a theoretical framework to the presentation and dissemination of an Index results. Each step is extremely important, but coherence in the whole process is equally vital. Choices made in one step can have important implications for others: therefore, the Index building process has not only to make the most appropriate methodological choices in each step, but also to identify whether they fit together well.

### Developing a theoretical framework - Selection of dimensions

The ICDS Performance Index framework aims to capture the level of ICDS Anganwadi centers performance within a given area. The Index is composed of seven dimensions, which are based on the functions and services of ICDS. The indicators within the dimensions are combination of input, process and output variables of the corresponding dimension. Together, this framework aims to capture

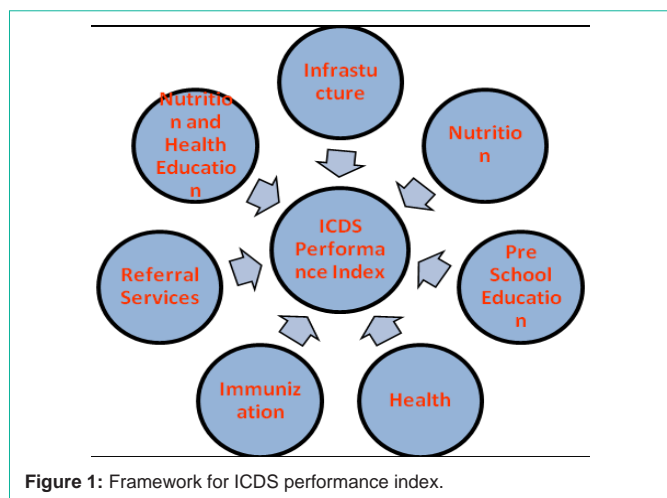


Figure 1: Framework for ICDS performance index.

an interrelated set of factors that represent the primary elements which combine to produce ICDS progress and performance. The ICDS performance Index methodology allows measurement of each dimension, and yields an overall score and ranking. The structure of framework has been illustrated in Figure 1.

**Selection of dimensions and indicators**

The selection of the dimensions and the elaboration of the indicators within each dimension occurred through an iterative process involving review of the literature and input from the consultative meeting with ICDS and Department of Evaluation and Research (DEAR) experts. The components represent what we believe to be the most complete set of broad elements available in the SRM ICDS Survey given our current understanding.

Extensive discussions were held with the experts across disciplines on the 7 dimension structure of the ICDS performance Index to ensure that it actually captures all the facets of AWC functioning and performance. While it cannot certify that all necessary indicators for a thorough comparison have not been omitted, it is assured that the present matrix is indeed representative enough as to enable a broad assessment of AWCs in 32 districts in the state of Tamil Nadu. SRM ICDS survey was an exhaustive exploration of the current status of Anganwadi functioning which provided the basis for devising the possible set of indicators to be considered for the ICDS performance index.

Table 2: Classification of AWCs based on performance.

Category	Score
Good	≥75
Average	60 – 74.99
Poor	0 – 59.99

**Normalization of data - Avoid adding up apples and oranges**

Normalization is required prior to any data aggregation as the indicators in a data set often have different measurement units, for present index construction Max – Min method of normalization was used.

There were two types of indicators involved in the index development: Qualitative and Quantitative. Qualitative indicators are those questions which are generally answered in yes and no categories e.g. availability of potable water, availability of weighing scales in working condition, etc. Quantitative indicators are those which can be quantitatively measurable e.g., knowledge of AWW on health that can be given scores, Percentage of nourished children, etc. The normalization was done based on the Max – Min Method of normalization using the formula,

$$Value - Minimum/Maximum - Minimum$$

For a qualitative indicator, normalized score may be predefined and easily listed because of the exhaustive options available for the indicator. For example, the indicator that has two possible options as yes and no for example availability of potable water will have normalized score of either 0 or 1 whereas the indicator like condition of flooring with three options for example “not damaged”, “ Minor damage” and “Major damage” will have normalized score of 0, 0.5 and 1 as score. The whole idea is to irrespective of the number options, the scores for each option will be fractions between 0 and 1 so that when scores of all options are added up for the given indicator it adds up to 1 or 100%.

For a quantitative indicator, normalized score can be predefined but cannot be easily listed because each unit takes its unique measurement hence options will be exhaustive for example weights of children in a given AWC (it will be different for each and every centre). But, both the qualitative and quantitative indicators use the Max – Min method of normalization. Each of the qualitative indicators has

Table 1: Factor loadings and weights of Infrastructure dimension of ICDS Performance Index based on factor analysis.

