About ASER

About Annual Status of Education Report (ASER) 2020 Wave 1

About ASER

Every year from 2005 to 2014, the Annual Status of Education Report (ASER) report has provided district, state, and national estimates of the status of children's schooling and foundational learning across rural India. Children in the age group 3 to 16 were surveyed to find out their enrollment status in pre-school or school. Children in the age group 5 to 16 were assessed one-on-one to understand their basic reading and arithmetic abilities.

Starting its second decade of existence in 2016, ASER switched to an alternate-year cycle, where the 'basic' ASER described above is conducted every other year (2016, 2018); and in alternate years, ASER focuses on a different aspect of children's schooling and learning. In 2017, ASER 'Beyond Basics' focused on the abilities, activities, awareness, and aspirations of youth in the 14 to 18 age group across 28 districts in the country. In 2019, ASER 'Early Years' reported on young children's (age 4 to 8) pre-school and school enrolment status and their abilities on a range of important developmental indicators across 26 districts in the country.

The COVID-19 crisis interrupted this alternate-year calendar, making it impossible to conduct the nationwide 'basic' ASER that was due to be repeated in 2020. However, the urgent need to systematically examine the effects of the pandemic on schooling and learning opportunities of children across the country was apparent.

Why ASER 2020 Wave 1?

Recent global estimates suggest that school closures, unequal access to technology-based educational inputs used for remote learning, and other related disruptions due to the pandemic are likely to result in 'learning loss' and higher dropout rates, aggravating existing equity gaps in education among other consequences. In India, numerous studies have been done on the impact of the COVID-19 pandemic in the country since the first lockdown was announced in March 2020, but very few cover children's education. Although a lot of digital content has been generated and transmitted to help children continue to learn while at home, there is limited evidence on the extent to which this content is in fact reaching children; whether they are engaging with it; and the impact it is having on their participation and learning.

In order to take the unprecedented pandemic-related constraints into account, but at the same time address the urgent need for large scale nationally representative data on children's education, the ASER 2020 survey was adapted to a phone survey format that could be conducted in multiple waves, in order to capture the effects of the pandemic on different aspects of children's education.

What is ASER 2020 Wave 1?

The ASER 2020 Wave 1 survey was designed to be conducted at a time when schools have not yet reopened and governments and schools are reaching out to children through a variety of remote means with diverse educational content. It explores the provision of, and access to, remote education mechanisms and materials in rural parts of the country, and the ways in which children, families, and educators are engaging with these from their homes.

Objectives: The ASER 2020 Wave 1 survey focuses on the following key questions regarding provision of, access to, engagement with, and challenges concerning remote learning during school closures:

- What resources do families have to support children's learning at home?

- How are families and other community members helping children with learning activities?

- What learning materials and activities are children and families receiving from schools?

- How are families and children accessing learning materials or activities?

- Are children engaging with these learning material and activities?

- What kind of contact do teachers and children/parents have with each other?

