

INCEPTION REPORT

An adaptive evaluation of Meghalaya's multi-sectoral, state capability enhancement approach to improve maternal health outcomes

August 2022

TABLE OF CONTENTS

List of Acronyms	3
List of Figures, Tables, Annexures	4
I. Background	5
Context	
Evaluation	
II. Inception Report	7
A. Key Initiatives	
B. Current Status of Maternal and Child Health Services	12
a. Data sources	
b. District and facility-level analysis of key indicators USING MOTHER APP	
c. Analysis of what we're seeing	
C. Evaluation Design	17
a. Theory of Change	
b. Research questions	
c. Key data source	
d. Process tracing	
e. Sampling strategy	
f. Data collection	
g. Tools	
h. Analysis	
i. Technical Advisory Group	
j. Next steps and Timeline	
ANNEXURES	
Annex I Data analysis using NFHS-4 and NFHS-5	
Annex II Sampling strategy for all 11 districts	
Annex III Qualitative Data Collection Tools	

LIST OF ACRONYMS

ANC	Antenatal Care
ANM	Auxiliary Nurse Midwife
APO	Additional Programme Officer
ASHA	Accredited Social Health Activist
AWW	Anganwadi Worker
BDO	Block Development Officer
BPM	Block Programme Officer
CDPO	Child Development Project Officer
CGHA	Community & Gender Health Activist
CHC	Community Health Centre
CHO	Community Health Officer
CM SMS	Chief Minister's Safe Motherhood Scheme
DC	District Commissioner
DHS	Directorate of Health Services
DMHO	District Medical and Health Officer
DPM	District Programme Manager
DPO	District Programme Officer
FGD	Focus Group Discussion
HBNC	Home-Based newborn Care
HMIS	Health Management Information System
ICDS	Integrated Child Development Scheme
IDI	In-Depth Interview
IFA	Iron-folic acid
IMR	Infant Mortality Rate
LHV	Lady Health Visitor
MAM	Moderate Acute Malnutrition
MCH	Maternal and Child Health
MGNREGA	Mahatma Gandhi National Rural Employment Guarantee Act
MHSSP	Meghalaya Health Systems Strengthening Project
MMR	Maternal Mortality Rate
MO	Medical Officer
MOTHER	Measurable Outcomes in Transforming Health sector through a holistic approach with focus on women's Empowerment
MSRLS	Meghalaya State Rural Livelihoods Society
NFHS	National Family Health Survey
NHM	National Health Mission
PDIA	Problem Driven Iterative Approach
PHC	Primary Health Centre
SAM	Severe Acute Malnutrition
SBA	Skilled Birth Attendant
SCEP	State Capabilities Enhancement Project
SHG	Self Help Group
TBA	Traditional Birth Attendant
TD	Tetanus and adult diphtheria
VEC	Village Employment Council
VHC	Village Health Council
VHND	Village Health and Nutrition Day
VHSNC	Village Health Sanitation and Nutrition Committee
VO	Village Organisation

LIST OF FIGURES and TABLES

Figures

Figure 1 Key Initiatives	7
Figure 2 Institutional Delivery – HMIS	12
Figure 3 Institutional Delivery – MOTHER app	13
Figure 4 Overall Theory of Change	17
Figure 5 State Theory of Change	18
Figure 6 District Theory of Change	18
Figure 7 Facility Theory of Change	19
Figure 8 Community Theory of Change	19
Figure 9 Sampled Facilities – Institutional Delivery	23
Figure 10 Respondent Mapping across Districts	31

Tables

Table 1 HMIS data	12
Table 2 MOTHER app data	13
Table 3 MOTHER app – women level data	14
Table 4 Data Sources	14
Table 5 HMIS & MOTHER app data – comparison	15
Table 6: Maternal Deaths – MOTHER app	15
Table 7: Data Sources	20
Table 8: Process Tracing and Data Sources	21
Table 9: Performance Scores for Sampling	22
Table 10: Sampled Facilities	23
Table 11: Data Collection Mapping	29

I. BACKGROUND

A. Context

Meghalaya health status

Meghalaya, a state in North East India, has a population of over 29 lakhs (Census 2011). The state is largely rural (80%), with eleven districts and three main ethnic communities and eponymous regions: Khasis, Garos and Jaintias. The State has shown progress in various health indicators over the last decades, with steady improvement in maternal and child health outcomes. Meghalaya's Infant Mortality Rate (IMR) is 33 per 1000 live births, similar to the national average. The Maternal Mortality Ratio (MMR) (196 per 100,000 live births) is declining but continues to be higher than the national average (113 per 100,000 live births).¹ The National Family Health Survey-5 (NFHS) in 2019-2021 reported a high proportion of institutional deliveries in urban areas (82%), yet only 54% in rural areas. About one-half of pregnant women had antenatal care (ANC) visits. The NFHS-5 reported anaemia and stunting amongst 45%, and stunting amongst 12%, of children under five years. Over one-half of adult women are anaemic, compared to one-quarter men.

The state has committed to accelerating improvements in maternal and child health through strengthening systems and state capability. The Department of Health & Family Welfare, Government of Meghalaya, is implementing the Meghalaya Health Systems Strengthening Project (MHSSP), with technical and financial support from the World Bank. The MHSSP aims to improve accountability, quality, and utilization of health services in Meghalaya.

Rescue Mission

In November 2020, the Department of Health & Family Welfare of the Government of Meghalaya launched the Rescue Mission to accelerate progress in maternal, neonatal and infant survival. Rescue Mission is grounded in applying a decentralized, problem-solving approach to reduce maternal deaths, through improving the supply and coverage of health services and demand through interventions at the state, district, facility and community level.

State Capability Enhancement Project

Meghalaya is committed to a multi-sectoral, systems approach, as exemplified in the State Capability Enhancement Project (SCEP), an approach which draws upon methods such as Problem Driven Iterative Approach (PDIA) and Adaptive Leadership. The SCEP is anchored in six pillars: (i) local leadership through problem-solving; (ii) citizen-state relationship: responsive systems; (iii) effective use of data & research; (iv) accountability and agency; (v) addressing systemic challenges; and (vi) political supportability. The core guiding principle of SCEP is to build a sense of purpose and state capability to identify and solve critical problems. It aims to build:

- Systems driven by long-term vision, addressing systemic gaps, developing collaborations, and co-creating strategies with relevant stakeholders;
- Organisations imbued with a sense of purpose, nurturing leaders, using PDIA to solve problems, strengthening collaboration and data systems and feedback loops; and
- Citizen-state relationships through strong community institutions and creating mechanisms for participation and accountability.

¹ Sample Registration Survey 2016-18

B. Evaluation

Aims and approach

The Population Council Institute will examine how Meghalaya's multi-sectoral, state capabilities enhancement approach through the Rescue Mission is implemented to improve processes towards maternal health outcomes. The evaluation is grounded in basic principles of health systems and policy research and implementation research. The evaluation intends to support concurrent learning for implementers and policymakers and identify enablers and barriers to improve implementation and inform cross-sectoral learning. This mixed-methods research will examine the content and implementation of Rescue Mission and identify barriers and enablers to processes, along with contextual factors that influence the programme. The project was initiated on 27th June 2022 and will continue to the end of December 2023.

The Population Council Institute team is led by Dr Sapna Desai and Dr Sowmya Ramesh (Principal Investigators), with Mr Ankit Nanda (Project Coordinator), Ms Sharmada Sivaram (Qualitative Researcher) and Ms Patricia Dohdong (Research Investigator/Coordinator). Three Meghalaya-based field investigators will support data collection. The Population Council Institute will leverage existing resources to analyse MOTHER (Measurable Outcomes in Transforming Health sector through a holistic approach with focus on women's Empowerment) app data and support analysis and dissemination.

Inception Report

This inception report includes: an overview of key interventions; analysis of current status using state-level population and administrative data; and details on the study design, including a Theory of Change, sampling strategy and data collection processes and tools.

The report was developed through an iterative process since June 2022 with the office of the Principal Secretary, Health and Director, National Health Mission (NHM) and the MHSSP team. Steps included:

- (i) Field visits to 11 facilities, July and August 2022
- (ii) Exploratory interviews with stakeholders, including block officials, health facility staff and Village Health Committees (VHCs)
- (iii) Observation of 3 district review meetings, 1 state-level review meetings, 2 sector meetings and review of previous meeting minutes
- (iv) Data analysis: NFHS-4, NFHS-5, HMIS and MOTHER app
- (v) Theory of Change meetings with SCEP and Rescue Mission team

Presentations on preliminary findings

We held three meetings with the Principal Secretary's office and/or Director, NHM to present preliminary findings on current status, theory of change and sampling strategies. In the first meeting, chaired by the Principal Secretary (25.6.2022) we shared data analysis using NFHS-4 and NFHS-5 (Annex I) and a preliminary theory of change based on our preliminary mapping of initiatives. A second meeting in Shillong (8.8.2022) focussed on refining the evaluation objectives, theory of change and sampling strategy based on our presentation of the research design and field findings. We conducted a brief follow-up meeting with Director, NHM to review sampling parameters and discuss data sources.

