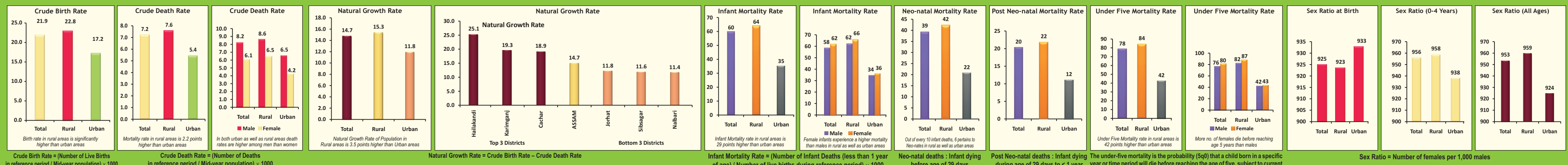


District	Crude Birth Rate (CBR)			Crude Death Rate (CDR)						Natural Growth Rate		Infant Mortality Rate (IMR)						Neo-natal Mortality Rate			Post Neo-natal Mortality Rate			Under Five Mortality Rate (USMR)						Sex Ratio at Birth			Sex Ratio (0-4 Years)			Sex Ratio (All Ages)			95% Confidence Interval																																							
	Total	Rural	Urban	Total			Rural			Urban			Total	Rural	Urban	Total			Rural			Urban			Total	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban																								
				Male	Female	Male	Female	Male	Female	Male	Female	Male				Female	Male	Female	Male	Female	Male	Female	Male	Female																															Male	Female	Lower Limit	Upper Limit	Lower Limit	Upper Limit	Lower Limit	Upper Limit	Lower Limit	Upper Limit	Lower Limit	Upper Limit	Lower Limit	Upper Limit	Lower Limit	Upper Limit	Lower Limit	Upper Limit	Lower Limit	Upper Limit	Lower Limit	Upper Limit	Lower Limit	Upper Limit
				ASSAM	21.9	22.8	17.2	7.2	8.2	6.1	7.6	8.6				6.5	5.4	6.5	4.2	14.7	15.3	11.8	6.0	5.8																															6.2	6.4	6.6	3.5	3.4	3.6	3.9	4.2	2.2	2.0	2.2	12	7.8	7.6	8.0	8.4	8.2	8.7	4.2	4.2	4.3	925	923	933
1 Kokrajhar	23.1	23.9	15.9	7.7	7.9	7.4	7.7	7.9	7.6	7.0	8.0	5.9	15.5	16.2	8.9	7.6	7.4	7.8	8.3	-	-	4.1	4.3	-	3.5	3.7	-	10.3	9.5	11.1	11.0	10.1	10.1	11.9	-	-	-	892	903	950	1017	1024	919	953	957	916	20.6	25.7	21.3	26.4	3.2	28.6	6.4	8.9	6.3	9.1	5.8	8.2	5.3	9.8	5.6	10.4	-	-	86	119	92	128	-	-	798	995	805	1012	477	1148		