- What kinds of challenges are families and teachers facing with regard to remote learning?
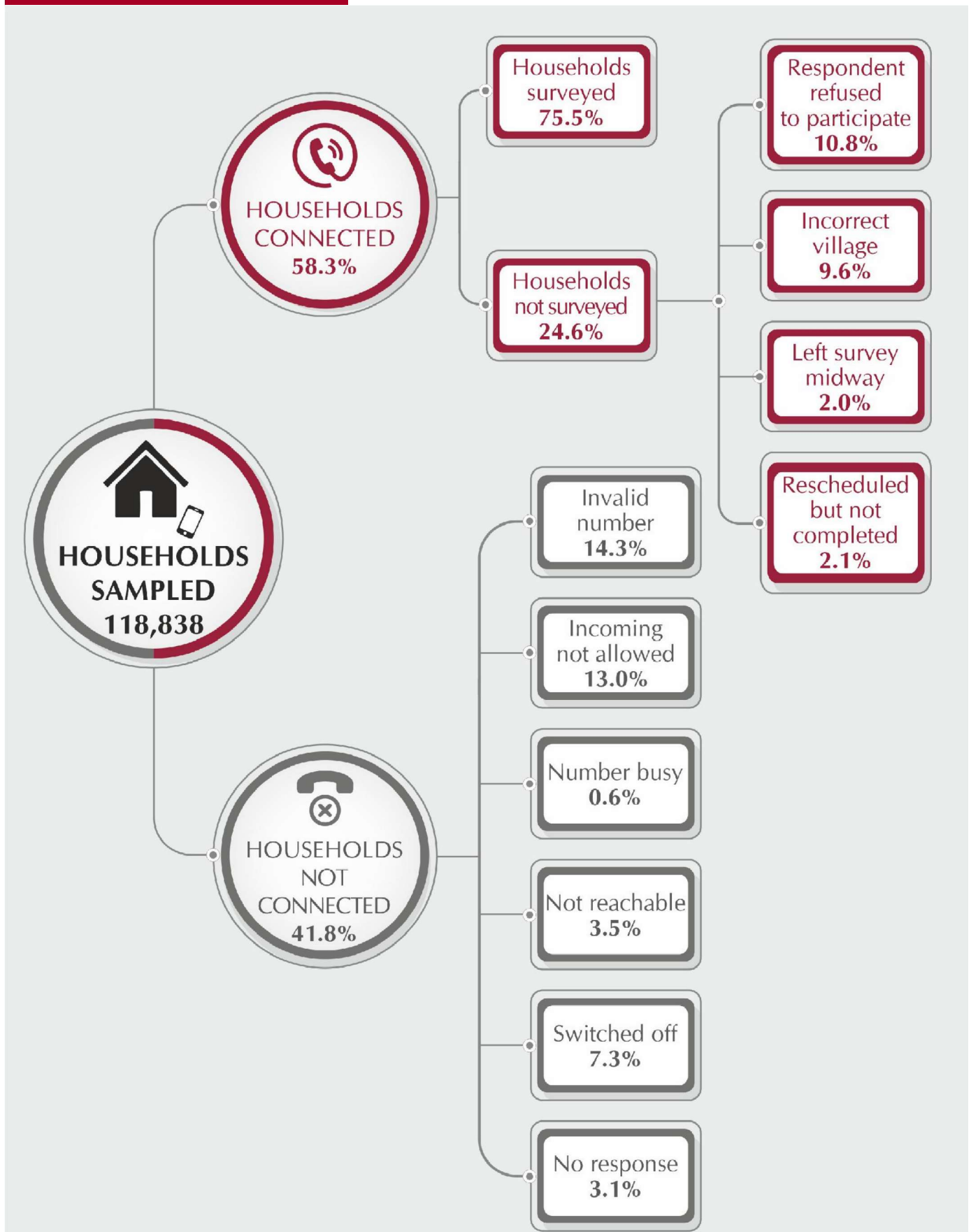
Sample: The standard operating procedure for ASER survey includes recording a contact number from each household and school surveyed, where available. These phone numbers are used to monitor and cross-check the data collection effort in that survey year. The ASER 2020 household survey was therefore conducted with a random sample of households with mobile phones drawn from the ASER 2018 data set, selected to generate estimates that are representative at state and all-India levels. In addition, head teachers or teachers from all schools in the ASER 2018 sample were included in the ASER 2020 school survey. Extensive pilots and experiments were conducted to check the feasibility of the ASER 2018 data set as a sampling frame for ASER 2020. For more details on sampling, see the note on Sample design of rural ASER 2020 Wave 1 on page 10. For more details on implementation - survey training, survey data collection process and data quality control - see pages 94 to 114.