II. INCEPTION REPORT

A. Mapping Key initiatives

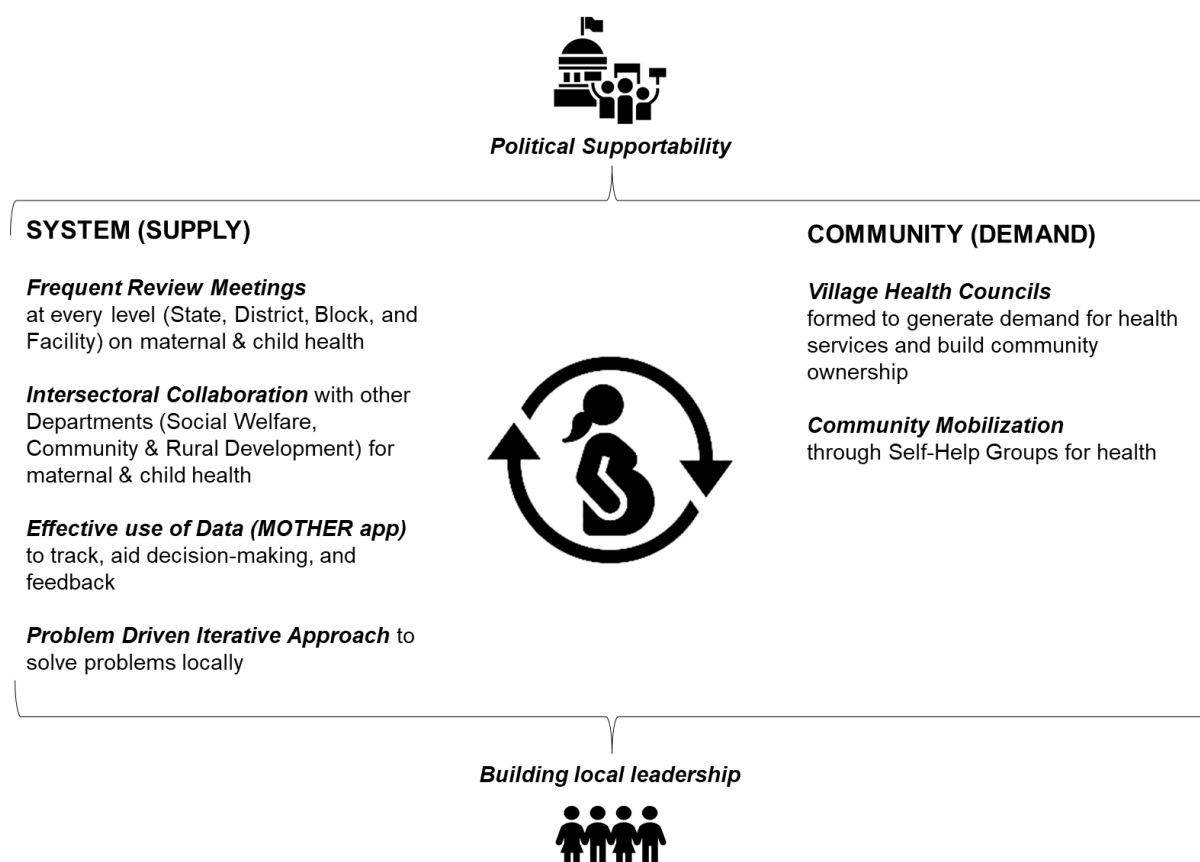
The Rescue Mission operates across all levels of the health system, from State policy to community engagement, through regular review meetings, use of data for feedback and inter-departmental collaboration.

We mapped key initiatives through document review, stakeholder inputs at each level and field visits. This section outlines planned and ongoing activities in three interconnected areas: initiatives for accountability and agency; community engagement; and political supportability.

We observe that the Rescue Mission's key innovation, drawing on the SCEP, is a focus on *problem-solving* through **building local leadership** capability within the health system and through intersectoral collaboration. Analysis of key challenges in the state indicated the critical role of social/distal determinants of maternal health beyond the health sector, such as social norms and nutrition. Accordingly, interventions address the “supply” of services **within and beyond** the health sector along with community engagement through different channels. An underlying focus on **political support**, both through grassroots mobilization and commitment from political leaders, extends beyond government services.

In a departure from demand-driven maternal health interventions, *this approach aims to change the approach to how problems are solved, to empower decision-makers to address local issues with locally developed solutions.*

Figure 1 Key Initiatives



(i) *Initiatives for accountability, agency and iterative decision-making:*

The Rescue Mission employs several mechanisms to improve both accountability and decision-making to improve maternal health. These include review meetings held at the district-, block- and facility-levels, a key aspect of which is inter-department collaboration between the National Health Mission, Social Welfare (Integrated Child and Development Services, ICDS) and Meghalaya State Rural Livelihoods Society (MSRLS).

District Review Meetings

District review meetings engage stakeholders from the health system and relevant departments to review maternal and child health status. Two districts are reviewed weekly, and each review lasts an hour. The meetings, held at the State's Secretariat, are chaired by either the Principal Secretary for Health, Social Welfare and Rural Development; the Director NHM; or MSRLS/ICDS leadership.

District-level participants of the meeting include the District Commissioner (DC), District Medical and Health Officer (DMHO), District Programme Manager (DPM) NHM, District Programme Officer (DPO), Medical Officers (MOs), Maternal and Child Health (MCH) officers among others. Key areas of review include institutional delivery and maternal and child deaths; identification of causes; and preparation of action plans based on implementation challenge. Districts also review performance on the previous month's action plan. The three departments present also present on their respective interventions. For instance, the Social Welfare Department addresses maternal and child health by focusing on anaemia and nutrition. The MSRLS targets maternal and child health through Self Help Group-led (SHG-led) health and nutrition initiatives and community engagement. The platform is also open for discussing Districts' challenges, if any with an emphasis on quantifiable and concrete action planning.

At the end of every round of the District Review Meeting, an All-District Review Meeting is held to discuss the status of maternal and child health across all districts in the State. The last meeting in August was chaired jointly by the Principal Secretary and Health Secretary. Cases of maternal and infant deaths are discussed in detail, including, but not limited to, case history taking, cause of death, whether the death was preventable, how it could have been prevented and action plans to reduce such cases.

Sector Meetings

Sector Meetings are held at health facilities to review maternal and child health status at the block-level across Primary Health Centres (PHCs). The MO is designated as Sector Team leader, the Block Programme Manager (BPM) MSRLS as the community mobilizer lead, the BPM NHM as the Sector Team Secretary and the Child Development Project Officer (CDPO) as the Nutrition lead. Other participants include, but are not limited to, Block Development Office (BDO)/Additional Programme Officers (APO), Auxiliary Nurse Midwives (ANMs), and ASHA (Accredited Social Health Activists) Facilitators. The Sector Meetings review status, diagnose problems and plan actions to reduce maternal and child deaths, anaemia among women and to increase demand for health services such as institutional deliveries and immunization. The Sector Team is supported by the DC, the DPM NHM and the DPO ICDS. These meetings follow a similar pattern of review as District Meetings but also include Sub-centres and community institutions. Sector Meetings specifically identify and track high-risk pregnant women with the aim of developing birth preparedness plans to ensure institutional delivery; identify anaemic women; and discuss gaps in routine

immunisation. Meetings review the previous month's plan and challenges to achieving targets, along with devising new interventions and action plans for the following month for all Sub-centres.

Health Team Meetings

The Health Team includes health workers within a facility: MO, ANM, Community Health Officer (CHO), Lady Health Visitor (LHV), Staff Nurses at PHCs and Community Health Centres (CHCs) and Mid-level Health Provider (MLHP) and ASHAs at the Sub-centres. The health team meets at least monthly to review registration, tracking and monitoring of all pregnant women. They also address: Birth preparedness plans; administration of Iron-Folic Acid (IFA), deworming and calcium tablets; counselling on birth spacing and family planning; high-risk pregnancies; Tetanus and adult diphtheria (Td) injections and home births by a Skilled Birth Attendant (SBA) or a Staff Nurse. Targets are set at the meetings by the concerned health worker. ASHAs typically have their own monthly ASHA meetings once a month as well.

District Check-ins

District check-ins are held monthly, in which DC or the DMHO meets the BPM (NHM and MSRLS), BDOs and MOs to present monthly targets and action plans for issues highlighted in the Sector Meetings. The DC or the DMHO may provide feedback. District check-ins serve as a link between the blocks and facilities on one hand, and the State, on the other, for flow of information/a mechanism for two-way accountability.

Strategy Meetings

Strategy Meetings are held monthly at the end of the round of district reviews. The participants are Principal Secretary; Director NHM; Directorate of Health Services (DHS), State NHM Team, Director Social Welfare, Director MSRLS. The main agenda of the meetings are to resolve issues raised by the districts and blocks, formulate strategies for persisting issues and to change the structure of meetings if required.

Data initiatives

The MOTHER app or Sangrah App tracks individual-level data on the following parameters:

1. Home-based Newborn Care (HBNC): Visits by ASHAs or ANMs post-delivery, danger signs observed in the newborn, and vaccinations given to newborn child
2. Delivery details: Order of pregnancy, history of illness of pregnant mother, essential tests taken
3. Pregnancy Registration: Types of delivery, who delivered, complications during delivery, defect seen at birth
4. Antenatal care Check-ups: Basic health parameters such as weight, BP, etc., information on various tests conducted, types of high risks identified

Every pregnant woman registered can be tracked on any given day and the number of women due for delivery can be seen on the dashboard. ASHA and ANMs collect data on each and every pregnant woman using the mobile app and this data is updated on a daily, weekly, bi-weekly and monthly basis. This app allows ASHAs, ANMs and MOs to view pending follow ups for every pregnant woman as well as allowing them to view critical details such as days since last ANC, HBNC visit due for a newborn, vaccinations due, etc.

(ii) *Community-based initiatives*

Village Health Councils

Village Health Councils (VHCs), envisioned as community institutions to initiate, implement and review action on health and nutrition, are being formed across the State. This is a cross-sector initiative of the State's NHM to implement the State Health Policy at the community level. It currently serves as the community-level platform for collaboration among the three departments. The intent behind the formation of VHCs is similar to the objective of the formation of Village Employment Councils (VECs), to mobilise demand for health services in the same way that VECs did for MGNREGA (Mahatma Gandhi National Rural Employment Guarantee Act). Overall, VHCs aim to:

1. Address demand and supply side gap in public health service delivery
2. Generate demand for health services, in tandem with the efforts of the supply side
3. Embed a sense of ownership among the communities to solve problems that are unidentified or unaddressed, by leveraging existing institutions (SHGs and Anganwadi Centres) and health facilities

Village Health, Sanitation and Nutrition Committees (VHSNCs) have been implemented since the inception of the NHM; VHCs are envisioned as replacing these. The key difference between the VHSNCs and the VHCs will be the inter-department collaboration in the VHCs through the membership of SHG members, the Village Organizations (VOs), the Anganwadi worker (AWW), the Community Gender and Health Activists (CGHAs) along with the health workers.

Home visits

Health workers have been utilizing Village Health and Nutrition Days (VHNDs) as opportunities for home visits for those mothers who are out of reach of the facilities and for those who have been termed as 'refusals' for ANC and immunization. ASHAs are encouraged to collaborate with CGHAs to conduct home visits on regular working days.

Convergence camps

Convergence events between the MSRLS and health department aim to improve participation in health-related events and provide additional services to SHG members.

Buddy system for ASHAs

Older ASHAs are being paired with younger ASHAs or a younger community member to assist them in their daily activities, more specifically in those activities that are app based.

(iii) *Political supportability*

The Chief Minister's Safe Motherhood Scheme (CM SMS) was officially launched in March 2022 to increase safe delivery. The scheme addresses six major areas on a mission mode:

1. Anaemia and nutrition
2. Safe delivery
3. Right to birth spacing
4. Teenage pregnancy
5. Collaborative efforts on both the demand and supply side

Salient features of the scheme include:

1. Provide transportation to ANMs to reach pregnant mothers to ensure safe delivery
2. Provide dedicated vehicles at PHCs/CHCs to bring pregnant women from home to health facility or transit homes and vice versa.
3. Transit homes in and around facilities for pregnant women to stay for up to 15 days prior to expected date of delivery
4. Supplement lost income
5. Award schemes for Village Councils or VHCs who perform the best

Related training programmes initiated by NHM

Health service providers

The State had planned to conduct trainings for MOs on topics such as facility management, financial management, public health, problem-solving and leading teams, streamlining reporting, managing Sub-centres, building trust with communities among others. ASHAs and AWWs were trained on pneumonia management, Severe Acute Malnutrition (SAM) and Moderate Acute Malnutrition (MAM) identification.