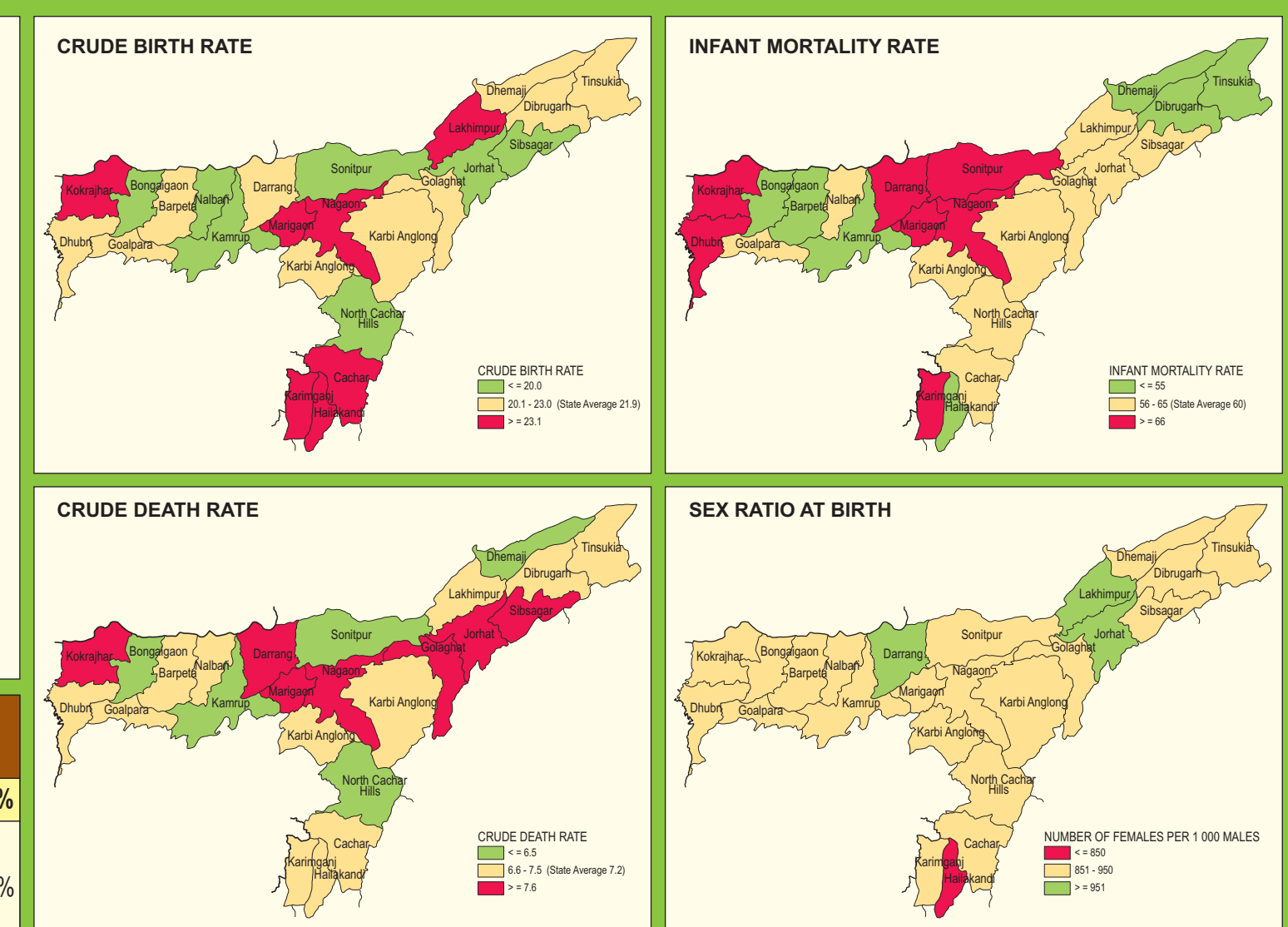