Infrastructure	Factor Loading				Squared Factor Loadings ( scaled to unity sum)				Weight
	F1	F2	F3	F4	F1	F2	F3	F4	
Type of building	0.37	0.53	-0.59	0.05	0.09	0.26	0.34	0.00	0.14
Availability of Toilet	0.79	-0.07	0.06	0.04	0.41	0.00	0.00	0.00	0.25
Availability of potable water	-0.02	0.60	0.46	-0.65	0.00	0.34	0.21	0.44	0.16
Ventilation of building	0.60	0.24	-0.11	0.03	0.23	0.06	0.01	0.00	0.14
Source of water	-0.19	0.53	0.40	0.72	0.02	0.26	0.16	0.55	0.20
Place of cooking	0.61	-0.29	0.52	0.08	0.24	0.08	0.26	0.01	0.11
Expl.var	1.52	1.06	1.01	0.95					
Expl.Tot	0.33	0.23	0.22	0.21					

Note: Expl. Var is the variance explained by the factor and Expl./Tot is the explained variance divided by the total variance of the four factors.

**Table 3:** Dimensions and indicators of ICDS performance index considered for expert opinion.

S. No	Dimensions	Indicators	E1	E2	E3	E4	Median
1	Infrastructure	Type of building *	10	10	5	5	7.5
		Good Condition of floor	10	5	5	5	5
		Availability of Toilet*	10	10	10	10	10
		Availability of potable water*	10	10	10	10	10
		Ventilation of building*	10	5	10	5	7.5
		Electricity connection	5	5	5	10	5
		Source of water*	5	10	10	5	7.5
		Chlorination of water	5	5	5	5	5
		Place of cooking*	10	10	10	10	10
		Source of fuel	5	5	10	5	5
2	Nutrition	Timely Supply of Supplementary Nutrition to AWC*	10	10	10	10	10
		Timely Supply of food items*	10	10	10	10	10
		Supplementary Nutrition Training*	10	5	10	5	7.5
		Updated growth chart*	5	10	10	5	7.5
		Weighing Scales*	5	10	10	10	10
		Proportion of well nourished children*	10	10	10	5	10
		Hygiene Practice*	10	10	10	10	10
		Growth monitoring training *	10	5	10	10	10
		Identification of under nutrition training*	10	5	10	10	10
		IYCF training*	10	5	10	5	7.5
3	Pre School Education	Updated Pre School register*	5	10	10	5	7.5
		Pre School education items*#	5	5	10	5	5
		Pre School training*	10	5	10	5	7.5
		Cognitive Skill of Children*	10	10	5	5	7.5
4	Health	Availability of Medicine kit	5	5	5	10	5
		AWW knowledge on health*	10	10	5	10	10
		Distribution of IFA tablets	5	10	5	10	7.5
		Updated Prenatal and post natal register*	5	10	10	5	7.5
		Availability of Home visit planning register	5	10	5	5	5
		Availability of First Aid Kit	5	5	10	5	5
		Availability of Hygiene kit	5	5	10	5	5
		Usage of medicine kit training*	10	5	10	5	7.5
		ANC PNC training	10	5	5	5	5
		IMNCI training	10	5	5	5	5
5	Immunization	Distribution of Deforming tablets*	5	10	10	10	10
		Updated Immunization register*	10	10	5	10	10
		Immunization training*	10	5	5	10	7.5
		Distribution of Vitamin A tablets/Syrup*	5	10	5	10	7.5
6	Referral Services	AWW Knowledge on immunization*	10	10	5	10	10
		Referral services training*#	10	5	5	5	5
7	Nutrition and Health Education	Updated Referral register*#	5	10	5	5	5
		AWW knowledge on Nutrition, breastfeeding & weaning*	10	10	10	10	10
		AWW Undergone Health and Nutrition Education Training*	10	5	10	5	7.5
		AWC conducting Health and nutrition activities*	10	5	10	5	7.5
		Proportion of children given colostrum*	10	0	5	10	7.5
Proportion of children given mother's milk *	10	0	5	10	7.5		

#Indicators were included additionally. \*Indicators finalized for the index

multiple options, all the options will be given scores ranging from 0 to 1 in decreasing order so that the best option gets score of one and the worst option gets score of 0 and all other intermediate options get scores in fractions between 0 to 1.