Traditional Birth Attendants

The State's approach to Traditional Birth Attendants (TBAs) is to include them in the health system through training provided by facility health staffs. Trainings for TBAs include detect danger signs and to refer cases of high risks to the nearest facility. Presently, not all facilities have been able to conduct trainings for TBAs because of a multitude of reasons.

Community Gender and Health Activists

As new cadres of the MSRLS, the CGHAs are undergoing training in topics such as 1000 days and nutrition, among others. The aim of such trainings is to enable them to work side by side with the ASHAs in community outreach.

B. Status of Maternal and Child Health Services

We analysed HMIS data from January to May 2022 and MOTHER app data from January to June 2022 to assess (i) baseline status of services (ii) inform sampling for the study. Table 1 reports select indicators from the HIMIS data for the period January to May 2022. Over this period, the institutional delivery varied from 30.8% in South West Khasi Hills to 79.3% in South West Garo Hills. The average institutional delivery was 54.1% for the state. Across the state about 40.7% pregnant women had registered for ANC in the first trimester. South West Khasi Hills with 30.6% had the lowest ANC registration in the first trimester whereas South West Garo Hills had the highest (55.2%). The state recorded 57 maternal deaths in this five-month period, with larger districts of West Garo Hills and East Khasi Hills accounting for the majority of the maternal deaths.

Table 1 HMIS data, January-May 2022

Region	Districts	% Registered for ANC in first trimester	% Institutional deliveries	Number of Maternal Deaths
Garo	East Garo Hills	34.2	50.8	6
	North Garo Hills	37.9	58.0	0
	South Garo Hills	39.0	39.9	2
	South West Garo Hills	55.2	79.3	3
	West Garo Hills	38.5	52.2	17
Jaintia	East Jaintia Hills	32.9	46.1	3
	West Jaintia Hills	35.6	50.8	3
Khasi	East Khasi Hills	43.0	64.3	15
	Ri Bhoi	53.5	48.7	4
	South West Khasi Hills	30.6	30.8	3
	West Khasi Hills	37.2	49.0	1
Meghalaya	All	40.7	54.1	57

Figure 2 Institutional Delivery January-May 2022 (HMIS)

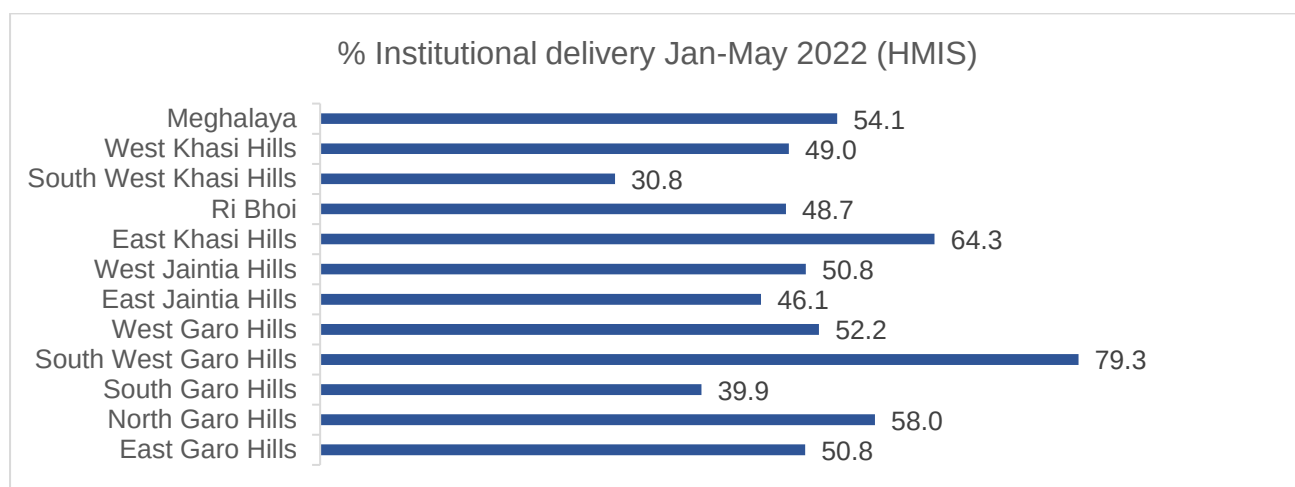


Table 2 reports an overview of key indicators from the MOTHER App data, Jan – June 2022. Over this period, 32.6% pregnant women had registered for ANC in the first trimester in the state. East Khasi Hills and Ri Bhoi were the only districts with more than 40% registration

rates. On the other hand, East Garo Hills and the South West Khasi Hills had the lowest rates of registration at 21.4% and 23.3% respectively. The institutional delivery for the state stood at 61%. West Khasi Hills had the lowest rate (54.1%) of institutional delivery and South West Garo Hills had the highest at 76.9%. About 46% pregnant women were identified as high-risk cases in the state over this period.

Table 2 MOTHER App facility level data January-June 2022

Region	Districts	% Registered for ANC in first trimester	% Institutional deliveries	% High risk cases
Garo	East Garo Hills	21.4	57.9	37.6
	North Garo Hills	27.2	67.4	36.8
	South Garo Hills	32.3	56.0	53.2
	South West Garo Hills	33.7	76.9	36.0
	West Garo Hills	26.1	60.2	47.6
Jaintia	East Jaintia Hills	30.8	66.5	40.1
	West Jaintia Hills	27.1	57.1	48.9
Khasi	East Khasi Hills	41.3	64.4	52.5
	Ri Bhoi	45.5	60.7	43.0
	South West Khasi Hills	23.3	59.0	40.5
	West Khasi Hills	27.9	54.1	45.2
Meghalaya	All	32.6	61.0	45.9

Figure 3 % Institutional delivery January-June 2022 (MOTHER App)

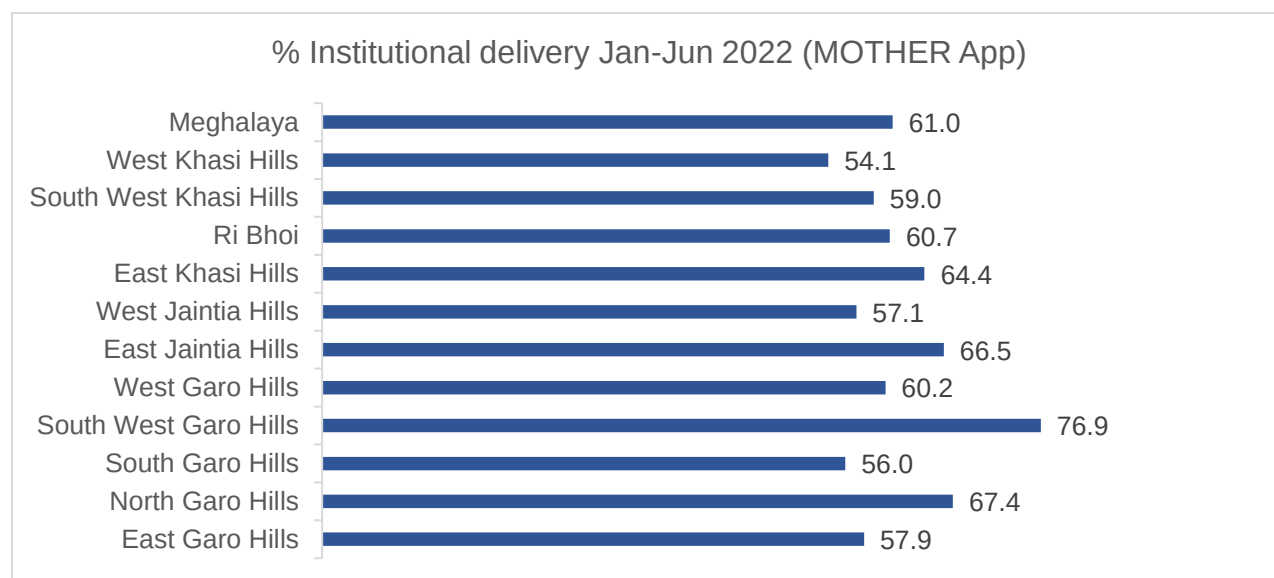


Table 3 MOTHER App women-level data snapshot (18 July – 1 August 2022)

Districts	Order of pregnancy (N=9725)					% Registere d for ANC in first trimester	% High Risk cases	% Institutional deliveries	% Compli cations during deliver y	Maternal Death
	1st (%)	2 nd (%)	3 rd (%)	4 th (%)	5 th or high er (%)					
East Garo Hills	28.2	18.2	11.5	8.9	13.0	18.7	41.8	64.5	1.7	1
North Garo Hills	31.5	22.5	16.5	9.0	9.2	26.9	41.0	81.6	2.6	0
South Garo Hills	32.3	22.0	13.4	9.6	15.5	33.9	54.0	47.4	2.6	0
South West Garo Hills	23.3	24.0	16.2	5.0	7.4	34.4	27.3	89.1	9.9	0
West Garo Hills	35.5	26.6	14.6	8.0	7.7	25.7	43.1	75.1	8.6	1
East Jaintia Hills	21.2	20.2	12.8	12.3	23.9	27.7	40.8	71.9	9.4	1
West Jaintia Hills	27.3	20.4	14.2	10.9	21.6	27.6	50.1	63.4	5.5	0
East Khasi Hills	26.0	21.5	15.0	9.5	18.8	40.0	49.1	72.1	5.2	1
Ri Bhoi	27.5	20.6	14.8	8.9	18.7	40.8	40.5	64.6	4.6	2
South West Khasi Hills	15.5	13.2	17.2	8.9	34.0	18.2	47.5	51.4	0.9	1
West Khasi Hills	18.4	15.7	11.4	11.3	27.9	25.7	42.5	55.6	3.5	1
Meghalaya (All)	26.3	20.8	14.2	9.6	18.5	31.6	44.8	66.8	5.1	8

Note: The individual level data analysed was updated in the system between 18th July 2022 to 1st Aug 2022. This analysis gives a snapshot of the women level data.

An overview of maternal and child health indicators for 9725 women across the state is presented in Table 3. Among the women, 26.3% were pregnant for the first time, but an equal proportion (28%) of women had gravida 4 or higher. Women in the Garo region had lower gravida in comparison to Khasi and Jaintia regions. ANC registration in the first trimester was lowest in South West Khasi Hills at 18.2% whereas Ri Bhoi with 40.8% had the highest registration in the state. Across the state, 66.8% women had institutional deliveries. South West Garo hills had the highest institutional delivery in the state; South Garo Hills reported the lowest. Complications during delivery were reported for 5.1% women which varied from 0.9% women in South West Khasi Hills to 9.9% in South West Garo Hills.