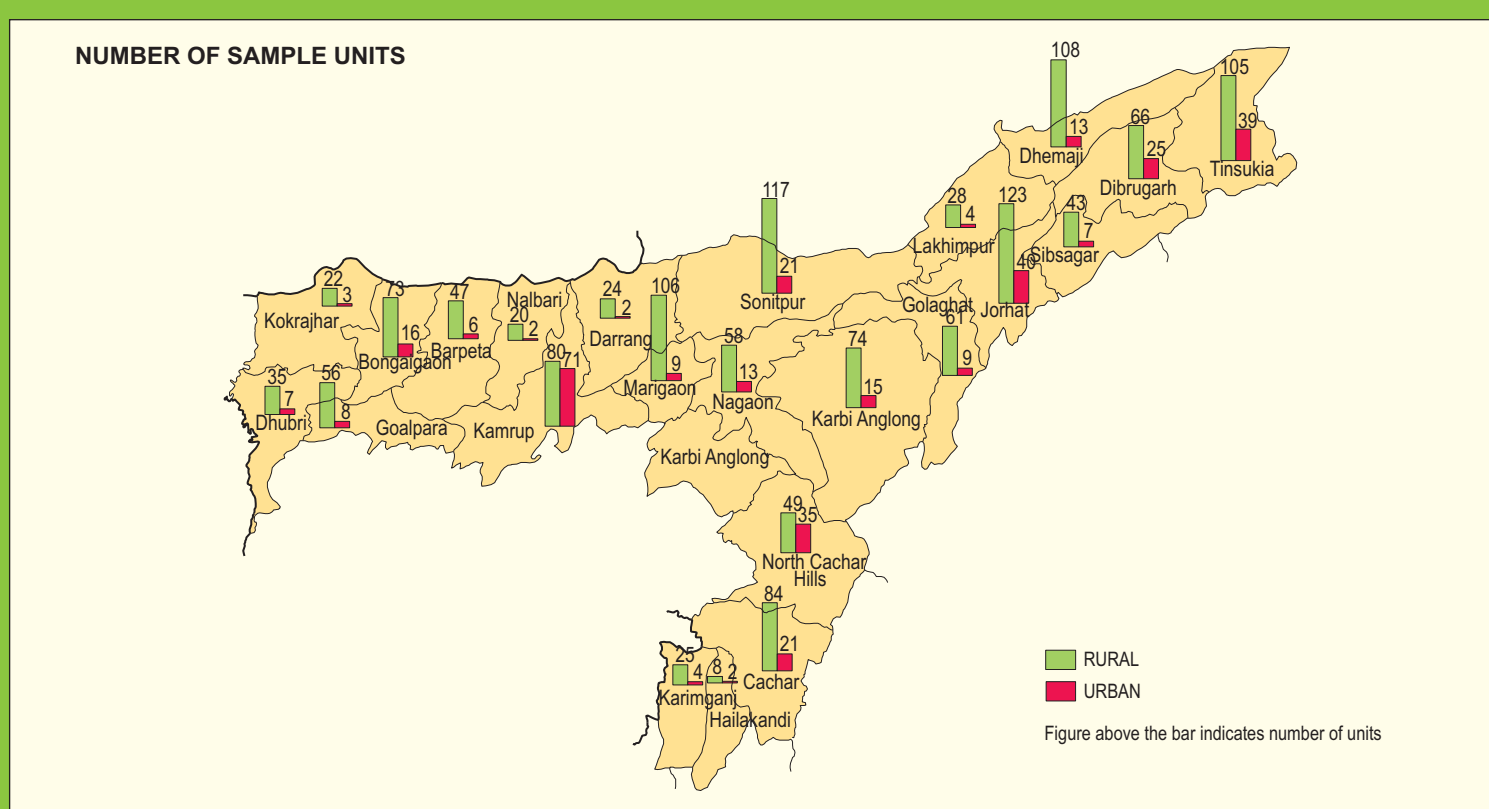
denotes inadequate sample.