Design: To conduct the survey, phone calls were made to parents/caregivers of children aged 5-16 in 118,838 households as well as head teachers or teachers in 16,761 schools over a span of ten days in September 2020, the sixth month of continuous school closures across the country. Of these, the survey was completed with 52,227 households and 8,963 teachers (see section on Survey coverage on page 8 for more details). Using standardised questionnaires, information was collected separately for each child in the 5-16 age group in each surveyed household. For schools, information was collected for the grade (between Std 1-8) that the teacher could provide the most information for.
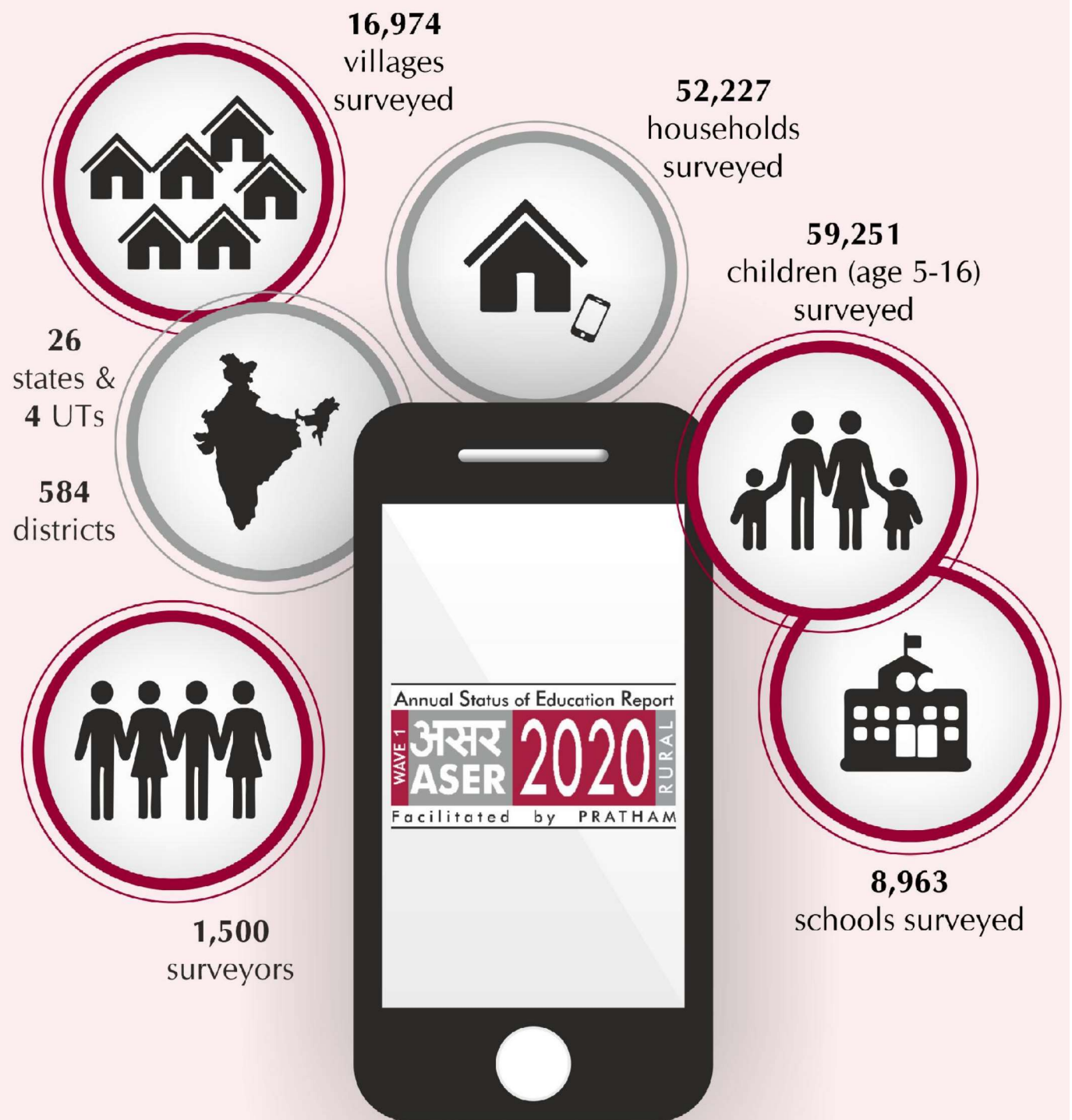
This report uses the ASER 2020 survey data to explore the following areas:

- **Children's enrollment:** Explores patterns of enrolment and dropout among 6-16 year olds in rural India.

- **Children not currently enrolled:** Examines which children are currently not enrolled in school and the reasons behind this.

- **Household resources:** Explores whether households have key resources that can help support children's education. These include parents' own education levels; access to technology such as TV and smartphones; and availability of textbooks.

- **Learning support at home:** Examines whether and how households support children during school closures. This includes support from family members as well as other support such as paid private tuition.

- **Access to and availability of learning materials:** Reports whether families received learning materials or activities from schools, and the mediums through which they accessed these.

- **Children's engagement with learning materials and activities:** Analyses the extent to which children actually engaged with different kinds of materials and activities received from any source; as well as the nature of contact between families and schools during the lockdown.

- **School survey:** Explores teachers' preparation for and implementation of remote teaching-learning activities with their students, and whether they received any help from the community to support children's learning during school closures.