Consideration of data sources

During the inception period, we examined three data sources: NFHS-5 (district and state level analysis, with individual-level demographic information); HMIS (facility-level, with no population-level demographics); and MOTHER APP. We discussed the utility and advantages of each source with state stakeholders and examined raw data.

Table 4 Comparison of Data Sources

Data source	Level of data	Data collection	Key uses
NFHS	Population-level data, individual/HH	One-time sample survey	Population-level trends Correlation with individual characteristics
HMIS	All facilities	Facility entry collated at state	Facility-level coverage Comparability across states
MOTHER App	All facilities + individual women	Real-time, decentralised at facility/health worker	Facility-level coverage Detailed analysis of individual cases (e.g mortality)

Comparison between HMIS and facility level data from MOTHER APP for the period of Jan-May 2022 in Table 5 highlights the variation between the two data sets. HMIS data reported higher rates of ANC registration in the first trimester whereas MOTHER App data showed higher levels of institutional delivery across the state. ANC registration in the first trimester showed high variations in South West Garo Hills whereas East Jaintia Hills reported a similar level of registration across the two data sets. Institutional deliveries reported by two datasets for South West Khasi Hills varied substantially. South Garo Hills and Ri Bhoi also had high variation in institutional deliveries whereas East Khasi Hills reported lowest variation in institutional deliveries across HMIS and MOTHER App data.

Table 5: HMIS and MOTHER App data comparison, January-May 2022

Region	Districts	% Registered for ANC in first trimester	% Registered for ANC in first trimester	% Institutional deliveries	% Institutional deliveries
		HMIS	MOTHER App	HMIS	MOTHER App
Garo	East Garo Hills	34.2	19.9	50.8	56.4
	North Garo Hills	37.9	26.2	58.0	66.0
	South Garo Hills	39.0	32.7	39.9	56.1
	South West Garo Hills	55.2	33.4	79.3	76.1
	West Garo Hills	38.5	26.0	52.2	59.5
Jaintia	East Jaintia Hills	32.9	30.0	46.1	65.1
	West Jaintia Hills	35.6	26.6	50.8	56.2
Khasi	East Khasi Hills	43.0	41.5	64.3	64.1
	Ri Bhoi	53.5	45.2	48.7	59.9
	South West Khasi Hills	30.6	22.6	30.8	57.8
	West Khasi Hills	37.2	26.9	49.0	53.3
Meghalaya		40.7	32.2	54.1	60.3

Further, we examined the level of detail of data on maternal deaths using a 2-week snapshot of MOTHER app individual-level data.

Table 6 Maternal Deaths (MOTHER app)

<u>Pre delivery</u>	<u>During delivery</u>	<u>Post delivery</u>
4 deaths	3 deaths	1 death
19 year old woman from RiBhoi; second pregnancy; high risk case; died of suicide 30 year old woman from East Garo hills; 4th or higher order pregnancy; not a high risk case; died of sepsis and 4th gravida IUD at 38 weeks 41 year old women from RiBhoi; 4th or higher order pregnancy; high risk case; died of severe sepsis with IV dysfunction in shock 33 year old women from South West Khasi hills; 4th or higher order pregnancy; high risk case; died of bleeding (per vaginal) due to placenta previa with anaemia	36 year old woman from East Jaintia hills; 4th pregnancy; high risk case; delivery in higher facility; complications occurred during delivery; cause of death unknown 24 year old woman from West Garo hills; 2nd pregnancy; not a high risk case; home delivery; died of complications during delivery 27 year old woman from West Khasi hills; 4th pregnancy; high risk case; delivery in higher facility; died of Severe Anaemia with oligohydramnios and pulmonary edema	26-year-old woman from East Khasi hills; 3rd pregnancy; high risk case; home delivery; cause of death unknown

Using available data, we considered the advantages of each source with stakeholders and the data management team. We decided to use the MOTHER App as the primary source of data for the study analyses on facility performance, provided that individual level data will be available. We will conduct two cross-checks with HMIS at the first and last quarter. Further, we will conduct more detailed analysis of factors associated with home delivery and reporting complications, using both the NFHS and MOTHER app.

C. Evaluation design

The adaptive evaluation will employ a longitudinal, mixed methods approach. We will trace processes at multiple levels (state, district, and block, facilities and communities) over a period of one year, with regular feedback loops with stakeholders, as well as a final synthesis. The study will track the implementation of Meghalaya's multi-sectoral efforts to improve maternal health, with a focus on informing implementers and policymakers. This section outlines the theory of change, followed by the research questions, key processes/indicators, data sources and sampling strategy.

Theory of Change

The preliminary theory of change draws on the six pillars of the SCEP as pathways of the Rescue Mission to improve maternal and child health at the population-level. Some underlying assumptions include systemic challenges related to health infrastructure, human resources, transportation issues and implementation barriers. Socio-cultural factors that affect the influence of process changes on long term outcomes include women's agency, trust in health care, and norms regarding health care services related to reproductive health and family planning in particular.

We first developed an overarching theory of change (Figure 4) that outlines how the key pathways employed by the Rescue Mission aim to enhance local decision-making and accountability, an enabling environment for maternal and child health in the state, which in turn improves service delivery. Importantly, the longer-term outcomes extend beyond maternal and child health to build resilient health systems and efficiency in health system. We further developed the theory of change to capture processes at each level of intervention: State, District, Facility, and Community. Given this is an adaptive evaluation, we anticipate that the theory of change will evolve over the study period. Moreover, we will utilise it as a review mechanism with stakeholders to adjust the theory of change based on implementation realities that emerge from the study.

Figure 4 Overall Theory of Change

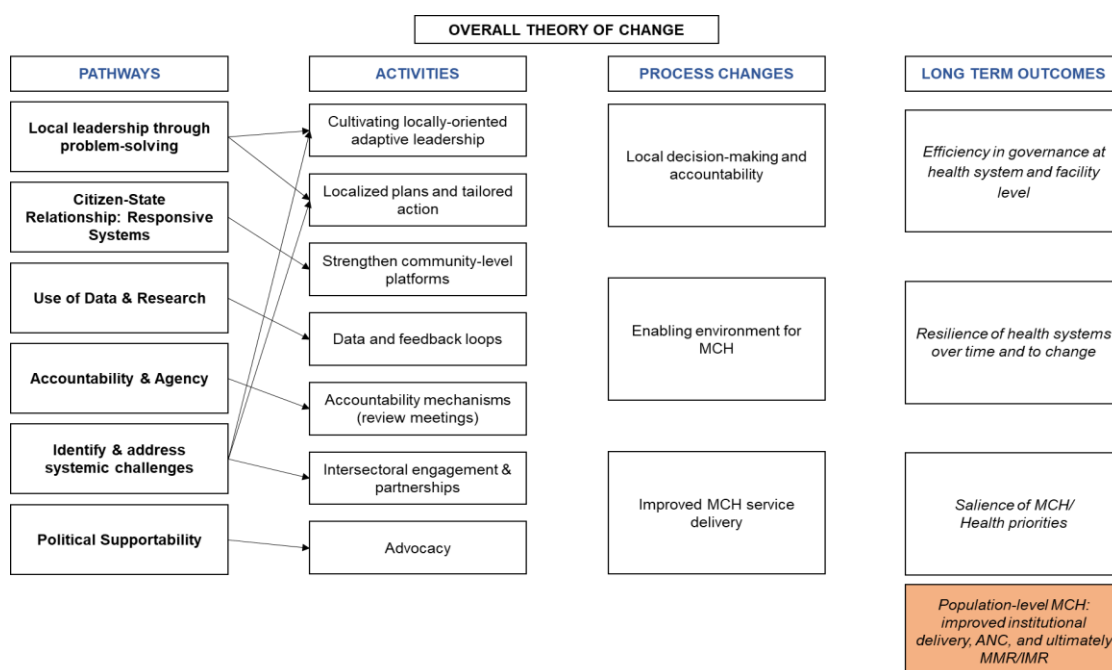
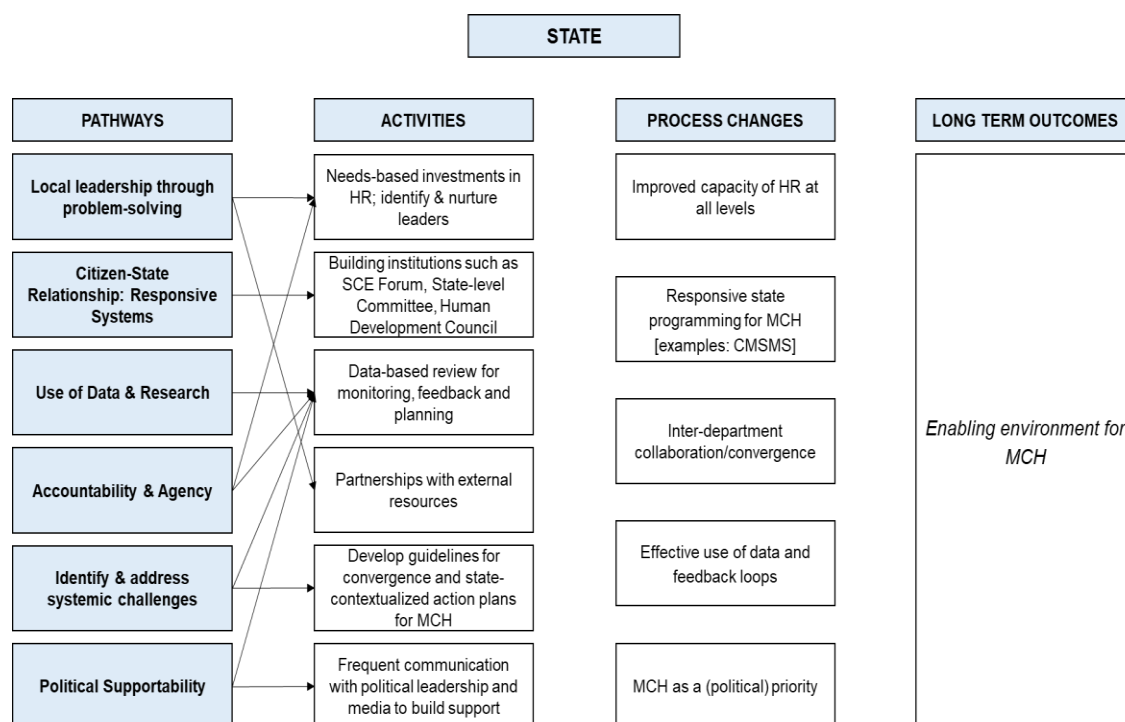