Total under Infant Mortality Rate may not add up to corresponding Total of Neo-natal and Post Neo-natal Mortality Rates due to rounding.

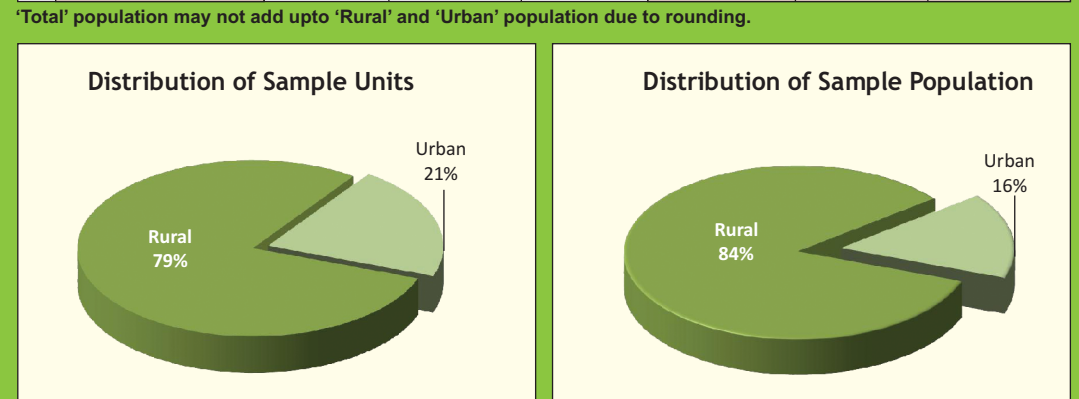
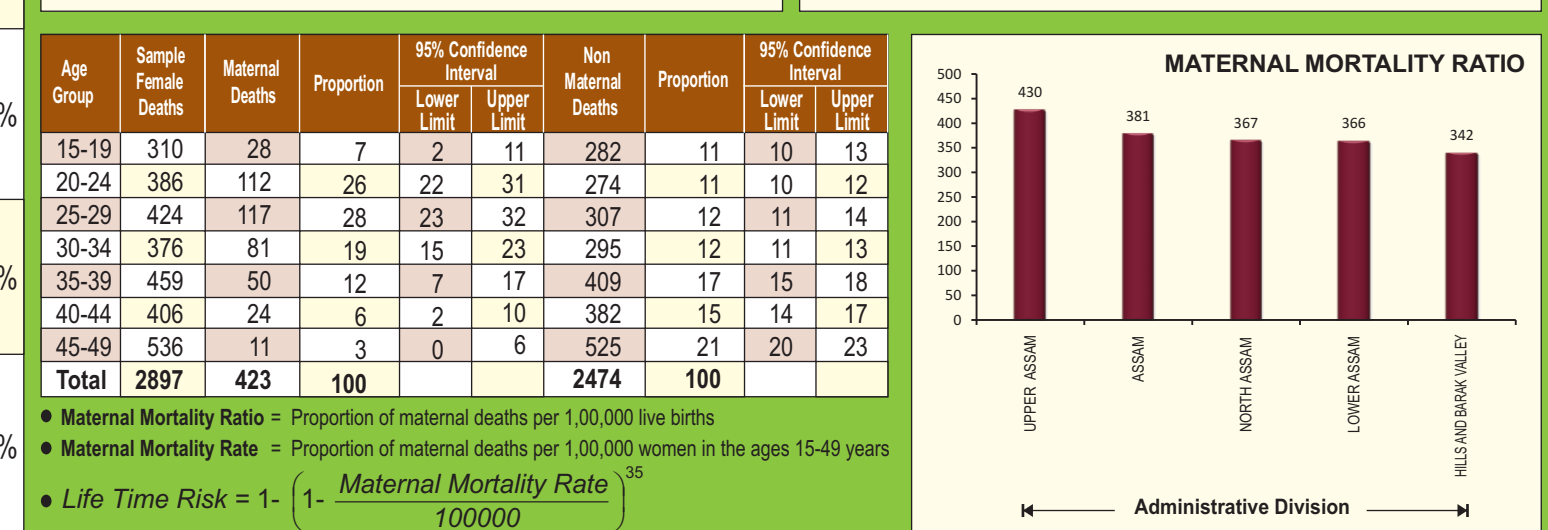


District	Number of Sample Units			Population (in '000')		
	Total	Rural	Urban	Total	Rural	Urban
Assam	1,784	1,412	372	1,741	1,461	280
1 Kokrajhar	25	22	3	19	17	2
2 Dhubri	42	35	7	50	45	5
3 Goalpara	64	56	8	74	68	6
4 Bongaigaon	89	73	16	80	70	10
5 Barpeta	53	47	6	67	62	5
6 Kamrup	151	80	71	149	91	58
7 Nalbari	22	20	2	23	21	2
8 Darrang	26	24	2	29	28	1
9 Marigaon	115	106	9	133	128	5
10 Nagaon	71	58	13	84	74	10
11 Sonitpur	138	117	21	138	124	14
12 Lakhimpur	32	28	4	27	23	4
13 Dhemaji	121	108	13	75	66	9
14 Tinsukia	144	105	39	135	111	24
15 Dibrugarh	91	66	25	95	74	21
16 Sibsagar	50	43	7	57	53	4
17 Jorhat	163	123	40	167	131	36
18 Golaghat	70	61	9	70	63	7
19 Karbi Anglong	89	74	15	64	50	14
20 North Cachar Hills	84	49	35	42	18	24
21 Cachar	105	84	21	120	105	15
22 Karimganj	29	25	4	30	28	2
23 Hailakandi	10	8	2	13	11	2

Total population may not add upto 'Rural' and 'Urban' population due to rounding.