### Weighting - Allotting weights (Domain weights and component weights to Indicators)

The weights are often selected in order to reflect the relative importance of the indicator for the phenomenon to be measured. Perhaps the most difficult aspect of constructing a multidimensional index is choosing weights for the components. A number of weighting techniques exist which include both objective and subjective methods. Objective methods are derived from statistical models, such as factor analysis, whereas subjective methods are derived from participatory methods such as Delphi method that incorporate weights based on expert opinion and through a process of discussion and consensus building.

Multivariate techniques present an empirical and relatively more objective option for weight selection, allowing for no control over the selection of weighting scheme. This is due to the fact that the weights are selected based on the data themselves. Principal components analysis, and more specifically factor analysis, groups together individual indicators which are collinear to form a composite index that captures as much as possible of the information common to individual indicators. It is important to note that individual indicators must have the same unit of measurement either naturally on its own or through standardization. Each factor (usually estimated using principal components analysis) reveals the set of indicators with which it has the strongest association. The idea under PCA/FA is to account for the highest possible variation in the indicator set using the smallest possible number of factors. Therefore, the composite no longer depends upon the dimensionality of the data set but rather is based on the “statistical” dimensions of the data.

The weights for the ICDS Performance Index were allotted through Factor analysis. To find the weights of the individual indicators (both at dimension level and overall index level), the following procedure suggested by Nicoletti *et al.*, (2000) was used. Weights were constructed using the matrix of factor loadings, given that the square of factor loadings represents the proportion of the total unit variance of the indicator which is explained by the factor. Consider the dimension “Infrastructure” which has six indicators.

With the ICDS SRM Survey datasets, there are four factors as shown in the (Table 1). The first includes availability of toilet (with a weight of 0.41) and Ventilation of the building (weight 0.23). The second factor does not have any significant indicators. The third factor includes good structure of building (weight 0.34) and Place of cooking (weight 0.26) and the fourth by availability of potable water (weight 0.44) and source of water (weight 0.55). The four factors are aggregated by assigning a weight to each one of them equal to the proportion of the explained variance in the data set:  $0.33 = (1.56 / (1.52+1.06+1.01+0.95))$ , 0.23 for the second, 0.22 for the third and 0.21 for the fourth. To preserve the comparability between the other dimensions, final weights were rescaled to sum up to one (Table 1).

The above process of Factor Analysis was performed at two different levels. One at the overall Index level and other at the

Dimension level, hence leading to the two different weights for the indicators. Dimension Weight and Overall Index weight. i.e., Dimension weights were arrived by performing factor analysis only for set of indicators that form the given dimensions, whereas overall index weights were arrived by including all the 35 indicators representing all the 7 domains in the factor analysis. The resulted factor analysis tables are attached in the *Appendix*.

### Aggregation

Index scores were calculated by aggregating the weighted indicator scores of the corresponding indicators (here the overall weight was used). Dimension scores were calculated by adding the weighted indicator scores of the corresponding dimension (here the dimension weights were used). To preserve the comparability of the dimensions, the indicators were normalized before calculating the weights of the indicators.

Two level of grading were followed for ICDS performance index and the dimensions

1. Centre level
2. District Level

At the center level, each and every center was classified as good, average and poor performing center based on the classification criteria given in (Table 2).

At the district level, districts are ranked based on the average (simple average scores of the centres in that district) dimension / index score with higher score indicating better performance of the district.

### Dimensions and indicators

Dimensions and indicators for the Index were finalized based on the log frame provided by Department of Evaluation and Research (DEAR) in consultation with ICDS and J-PAL for SRM -ICDS survey which provided the basis for construction of the ICDS PI. Table 2 presents the dimensions and components of the ICDS Performance Index.

The face validity for the index was achieved through following steps:

1. Finalization of the Indicators and domains for ICDS Performance Index through brainstorming sessions with ICDS, DEAR and subject experts from SRM SPH.
2. Peer review was done by expert in Psychometry and Index Development.

Content validity of the Index was carried out through following processes:

1. To understand the extent to which indicators reflect the performance of the Anganwadi centre (AWC) in the corresponding dimension, 5 experts were identified who are not related to the current project.
2. The five experts were invited to evaluate the indicators identified for the index by scoring each of the indicators on a scale of 1-10, with respect to the extent to which they reflect the performance of the Anganwadi Centre (AWC) in the give domain. For example

if “water supply” is a good indicator of the “infrastructure” domain, then experts were requested to give a rating of 10, but if they thought it was a moderate indicator, a score of 5 and if they thought it was very poor, a score of 0.