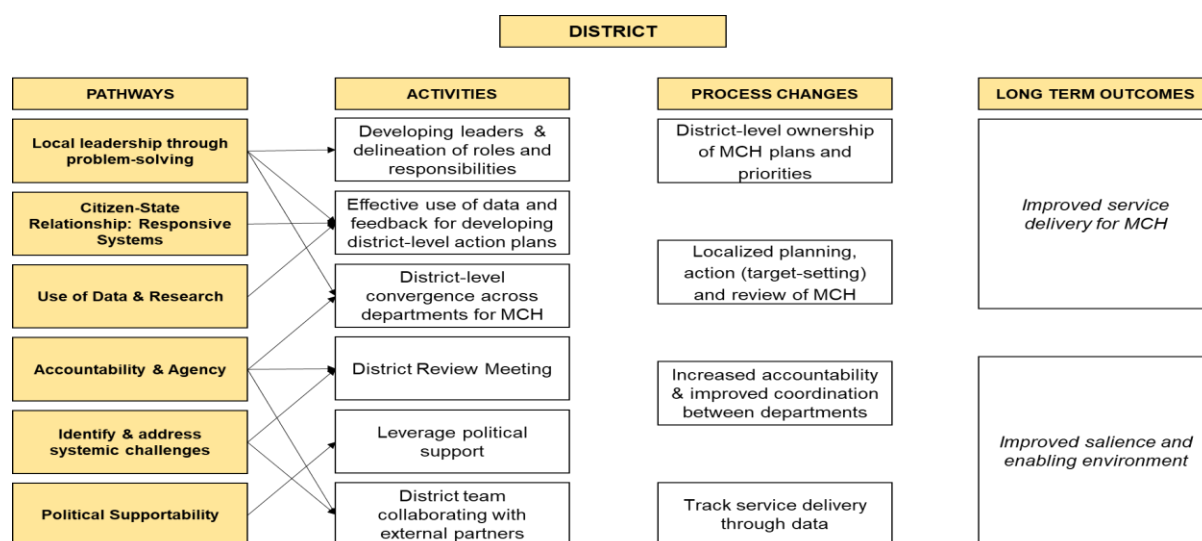
Figure 5 outlines key State level processes, focussed on cultivating leadership across levels, data-based review for monitoring and feedback and planning, partnerships with external resources, guideline development and building the support of the political leadership. The key process changes we anticipate are improved human resource capacity, responsive state programming for MCH, inter-department collaboration, effective use of data and placing MCH as a political priority. The key motivation in tracking state-level processes is to consider the extent they contribute to an enabling environment for maternal and child health.

Figure 5 State-level Theory of Change



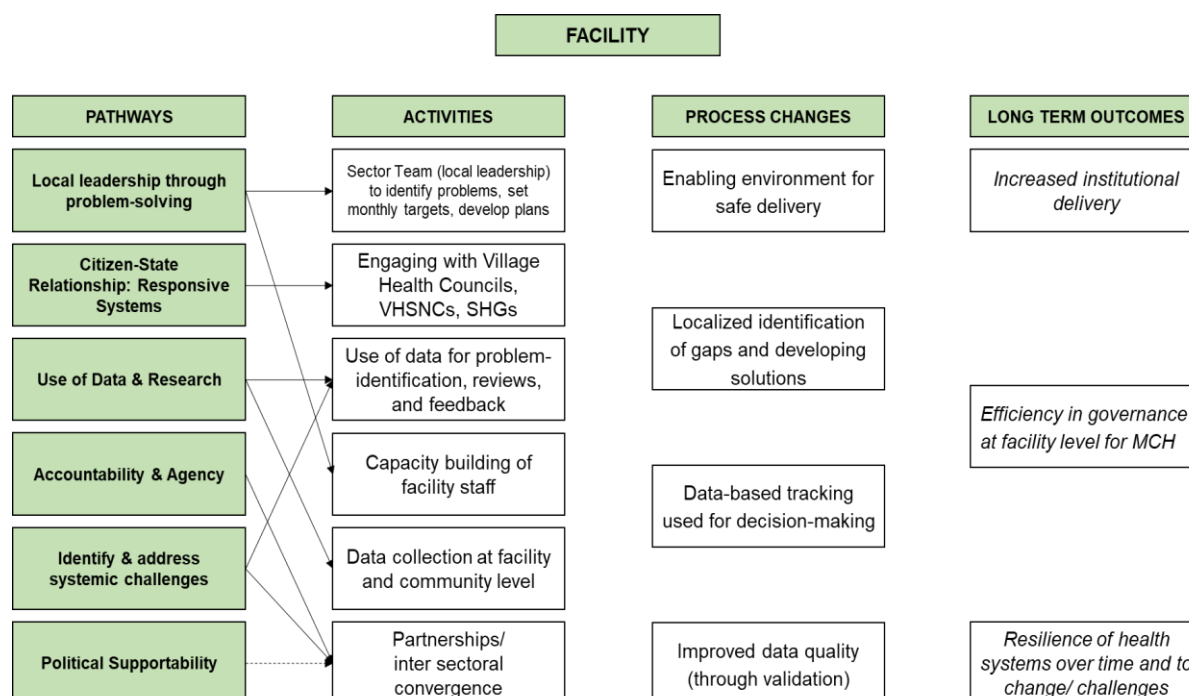
District-level use of data for planning actions at that level through District Review Meetings, convergence across departments and external partners, is likely to lead to a district-level ownership of MCH, localized planning, and improved coordination between departments.

Figure 6 District-level Theory of Change



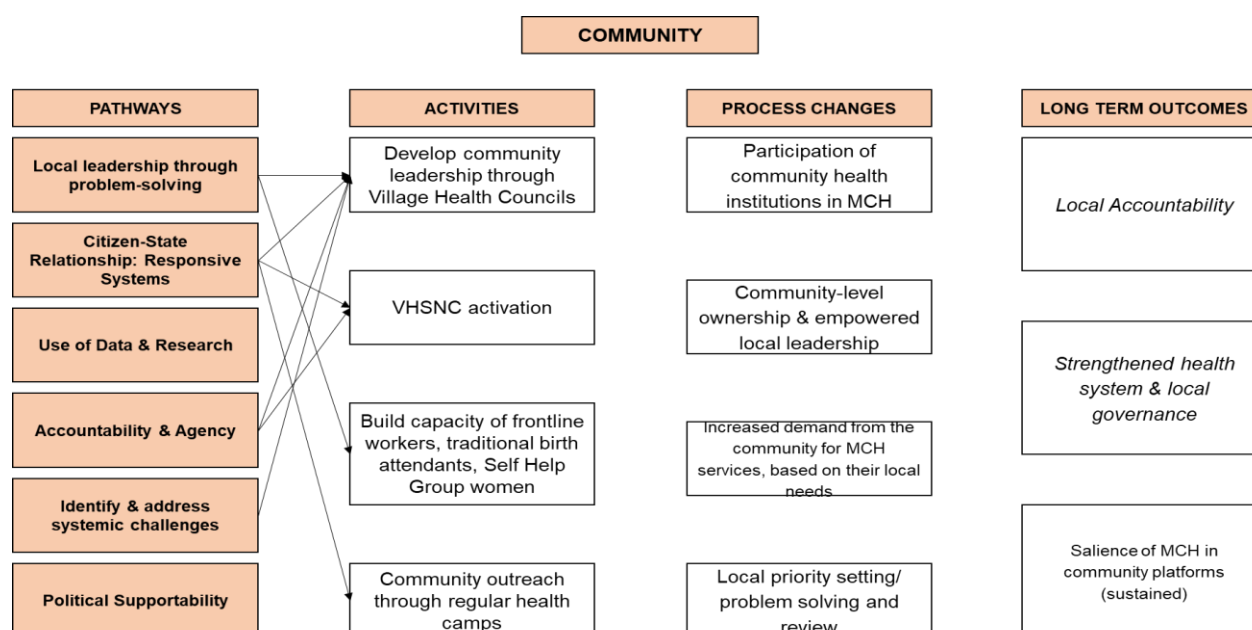
At the facility level, Sector Meetings, engaging with communities through home visits and platforms and using data for problem-identification, reviews, and feedback will create an enabling environment for safe delivery, data-based decision-making and problem-solving at the local level. We will concurrently track *institutional delivery* at the facility level.

Figure 7 Facility-level Theory of Change



At the community level, we will track processes linked to leadership platforms such as the VHCs and building capacity of SHGs and how they influence community-level ownership for health, increased demand for maternal and child health services and local-priority setting.

Figure 8 Community-level Theory of Change



Research Questions

The research questions focus on understanding the interventions' content, implementation processes, contextual factors – and importantly, *variation* in both processes and changes.

- **Program adoption:** What was planned to be implemented, by whom at the state/district; facility and community level? What were departures, additions, or omissions and why? What was uptake amongst stakeholders? What drove variation across districts and/or facilities in uptake?
- **Processes:** What were the enablers and barriers to implementation, at each level and for different actors? How did processes change? Which processes in the envisioned theory of change were successful (and which were not)? How do these vary across programme domains, such as maternal and child health and/or Early Childhood Development?
- **Process Changes:** Were process changes sustained over time? Did these changes signal improvements in service delivery indicators, such as institutional delivery? Did these changes spill over into other, non-maternal and child health programmes, specifically related to Early Childhood Development?

Data sources

The evaluation will use a mix of qualitative and quantitative data as well as secondary information (such as guidelines and relevant reports). Qualitative data will include individual interviews across the different levels of governance, focus group discussions at the community-level, and meeting observations across levels for sampled facilities. Quantitative data will include key indicators from the MOTHER app and HMIS which will be tracked throughout the study across facilities in the state.

Table 7 Data Sources

Domain	Research Question	Interviews	FGDs	Meeting Observation	Guidelines or Reports	HMIS/ MOTHER app Data
Intervention content/uptake	What was implemented and where, by whom?	✓		✓	✓	
Context	What varied across sites? Why?	✓		✓		✓
Implementation Processes	Enablers and barriers to intervention; what worked, what did not?	✓	✓	✓		
Process Changes	What changes over time?	✓	✓	✓		✓

Process tracing and data sources

To illustrate, we outline below key process changes we will trace, as identified in the Theories of Change.