State/Commissionary/(Districts)	Sample Female Population	Sample Live Births	Maternal Deaths	MMR	95% Confidence Interval Lower Limit	95% Confidence Interval Upper Limit	Maternal Mortality Rate	Life Time Risk
ASSAM	460250	111150	423	381	344	417	31	1.07%
HILLS AND BARAK VALLEY DIVISION (Karbi Anglong, North Cachar Hills, Cachar, Karimganj, Hailakandi)	71640	19290	66	342	260	425	31	1.07%
LOWER ASSAM DIVISION (Kokrajhar, Dhubri, Goalpara, Darrang, Bongaigaon, Barpeta, Kamrup, Nalbari)	128018	29520	108	366	297	435	28	0.98%
NORTH ASSAM DIVISION (Marigaon, Nagaon, Sonitpur, Lakhimpur, Dhemaji)	117042	30259	111	367	299	435	32	1.10%
UPPER ASSAM DIVISION (Tinsukia, Dibrugarh, Sibsagar, Jorhat, Golaghat)	143550	32081	138	430	359	502	32	1.12%



Maternal Mortality Ratio = $\frac{\text{Proportion of maternal deaths per 1,00,000 live births}}{\text{Proportion of maternal deaths per 1,00,000 women in the ages 15-49 years}}$

Life Time Risk = $1 - \left(1 - \frac{\text{Maternal Mortality Rate}}{100000}\right)^{35}$

Annual Health Survey Bulletin 2010-11

Introduction:

Decentralized district-based health planning is essential in India because of the large inter-district variations. In the absence of vital data at the district level, the State level estimates are being used for formulating district level plans as well as setting the milestones thereof. In the process, the hotspots (districts requiring special attention) very often gets masked by the State average. This statistical fallacy compounds the problems of the districts acutely, more so in the health sector. At present, none of the Surveys provides estimates of core vital indicators on fertility and mortality at district level. The District Level Household Survey conducted with periodicity of five years mainly focuses on maternal health and child welfare programmes. There has, therefore, been a surge in the demands from various quarters, in recent years, to generate timely and reliable statistics at the district level for informed decision making in the health sector.

Genesis:

2. The Annual Health Survey was conceived during a meeting of the National Commission of Population held in 2005 under the chairmanship of the Prime Minister wherein it was decided that "there should be an Annual Health Survey of all districts which could be published / monitored and compared against benchmarks". The objective was to monitor the performance and outcome of various health interventions of the Government including those under NRHM at closer intervals through these benchmark indicators. The AHS has been made an integral part of the National Rural Health Mission (NRHM), Ministry of Health & Family Welfare. The responsibility for the project has been entrusted to the Office of Registrar General, India on behalf of the Ministry of Health & Family Welfare keeping in view its expertise in handling the Sample Registration System, one of the largest demographic surveys in the world.

Objective:

3. Realizing the need for preparing a comprehensive district health profile on key parameters based on a community set up, the AHS has been designed to yield benchmarks of core vital and health indicators at the district level on fertility and mortality; prevalence of disabilities, injuries, acute and chronic illness and access to health care for these morbidities; and access to maternal, child health and family planning services. By virtue of being a panel survey, it has the unique ability to map the rate of change in these indicators on a yearly basis. AHS would, thus, enable better capturing of the

health seeking behaviour of the public as compared to other periodic cross-sectional surveys.

Coverage:

4. Keeping in view the mammoth sample size requirement as the sample size at the district level has been derived taking Infant Mortality Rate as the decisive indicator and host of other practical issues relating to execution, it was a considerate decision of the Government to undertake the survey, to begin with, in all the 284 districts (as per 2001 Census) in the 8 Empowered Action Group States (Bihar, Jharkhand, Uttar Pradesh, Uttarakhand, Madhya Pradesh, Chhattisgarh, Orissa and Rajasthan) and Assam for a three year period during XI Five Year Plan period. These nine States, which account for about 48 percent of the total population in the country, are the high focus States in view of their relatively higher fertility and mortality indicators. A representative sample of 18 million population and 3.6 million households is covered in 20,694 statistically selected PSUs (Census Enumeration Blocks in case of urban areas and villages or a segment thereof in case of villages in rural areas) in these 9 AHS States every year. Even with the present coverage, the AHS is the largest demographic survey in the world and is two and half times that of the Sample Registration System.