Four out of five experts provided their considered opinion and Median Scores were calculated for each indicator which is given in (Table 3). A cut off value of 7.5 was considered and indicators satisfying this value were finalized as the indicators for the index.

## Results

Based on the ICDS performance Index along with its components and indicators, each of the AWC was classified as Good, Average and Poor. The districts were ranked based on the mean score obtained by the AWCs on each of the components and overall dimension score.

### Ranking based on overall performance Index

The ICDS Performance Index score is weighted sum of all 35 indicators representing 7 dimensions of ICDS performance namely

1. Infrastructure,
2. Nutrition,
3. Preschool Education,
4. Health,
5. Immunization,
6. Referral services and
7. Nutrition & Health education.

The districts in Tamil Nadu were ranked based on over all ICDS Performance Index score. The tables give the ranks of the districts and its ICDS Performance Index score. The scores of individual districts ranged from 0.918 to 0.790. The best performing districts were Chennai, Dharmapuri, and Madurai. The least performing districts were Tiruvannamalai, Villupuram, Nagapattinam.

The average ICDS Performance score for Tamil Nadu state was 0.863. About 17 districts were above state average and 15 districts were below the state average.

Infrastructure Dimension is made up of multiple indicators that reflect quality of building such as terraced building, with good ventilation, place of cooking, proper source of water and has availability and access to amenities like toilet and potable water.

The districts in Tamil Nadu were ranked based on average Infrastructure score of all AWCs within the district. It give the ranks of the districts and its ICDS Performance Index score. The Infrastructure dimension score of individual district ranged from 0.954 to 0.70. The best performing districts in the infrastructure dimension were Chennai, Dharmapuri and Kanchipuram. The least performing districts were Tiruvarur, Salem and Villupuram. The average Infrastructure Dimension score for Tamil Nadu state was 0.804, with 18 districts above state average and 14 districts below the state average.

Nutrition Dimension is Timely supply of materials, training status and skill up gradation, availability of basic materials in ICDS and impact of services on nutritional outcomes in the community.

It gives the ranks of the districts and its ICDS Performance Index score. The nutrition dimension score of individual district ranged from 0.939 to 0.818. The best performing districts in the Nutrition dimension were Namakkal, Karur, and Coimbatore. The least performing districts were Nagapattinam, Villupuram and Tiruvannamalai.

The average nutrition dimension score for Tamil Nadu state was 0.901, with 17 districts were above the state average and 15 districts were below the state average.

Pre School Education component was assessed through select Indicators namely availability of Pre School education items like Toys, Posters, chair, Blackboard in the AWC, AWW must have undergone formal preschool education training and availability of Pre School Education Register in the AWC and levels of child learning abilities. It gives the ranks of the districts and its ICDS Performance Index score. The Pre School Education dimension score of individual district ranged from 0.987 to 0.777. The best performing districts in the infrastructure dimension were Chennai, Krishnagiri and Kanchipuram. The least performing districts were Tiruvarur, Villupuram, and Nagapattinam.

The average Pre School Education dimension score for overall Tamil Nadu state was 0.902 with 21 districts above state average and 11 districts below the state average.

Health Component was measured availability of kits like Medicine kit, distribution of deforming tablets, registers related to PNC/ANC registers and Knowledge on health.

Ranking of districts of all AWCs across Tamil Nadu was based on average Health score of all AWCs in the given district. It gives the ranks of the districts and its ICDS Performance Index score. The Health dimension score of individual district ranged from 0.962 to 0.728. The best performing districts in the health dimension were Cuddalore, Dharmapuri and Salem. The least performing districts were Thanjavur, Pudukottai and Nagapattinam.

The average Input dimension score for over all Tamil Nadu state was 0.871, with 16 districts were above state average and 16 districts were below the state average.

Immunization dimension covers indicators like Availability of immunization register, Undergone immunization training, distribution of Vita A tablets and knowledge on immunization.

Ranking of districts of all AWCs across Tamil Nadu was based on average immunization dimension score of all AWCs in the given district. It gives the ranks of the districts and its ICDS Performance Index score. The Immunization dimension score of individual district ranged from 0.965 to 0.682. The best performing districts in the immunization dimension were Dharmapuri, Madurai and Tiruvallur. The least performing districts were, Tiruvarur, Pudukottai, Nagapattinam.