Survey call summary

HOUSEHOLDS SAMPLED
118,838

HOUSEHOLDS CONNECTED
58.3%

Households surveyed
75.5%

Households not surveyed
24.6%

Respondent refused to participate
10.8%

Incorrect village
9.6%

Left survey midway
2.0%

Rescheduled but not completed
2.1%

HOUSEHOLDS NOT CONNECTED
41.8%

Invalid number
14.3%

Incoming not allowed
13.0%

Number busy
0.6%

Not reachable
3.5%

Switched off
7.3%

No response
3.1%

Survey coverage

16,974 villages surveyed

52,227 households surveyed

59,251 children (age 5-16) surveyed

26 states & **4** UTs

584 districts

1,500 surveyors

Annual Status of Education Report
WAVE 1 अ**सर** ASER **2020** RURAL
Facilitated by PRATHAM

8,963 schools surveyed

Survey process summary

1. STARTING THE SURVEY

Surveyor keeps her mobile phone charged, and all printed formats (Call Log Sheet and Household & School Survey Sheets) handy; and then starts the calling process based on the list of sampled phone numbers provided.

2. MAINTAINING CALL RECORDS

While making the calls, surveyor records the Call Connection and Survey Completion status for each household and school in the Call Log Sheet. She also makes additional attempts to numbers that do not connect in the first attempt, at different time intervals.

3. TALKING TO THE RESPONDENTS

Surveyor introduces herself and the survey on the call. She explains the objectives of the survey clearly to the respondent using a standardised introductory script.

4. ADMINISTERING THE HOUSEHOLD AND SCHOOL QUESTIONNAIRES

Surveyor takes information about remote teaching & learning activities from school headmasters or teachers for grades 1-8, & from households for children age 5-16 years. She fills the data in the respective formats.

5. DATA ENTRY AND RECHECK

The surveyor enters the data from the call log and survey sheets into the mobile app for the survey. She then sends formats for recheck. The Pratham/ASER state and central teams perform various quality checks.
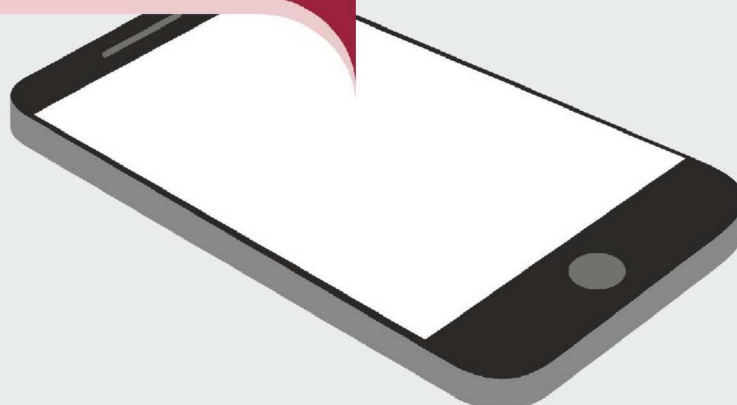
Sample design of rural ASER 2020 Wave 1

Since 2005, ASER has been providing comparable estimates of learning and schooling at the elementary stage. The 'basic' ASER, measuring foundational reading and arithmetic abilities of children in the school-going age group, was done annually from 2005 to 2014 and on a biennial basis from 2016 onwards. Therefore, it was scheduled to be conducted in 2020. While the design, training, monitoring and data analysis of ASER is done by ASER Centre and Pratham teams, the actual survey is done by volunteers in the field. The first lockdown due to the COVID-19 pandemic commenced on March 22, 2020 and was extended multiple times in a variety of ways. Given how fast the pandemic was spreading, it was soon clear that it would not be possible to conduct a field survey in 2020, especially not with volunteers.

However, given that schools closed as early as March 2020 and are yet to open, it was also clear that it was extremely important to conduct ASER this year to be able to gauge the impact of the pandemic on children's enrollment and learning. Further, the impact of the pandemic on different aspects of education would be felt at different times. Therefore, ASER 2020 was designed to be conducted in multiple waves to measure different aspects of the COVID-19 impact. The first wave, conducted during September 2020, focused on children's access to and use of learning materials during the period when schools were closed.

The challenge of conducting a field survey during a pandemic was met by conducting a phone-based survey. However, if estimates representative at various geographic levels were to be obtained, a sampling frame of phone numbers was required at the All India level. Unfortunately, no such frame exists in the public domain. A possible solution to the lack of a frame was suggested by the ASER methodology. As part of the ASER survey, phone numbers of sampled households are recorded for monitoring and recheck purposes. Since ASER is representative at the district level its sample size is fairly large - about 350,000 households across 17,500 villages and almost 600 districts. The need for such a large sample is necessitated by representation at the district level - to get representative estimates at the state and national levels such large sample sizes are not necessary. For instance, NSS surveys that are representative at the state and national levels have a sample size about a third as large as ASER.