Fieldwork Strategy:

5. The project is being implemented as a hybrid model wherein the actual field work has been outsourced to seven selected survey agencies on the pattern of National Family Health Survey (NFHS) and District Level Health Survey (DLHS). The supervision, monitoring and co-ordination of the fieldwork in the States are done by the dedicated staff posted at various levels in the respective Directorate of Census Operations (DCOs). The responsibility for overall supervision, monitoring and co-ordination across the 9 AHS States rests with the AHS Division at ORGI. For smooth and effective execution of the survey, the AHS States have been divided into 18 mutually exclusive and exhaustive zones, each having a group of contiguous districts with more or less similar workload.

Technical Consultation:

6. The outline of the survey such as approach, periodicity, coverage, sampling strategy, sample size, permissible levels of relative standard error, levels of aggregation, were finalized after a series of deliberations on the subject with the representatives from Ministry of Health & Family Welfare, National Sample

Survey Organization, Central Statistical Organization, Ministry of Woman & Child Development, Indian Council of Medical Research, Planning Commission, Indian Institute of Population Sciences and other subject experts. Based on these recommendations, various technical details including preparation of sample design, derivation of sample size etc. were worked out and vetted by the Technical Advisory Group (TAG) constituted for the purpose.

Sample Design:

7. The Sample design adopted for Annual Health Survey is a uni-stage stratified simple random sample without replacement except in case of larger villages of rural areas (population more than or equal to 2000 as per 2001 Census), wherein a two stage stratified sampling has been applied. The sample units are Census Enumeration Blocks (CEBs) in urban areas and villages in rural areas. In rural areas, the villages have been divided into two strata. Stratum I comprise villages with population less than 2000 and Stratum II contains villages with population 2000 or more. Smaller villages with population less than 200 were excluded from the sampling frame in such a manner that the total population of villages so excluded did not exceed 2 per cent of the total population of the district. In case of Stratum I, the entire village is the sample unit. In case of Stratum II, the village has been divided into mutually exclusive (non-overlapping) and geographically contiguous units called segments of more or less equal size, population not exceeding 2000 in any case. One segment was selected from the frame of segments thus prepared in a random manner to represent the selected village at the second stage of sampling.

8. The number of sample villages in each district was allocated between the two strata proportionally to their size (population). The villages within each size stratum were further ordered by the female literacy rate based on the Census 2001 data, and three equal size and disjoint substrata were established. The sample villages within each substratum were selected by simple random sampling without replacement. In urban areas, the Census Enumeration Blocks within a district were also ordered by the female literacy rate based on the Census 2001 data, and three equal size and disjoint substrata were established. The sample Census Enumeration Blocks within each substratum were selected by simple random sampling without replacement. This process of selection ensured equal representation across three sub-strata both in rural as well as in urban areas of a district besides rendering the sample design as self-weighting.

Sample Size:

9. Generating robust estimate of Infant Mortality Rate at the district level has become an utmost necessity as reduction in Infant Mortality constitutes one of the key targets in the Reproductive & Child Health Programme (RCH) under the umbrella of NRHM. This would also facilitate effective tracking of the Millennium Development Goal 4 on Child Mortality. The Infant Mortality Rate has therefore been taken as the decisive indicator for estimation of sample size at the district level. The permissible level of error has been taken as 10 percentage relative standard error (prse) at the district level. The sample size so worked out would yield relatively better estimates of Crude Birth Rate / Crude Death Rate and may also enable generation of rarer indicators like TFR / MMR (for a group of districts) with good precision. In the absence of district level estimates from any other reliable source, the district level estimates of IMR based on SRS pooled data have been used for estimation of sample size for each district.

Sample Identification Work:

10. One of the essential prerequisites before the commencement of the survey is to uniquely identify the sample unit on ground. This was done in all the sample units across the 9 AHS States by the regular staff of ORGI. The work involved firming up of the boundary of the selected villages / Enumeration Blocks; resorting to segmentation in case of villages exceeding the population 2000, random selection of segment thereof and drawing of appropriate notional maps of the sample units to serve as the base map for the survey work.

Survey Tools:

11. The Baseline Survey in all the nine AHS States was carried out during July 2010 to March 2011 and four Schedules in all were administered.