Table 8 Process Tracing and Data Sources

Level	Key Process Changes	Data Sources
State	Responsive state programming for MCH Inter-department collaboration Effective use of data and feedback loops	Qualitative interviews (early-late)
	MCH as a (political) priority	Guidelines/reports
District/Block	Ownership of MCH plans and priorities Localised planning, action (target-setting)	Meeting observations Reviewing minutes & Action Plans (over study period)
	Increased accountability and improved coordination between departments	Qualitative interviews (quarterly)
Facility	Enabling environment for safe delivery	Qualitative interviews (quarterly)
	Localised problem identification and solutions	Meeting observations
	Data-based tracking used for decision-making	
Community	Participation of community health institutions in MCH	Qualitative interviews (quarterly);
	Community-level ownership & empowered local leadership	Focus Group Discussions (quarterly)
	Local priority setting/ problem solving and review	
Level	Key Service Outcomes	Data Sources
Facility & District	Institutional Delivery Antenatal Care 4+ Maternal Deaths	MOTHER app data analysis at district- and facility-levels (monthly)

Key quantitative indicators will be tracked for health facilities (PHCs & CHCs) across the state. Qualitative data will be collected at the State-level, sampled facilities and their corresponding Block- and District-levels as well as select corresponding communities.

Sampling strategy for in-depth process tracing

Quantitative indicators (institutional delivery, ANC, high-risk pregnancies and maternal deaths) will be traced across all 11 districts of Meghalaya, using the MOTHER app and HMIS. The in-depth qualitative process tracking, which will consist of district, facility and community-level interviews and meeting observations, will be conducted in a sample of facilities across the state. As an initial step, we have selected a sample of 30 PHCs and CHCs from 6 districts: North Garo hills, West Garo hills, West Jaintia hills, Ribhoi, East Khasi Hills, South West Khasi Hills. These six districts were chosen purposively to ensure geographic diversity *and* logistical convenience for repeated interviews.

We conducted a similar Probability Proportional to Size sampling strategy for all 11 districts of the state Annex II. As discussed, we will finalise the selection with Director, NHM taking into account required diversity in indicators, study logistics and potentially staggered data collection to cover more.

Within the six districts, we used Stratified Probability Proportional to Size sampling to select 30 facilities (PHC and CHC), using Institutional delivery as our primary indicator of interest. We calculated a performance score (0-3) for each facility using the MOTHER app data from January to June 2022. Facilities with scores of 0 or 1 were categorised as low-performing, while facilities with scores of 2 or 3 were categorised as high-performing. Scores were calculated on summing performance on the following indicators

Table 9 Performance Scores for Sampling

Score component	Overall facility performance score	District comparison score	Dispersion score
Definition	Average proportion of institutional deliveries over January to June 2022, compared to state average of 58.1% (NFHS-5)	Facility average institutional delivery of 5 months was compared with the district rate of institutional deliveries (from NFHS-5). It was categorised as follows:	For each facility, we calculated the standard deviation between institutional delivery rates over 5 months. The standard deviation (Median [IQR]= 9.7 [0.0, 13.9]) was categorised as follows
Categories	0: 0% - 58%	0: below district average	0: SD above median
	1: 58% - 100%	1: above district average	1: SD below median

All facilities in each district were categorised within two sub-stratum based on their performance. A dist_code.0 stratum including low performing facilities, and a dist_code.1 stratum including high performing facilities (dist_code being the district code of the sampled districts). The table below gives an overview of the number of facilities in each district and subsequent strata, and further, the number of sampled facilities from each stratum, using Probability Proportional to Size sampling scheme. After the initial Probability Proportional to Size, we examined facility-level indicators for each and monthly performance and adjusted specific facilities to ensure diversity.

Table 10 Sampled Facilities: 6 districts

District	Number of Facilities	Stratum	Number of Facilities	Number of facilities selected
East Khasi Hills	39	EKH.0	14	4
		EKH.1	25	7
North Garo Hills	12	NGH.0	6	2
		NGH.1	6	2
Ri Bhoi	11	Ri.0	6	2
		Ri.1	5	2
South West Khasi Hills	6	SWKH.0	3	1
		SWKH.1	3	1
West Garo Hills	16	WGH.0	11	3
		WGH.1	5	1
West Jaintia Hills	17	WJH.0	4	1
		WJH.1	13	4
Meghalaya	155	6 district total	101	30

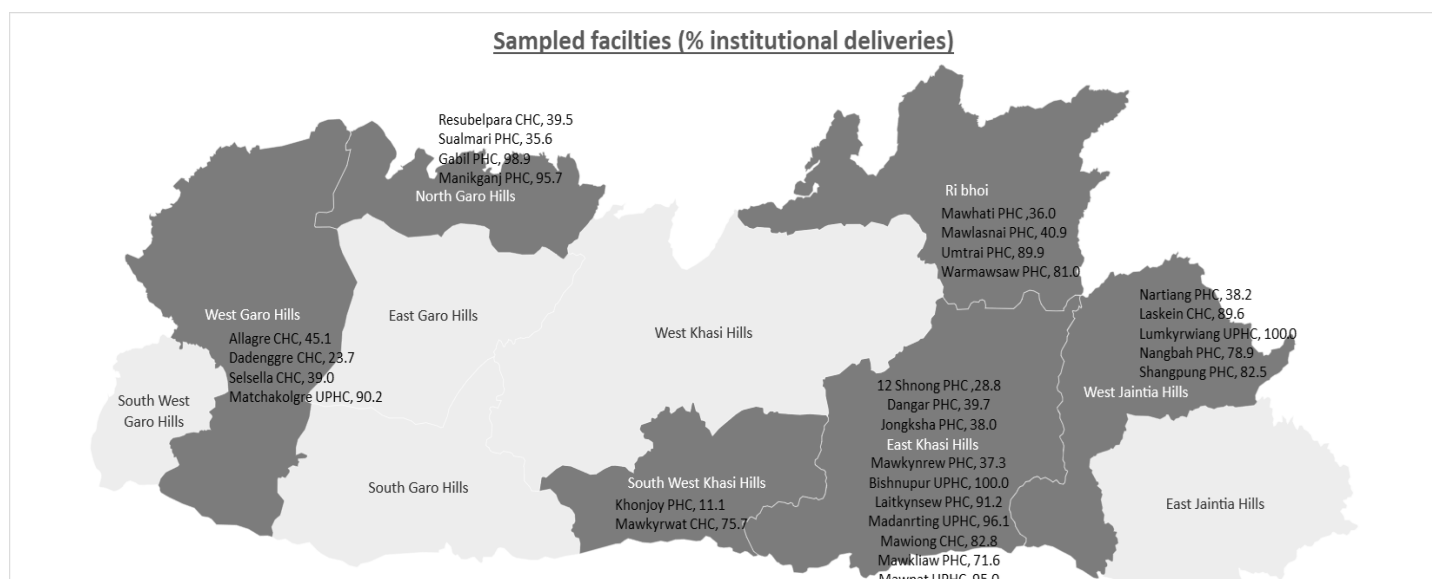
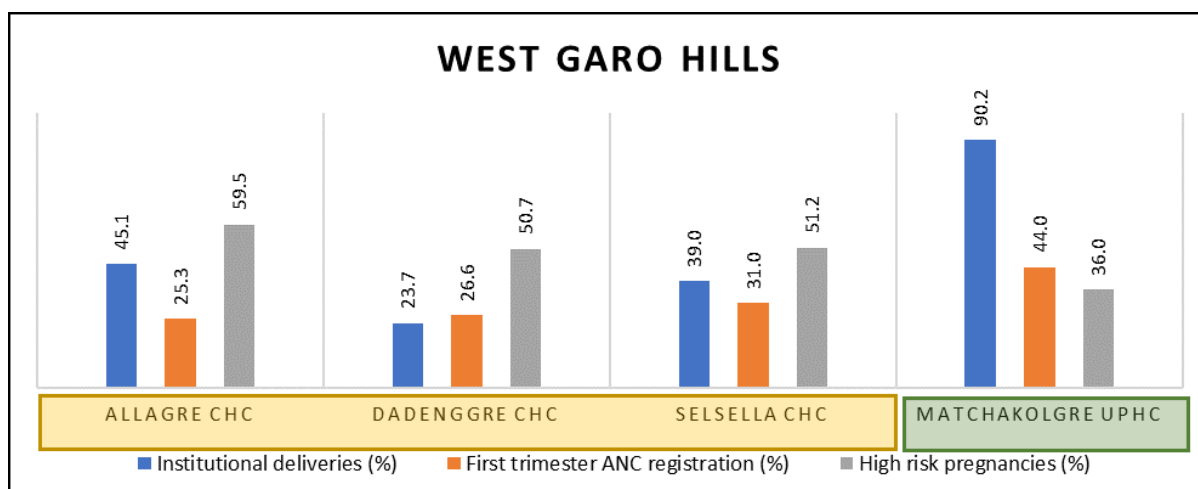
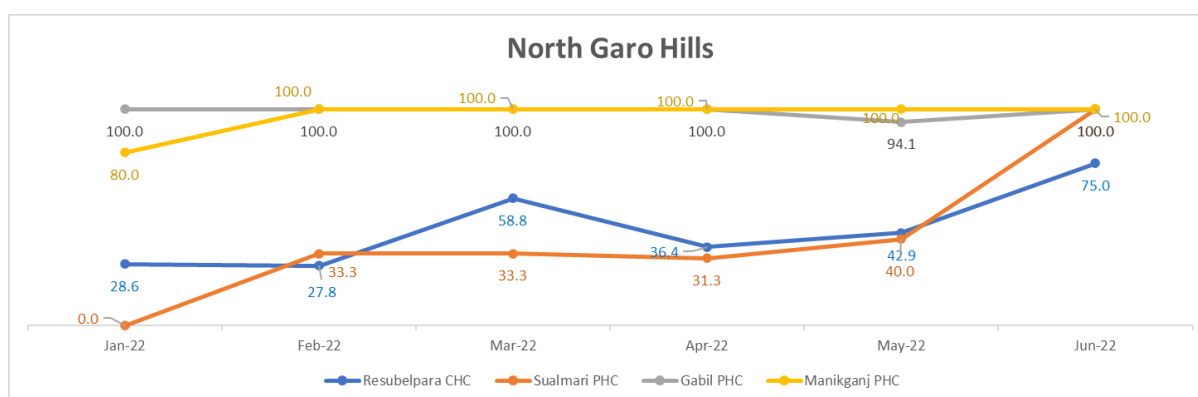
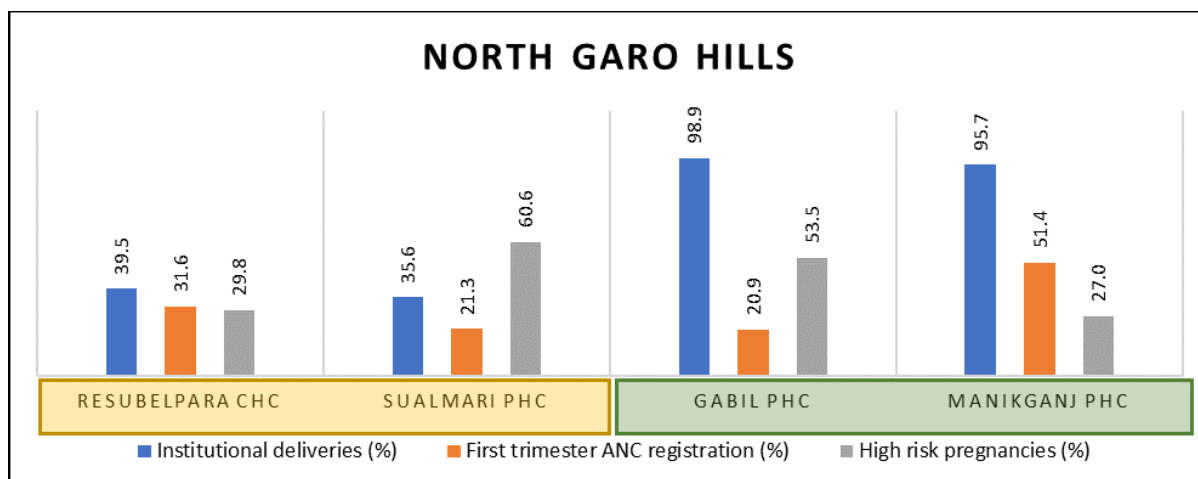