Therefore, the ASER 2018 sample was used as a frame to draw the ASER 2020 sample that would be representative at the state and national levels. Drawing the new sample would require adding a third stage to ASER's existing two-stage sample design, to exclude households without mobile phones. With 90% mobile coverage in rural India, the extent of the self-selection bias due to uncovered populations would be small. A larger problem was that the ASER 2018 sample was two years old. With people moving, changing their mobile numbers, etc., it was possible that a large percentage of households would not be reachable. However, pan-India pilots suggested a fairly good reach (of about 70%); extensive experiments were also conducted to validate the frame.

In normal years, including 2018, ASER has a two-stage sample design. In the first stage, for each rural district, 30 villages are randomly selected from the Census 2011 village directory. Villages are selected using the probability proportional to size (PPS) sampling method. This method allows villages with larger populations to have a higher chance of being selected in the sample. It is most useful when the first stage sampling units vary considerably in size, because it ensures that households in larger villages have the same probability of getting into the sample as those in smaller villages, and vice versa.[1,2] In the second stage 20 households are randomly selected in each of the 30 selected villages in the first stage – giving a total sample of 600 households per district. This sampling strategy generates a representative picture of each district. All rural districts are surveyed. The estimates obtained are then aggregated to the state and all-India levels.[3]

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[1] Probability proportional to size (PPS) is a sampling technique in which the probability of selecting a sampling unit (village, in our case) is proportional to the size of its population. The method works as follows: First, the cumulative population by village calculated. Second, the total household population of the district is divided by the number of sampling units (villages) to get the sampling interval (SI). Third, a random number between 1 and the SI is chosen. This is referred to as the random start (RS). The RS denotes the site of the first village to be selected from the cumulative population. Fourth, the following series of numbers is formed: RS; RS + SI; RS + 2SI; RS + 3SI; .... The villages selected are those for which the cumulative population contains the numbers in the series.

[2] Most large household surveys in India, like the National Sample Survey and the National Family Health Survey also use this two-stage design and use PPS to select villages in the first stage.

[3] See ASER 2018 Report for a detailed discussion of the sample design.

ASER 2020 sampled 7 households with a mobile phone from each of the sampled ASER 2018 villages, giving a sample size of 210 households in each rural district. While this may not be sufficient to generate precise district level estimates, it is large enough to get good state level and national estimates. Like the standard ASER, the coverage of ASER 2020 is the rural household population of India.

To summarize, ASER 2020 has a three-stage clustered design. In the first stage 30 households are sampled from the Census 2011 village directory using PPS. In the second stage, 20 households are randomly selected from each of the sampled villages. And, in the third stage, 7 households with mobile phones are randomly sampled from the 20 selected households in each of the 30 sampled villages in each rural district. All children in the age group of 5-16 years are surveyed in the households selected in the third stage.

In normal years, including 2018, ASER surveyors also visit a government primary or upper primary school in each sampled village, to record data on attendance and provision and usability of facilities. In each visited school, the phone number of the headmaster or a teacher is recorded for monitoring purposes. In ASER 2020, the entire ASER 2018 school sample was retained to explore whether schools shared learning materials during the period of school closures, how they shared this material, and what contact they had with parents and the village community.

ASER 2020 provides estimates at the state and national levels. In order to aggregate estimates up from the district level households have to be assigned weights --- also called inflation factors. The inflation factor corresponding to a particular household denotes the number of households that the sampled household represents in the population. Given that 210 households are sampled in each district regardless of the size of the district, a household in a larger district will represent many more households and, therefore, have a larger weight associated with it than one in a sparsely populated district.[4]

In ASER's two-stage design, the sample is self-weighting at the district level - weights are the same for all households within a district. However, since ASER 2020 adds another stage of sampling based on mobile phone coverage, the sample is no longer self-weighting; rather, weights will differ across villages.[5] All estimates at the state and national levels are weighted, since states have a different number of districts and villages which vary by population.