The average Input dimension score for over all Tamil Nadu state was 0.896, with 18 districts were above state average and 14 districts were below the state average.

Referral dimension is made up of Referral service dimension has only two indicators AWW undergone Referral services training and

availability of updated referral register.

Ranking of districts of all AWCs across Tamil Nadu was based on average referral dimension score of all AWCs in the given district. It gives the ranks of the districts and its ICDS Performance Index score. The referral dimension score of individual district ranged from 0.985 to 0.625. The best performing districts in the Referral dimension were Chennai, Madurai and Vellore. The least performing districts were Pudukottai, Tiruvarur and Nagapattinam.

The average Referral dimension score for over all Tamil Nadu state was 0.836, with 16 districts were above state average and 16 districts were below the state average.

Nutrition and Health Education covers indicators AWW knowledge on Nutrition and health Education, AWW conducting health and Nutrition activities, AWW undergone Health and Nutrition Activities, proportion of children given colostrum and mother's milk. Arrangement of districts were made to reflect relative positioning of the districts in Tamil Nadu based on performance on Nutrition and Health education score of all AWCs. It gives the ranks of the districts and its ICDS Performance Index score. The Nutrition and Health education dimension score of individual districts ranged from 0.956 to 0.765. The best performing districts in the Health and Nutrition education dimension were Chennai, Tiruvallur and Kanchipuram. The least performing districts were Tiruvannamalai, Theni and Nagapattinam.

The average Health and Nutrition education dimension score for overall Tamil Nadu state was 0.872 with 16 districts were above state average and 16 districts were below the state average.

#### Classification of AWCs based on index and dimensions

Each and every Anganwadi center was classified as Good, Average and Poor based on Index and its dimension scores, following the classification criteria explained in the methodology.

When AWCs were assessed based on the Infrastructure dimension across Tamil Nadu state, and as expected Infrastructure for running ICDS was very robust in the state. Majority of the AWCs 68 percent were categorized under Good, while about 18 percent were categorized as average. Less than 14 percent of AWCs were classified as poor AWCs.

Nutrition dimension assessment of AWCs across the state was excellent. Overwhelming majority of 94 per cent of the AWCs was categorized under Good, while about 4 per cent were categorized as Average. Less than 2 per cent of AWCs were classified as poor. It could be observed that there were few isolated AWCs from few select districts not exceeding maximum three poor AWC in any given district in Tamil Nadu.

Assessment of AWCs based on the Pre-school education inputs given to AWCs across the state was excellent. Majority of 88 per cent of the AWCs were categorized under good, while about 6 per cent were categorized as average. Less than 6 cent of AWCs was classified as poor.

Health dimension assessment of AWCs across the state appeared to be good. Majority of the AWCs 85 percent were categorized under Good, while about 7 percent were categorized as average. About 8

percent of AWCs were classified as poor AWCs.

Assessment of AWCs based on the Immunization performance of AWCs across the state was excellent. Majority of 88 per cent of the AWCs were categorized under good, while about 6 per cent were categorized as average. Less than 6 cent of AWCs were classified as poor

When AWCs were assessed based on the Referral dimension across Tamil Nadu state. Majority of the AWCs 85 percent were categorized under Good, while about 7 percent were categorized as average. Less than 8 percent of AWCs were classified as poor AWCs.

With respect to Health and Nutrition and Health education inputs given to AWCs, about 88 per cent were classified under Good category. About 9 percent AWC in entire Tamil Nadu was classified as average and less than 3 percent were categorized as poor.

#### Classification of AWCs based on ICDS Performance Index

Overall efficiency of AWCs in providing ICDS Services was excellent across all AWCs in Tamil Nadu state. It was found that overwhelming majority of 95 per cent of AWCs in Tamil Nadu was classified under Good category, while only about 4 per cent were categorized as Average. It was noteworthy only 1 percent of the sample AWC could be classified as poor.

### Conclusion

The ICDS performance indexes which objectively assess the Anganwadi centres based on its core functions, provides a holistic, objective, transparent, outcome-based measure of an ICDS performance right at the level of AWC. ICDS Index can be used to compare AWCs and districts on different facets of Input, Process and Output allowing the identification of specific areas of strength or weakness of AWCs. It also allows AWCs to benchmark themselves against other AWCs in same districts as well across the Tamil Nadu state. The index can be transformed into a self assessment tool in which each and every anganwadi can be assessed to understand the parameters on which center is performing well and also help identify focus areas for improvement.

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