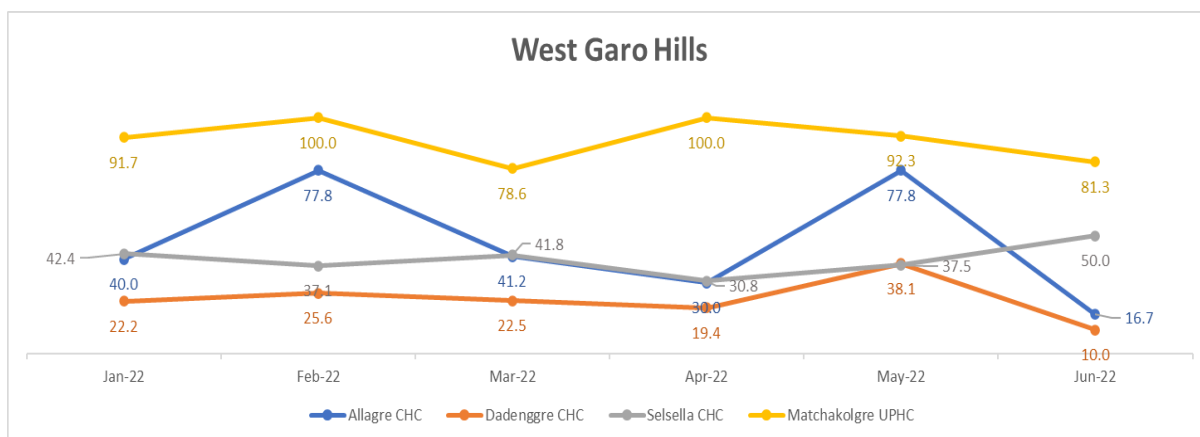
Figure 9 Sampled Facilities: Institutional Delivery

At baseline (January to June 2022), the following provide an overview of initially sampled facilities on three indicators, and a time trend in institutional deliveries over 6 months (Jan to Jun 2022), respectively. The 3 indicators reported are:

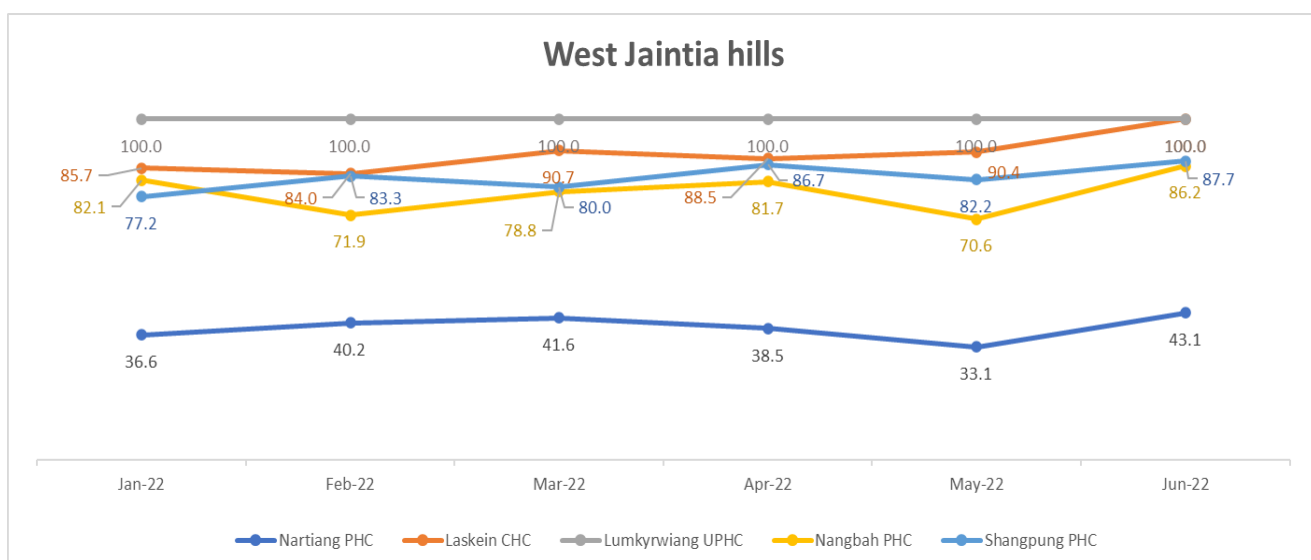
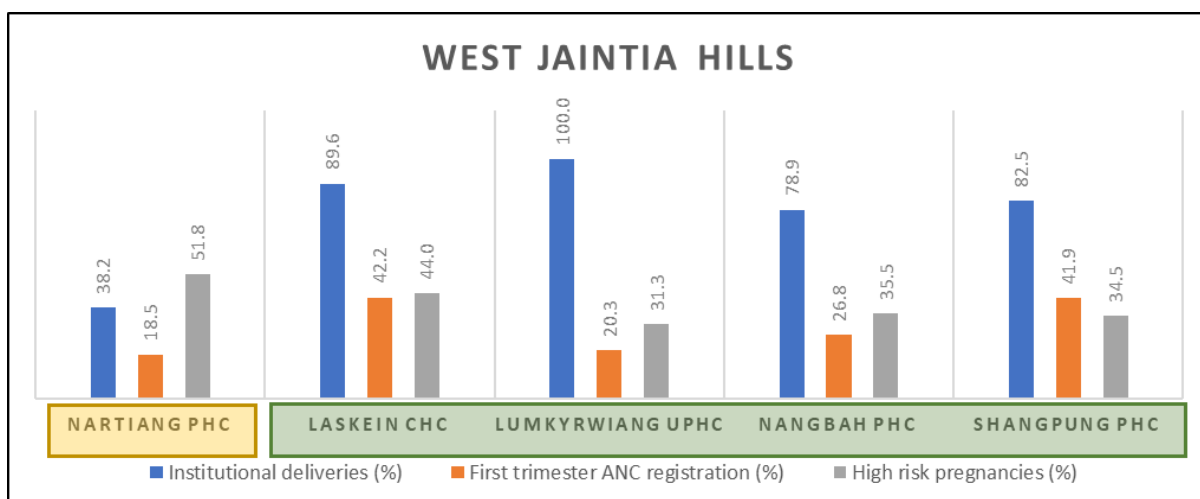
1. Institutional delivery
2. First trimester ANC registration (%)
3. High risk pregnancies (%)