These are: (i) House-listing Schedule, (ii) Household Schedule, (iii) Woman Schedule and (iv) Mortality Schedule. In the House-listing Schedule, besides the mapping and listing of all the houses and households in a sample unit, some key particulars relating to the dwelling, basic amenities available to the household and assets possessed by them were also collected. In the Household Schedule, all Usual Residents as on 01.01.2010 were listed and for each listed member, information on background characteristics like Name, Sex, Relationship to head, Date of Birth, Age, Religion, Social Group, Marital Status, Date of first Marriage, Education and Occupation/Activity status was captured. Besides, information in respect of Disability, Morbidity (Injuries, Acute illness, Chronic illness) and Personal habits (like Chewing, Smoking and consumption of Alcohol) was also collected wherever applicable. Woman Schedule comprised two sections. Section-I was

administered to each and every ever married woman and information relating to the outcome of pregnancy(s) (live birth/still birth/abortion), birth history, type of medical attention at delivery, details of maternal health care (ante natal/natal/post natal), immunization of children, breast feeding practices including supplements, occurrence of child diseases (Pneumonia, Diarrhoea and fever), registration of births, etc. taken place during the reference period i.e. 01.01.2007 to 31.12.2009 were collected. Section II focused on information on pregnancy; use, sources and practices of family planning methods; details relating to future and unmet need, awareness about RTI/STI, HIV/AIDS, administration of HAF/ORT/ORS during diarrhoea and danger signs of ARI/Pneumonia from Currently Married Woman.

12. Through the Mortality Schedule, details relating to death occurred to usual residents of sample unit during 01.01.2007 to 31.12.2009 were collected. Section II included information on name & sex of deceased, date of death, age at death, registration of death and source of medical attention before death. For infant deaths, a question on symptoms leading to death was also probed. Information on a variety of questions on factors leading/contributing to death, symptoms leading to death, time between onset of complications and death, etc. were asked in case of deaths associated with pregnancy to yield data on various determinants of maternal mortality. These schedules were finalized after a series of deliberations in the TAG and a pilot was also done to test them. The fieldwork in sample unit was carried out by a team of field enumerators which had at least one female. This was done to ensure that besides canvassing of woman schedule, questions on morbidity for female members in household schedule and questions relating to infant deaths as well as deaths associated with pregnancy in the mortality schedule are probed and recorded only by the female enumerator.

Training:

13. Since information on morbidity, disability, few specific details in case of infant and maternal deaths etc. were being collected at the district level in such a large survey setup for the first time, adequate emphasis was given on training. An exhaustive training manual for the field staff was prepared with inputs from various stakeholders and subject experts. A three day 'Training of Trainers' programme was organized at New Delhi prior to commencement of State/Zone level training sessions wherein experts imparted training on concepts,