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[4] The inflation factor or weight associated with a household is simply the inverse of the probability of it being selected into the sample.
[5] The probability that household j gets selected in village i (p_{ij}) is the product of the probability that village i gets selected in the first stage (p_i) and the probability that household j gets selected in the second stage ($p_{j(i)}$) and the probability that household j has a mobile phone ($p_{j(i)m}$) and the probability that household j gets selected in the third stage ($p_{j(i)mi}$). This is given by:

$$p_{ij} = p_i \ p_{j(i)} \ p_{j(i)m} \ p_{j(i)mi} = \frac{nv}{dpop} \ vpop_i \ \frac{n_{hi}}{vpop_i} \ \frac{n_{him}}{n_{hi}} \ \frac{n_{hi3}}{n_{him}}$$

where nv is the number of villages sampled in the district in the first stage, vpopi is the household population of village i, dpop is the number of households in the district, nhi is the number of households sampled in the village in the second stage, nhim is the number of households who have a mobile phone in the second stage sample and nhi3 is the number of households with mobile phones sampled in the third stage. The weight associated with each sampled household within a village is the inverse of the probability of selection. Note that the sum of the weights of the households will give the district population of households and the sum of the weights for all children in the sample will approximate to the population of children in the 5-16 year age group in the district.

Sample description of ASER 2020 Wave 1

State	Census 2011 Actual Districts	ASER 2020 Wave 1						Surveyed children			
		Surveyed Districts	Surveyed Villages	Sampled Households	Households connected	Surveyed Households	Children age 5-16	Std 1-2	Std 3-5	Std 6-8	Std 9-12
Andhra Pradesh	13	13	388	2715	1829	1442	1041	155	266	298	227
Arunachal Pradesh	16	8	202	1409	637	428	480	93	132	131	79
Assam	27	26	727	5079	2619	2099	2162	425	552	584	79
Bihar	38	38	1136	7947	4071	2913	4862	877	1202	1125	1001
Chhattisgarh	18	16	459	3206	1570	1068	1261	207	310	324	312
Dadra and Nagar Haveli	1	1	28	208	126	84	65	9	13	22	17
Daman and Diu	2	2	17	227	147	125	93	27	32	24	9
Goa	2	2	45	314	198	92	54	7	10	14	14
Gujarat	26	26	759	5303	3303	2605	1892	364	611	457	339
Haryana	21	21	627	4398	3064	2184	2442	400	638	680	496
Himachal Pradesh	12	12	357	2511	1669	1470	1697	263	460	442	456
Jammu and Kashmir	22	14	405	2819	1678	1174	1650	286	422	441	316
Jharkhand	24	24	662	4619	1962	1358	2078	379	526	555	388
Karnataka	30	30	900	6155	3922	3128	4008	567	1007	1167	808
Kerala	14	12	351	2505	1931	1264	742	113	188	197	176
Madhya Pradesh	50	50	1471	10289	5503	4218	4985	770	1301	1306	1134
Maharashtra	33	33	981	6863	4209	3409	3891	626	1068	1174	741
Manipur	9	9	239	1717	884	678	1048	169	274	278	166
Meghalaya	7	7	173	1200	497	336	584	116	169	131	58
Nagaland	11	11	312	2238	1163	883	1169	181	306	323	146
Odisha	30	30	817	5701	2966	2378	2661	410	687	740	552
Puducherry	2	2	55	409	269	171	90	8	18	15	20
Punjab	20	20	595	4142	2821	2434	2010	315	475	536	516
Rajasthan	33	33	984	6888	4466	3340	4292	697	1041	1131	954
Tamil Nadu	31	31	923	6472	4058	2928	2134	242	494	565	529
Telangana	9	9	268	1876	1383	1151	1050	161	286	250	193
Tripura	4	4	118	826	392	295	196	29	49	55	45
Uttar Pradesh	71	70	2096	14662	8299	5912	7882	1376	2009	1848	1307
Uttarakhand	13	13	374	2614	1501	1042	1163	165	281	337	261
West Bengal	18	17	505	3526	2088	1618	1569	273	412	400	302
All India	**607**	**584**	**16974**	**118838**	**69225**	**52227**	**59251**	**9710**	**15239**	**15550**	**11940**

*State/UT estimates for Dadra and Nagar Haveli and Daman and Diu, Puducherry, Goa and Tripura have not been presented in this report due to insufficient sample size.
**Andhra Pradesh was bifurcated into Telangana and Andhra Pradesh in 2014. As a result, the sample frames of Census 2011 do not have the new state divisions. Of the 22 districts in undivided Andhra Pradesh, 9 rural districts are located in Telangana and the remaining 13 districts are located in Andhra Pradesh. ASER estimates for the two states are based on this separation of districts.
***Estimates for the UTs of Ladakh and Jammu and Kashmir have been presented in a combined form for comparability with ASER estimates of previous years.
****ASER 2020 Wave 1 was not conducted in Sikkim and Mizoram.