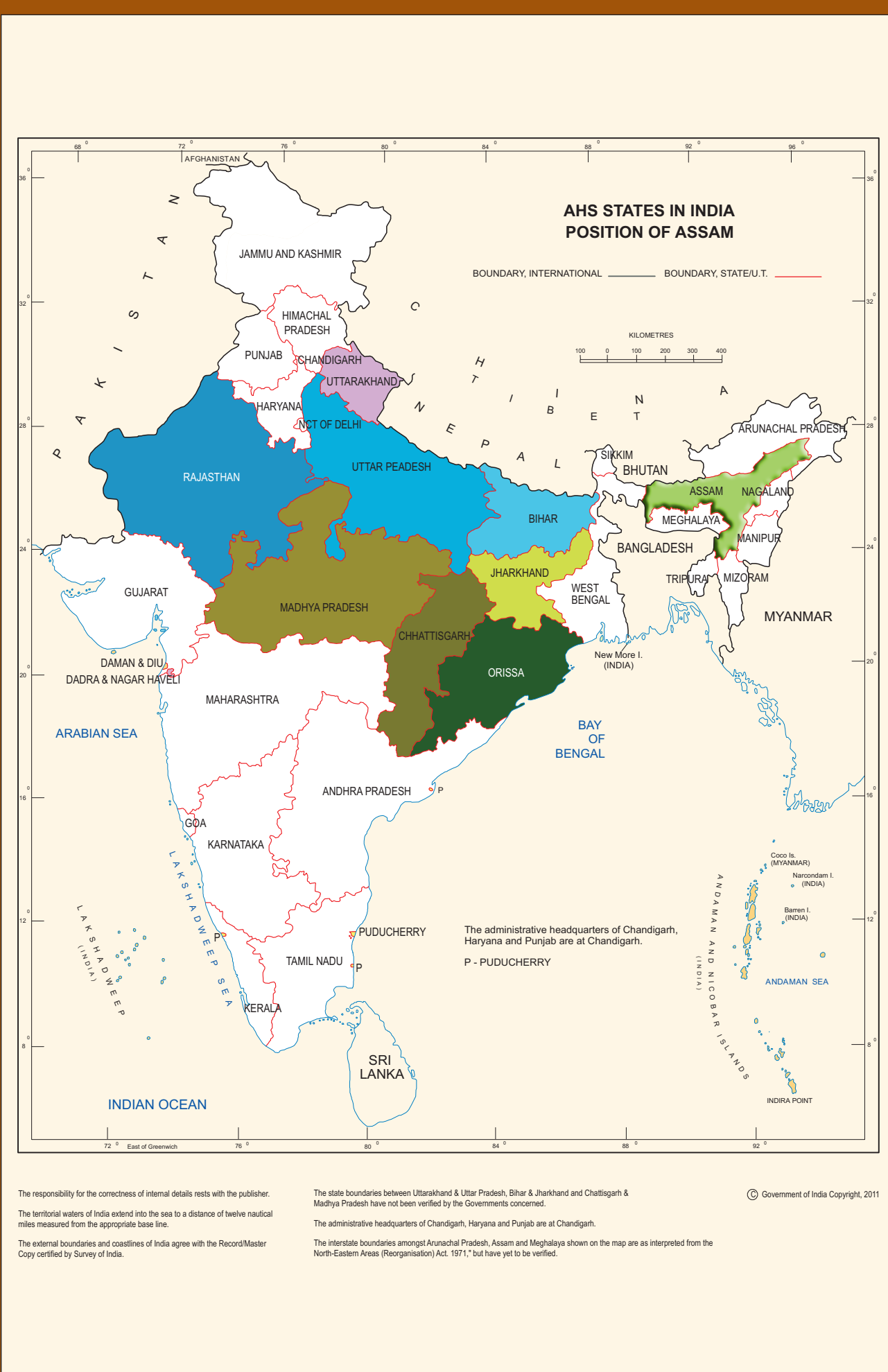
definitions and how best to collect data on different parameters. A pool of doctors was arranged with the help of National Institute of Health & Family Welfare (NIHFW) who imparted training to the field staff on disability and morbidity in the State/Zone level training programmes. A standardized Video training module was specially developed for the purpose. Officers from ORGI and DCOs were deputed to observe these training programmes.

Supervision and Third Party Audit:

14. In addition to the multilayer supervision mechanism adopted by the survey agencies, regular inspections were carried out by the officers/officials of respective DCOs and those from ORGI headquarters to secure the quality of data. The inspections were a judicious mix of concurrent as well as post survey audit. Over and above, a component of third party audit has also been included to verify and authenticate the surveyed data through an independent mechanism. The third party audit work has been done in 20 randomly selected AHS units in a district covering every fourth household thereof by following a standard protocol prescribed by ORGI. A truncated version of household, women and mortality schedules were filled in afresh by the field staff of the third party audit agencies. The findings of the third party audit helped in improving the quality of data particularly netting of vital events.

Dissemination of Results:

15. In view of the huge volume of data collected under AHS and also the significant time required for validation and processing, the dissemination of AHS results is being done in two phases. The first set of data is being released in the form of a State-wise bulletin, which contains the district level data on crude birth rate, crude death rate, natural growth rate, infant mortality rate, neo-natal and post neo-natal mortality rate, under 5 mortality rate, sex ratio at birth, sex ratio (0-4 years) and overall sex ratio. Though the sample size has been calculated for the district as a whole, the rural and urban estimates at the district level has also been published as a by-product. Users are advised to keep the above fact into consideration while using the rural / urban estimates of a district. In addition, the maternal mortality ratio, maternal mortality rate and life time risk have been published for a group of districts. In order to facilitate direct intervention, the grouping of districts has been done on the basis of existing administrative divisions in the respective AHS States. The data on all other parameters covered under AHS would be released subsequently in the form of district level factsheets.



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Printed by: Saraswati Offset Printers Pvt. Ltd., New Delhi

**ANNUAL HEALTH SURVEY
BULLETIN 2010-11**

AHS-120

ASSAM

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