Region: Garo hills

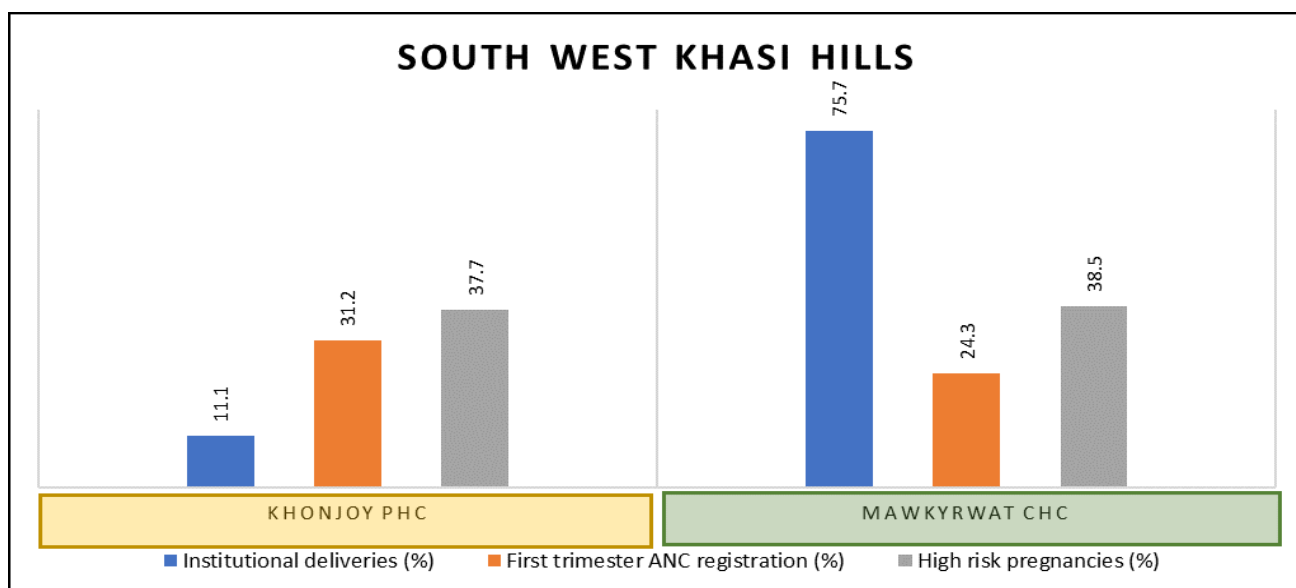
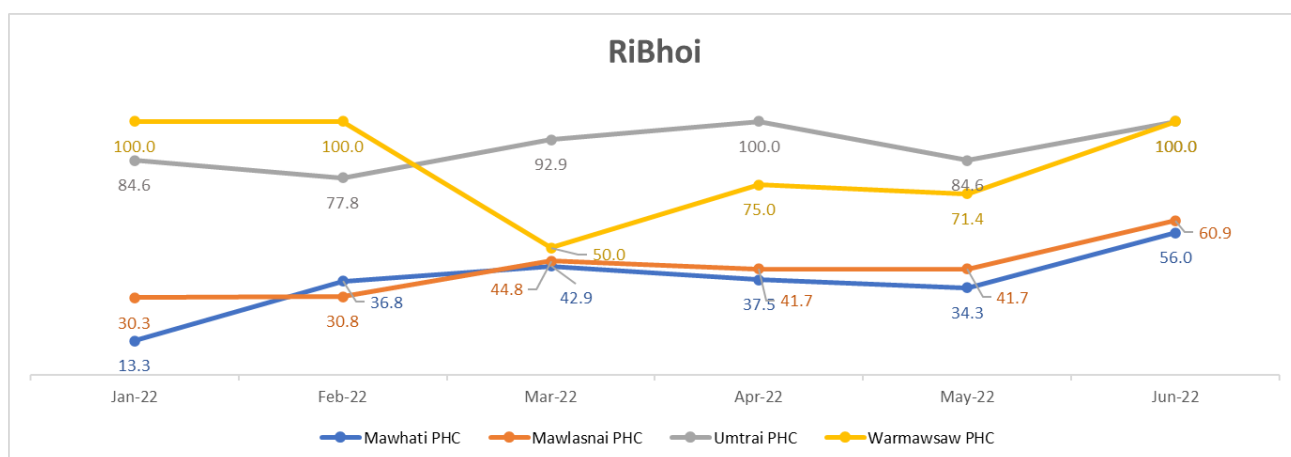
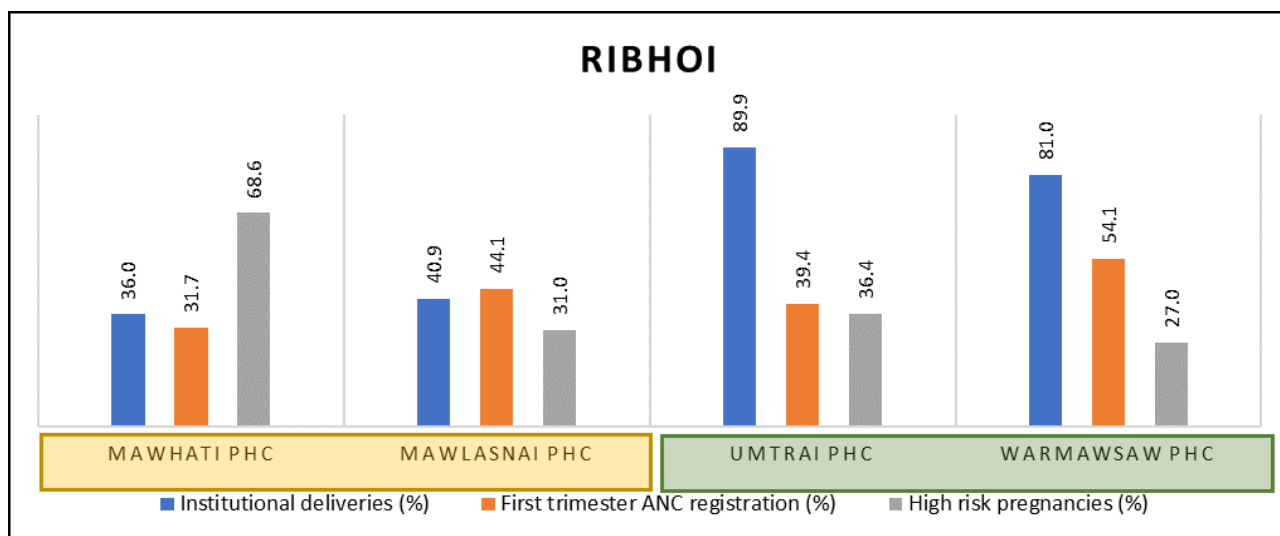


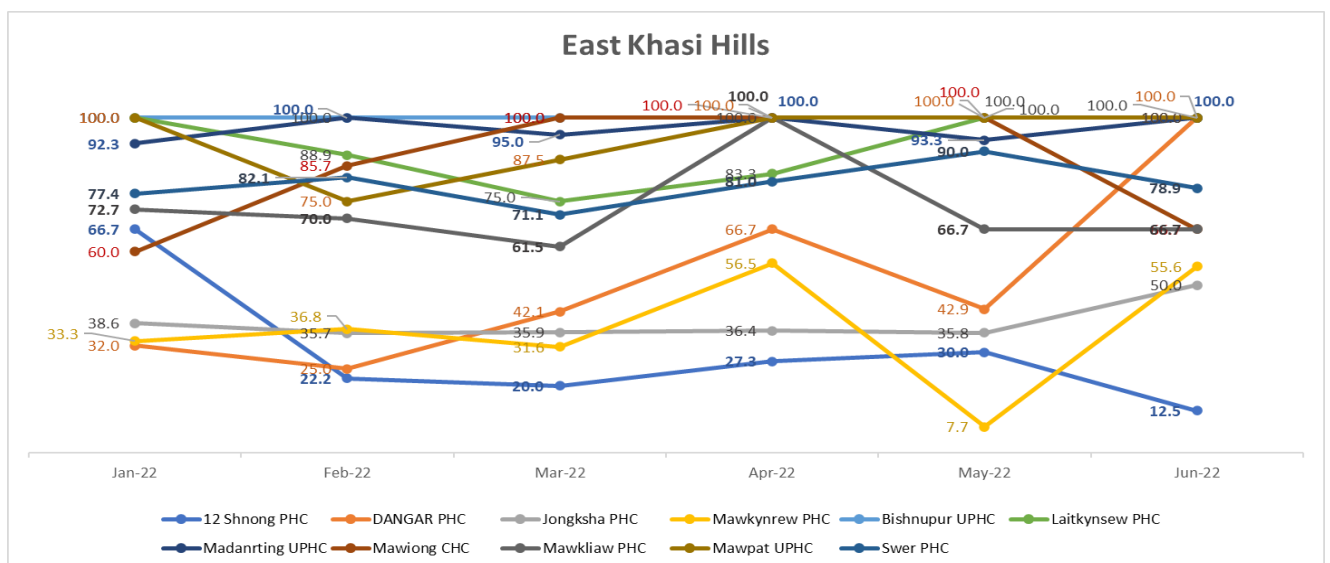
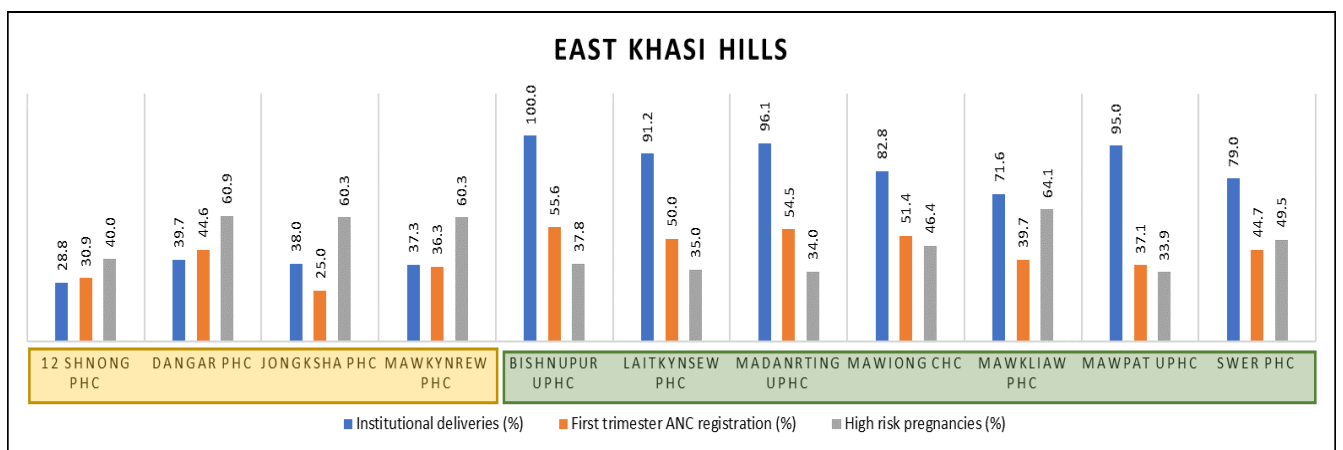
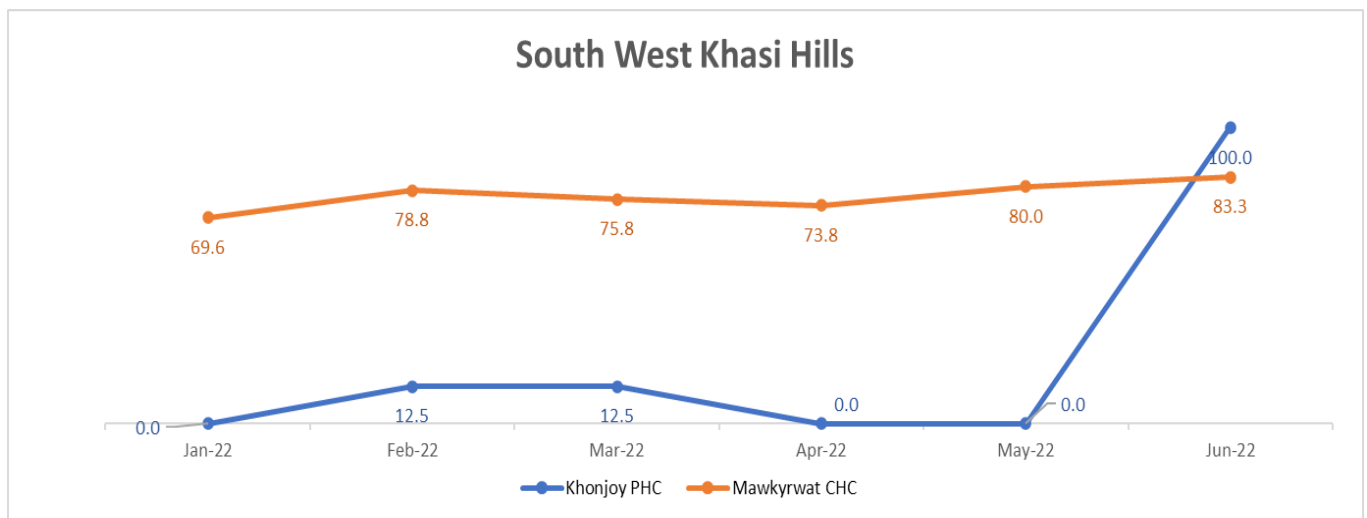


Region: Jaintia hills



Region: Khasi hills





Data collection

The data collection team will consist of the Principal Investigators, the Project Coordinator and the Qualitative Researcher and the Research Investigator in Meghalaya. Three qualitative research investigators, who will be recruited, will be stationed geographically in the districts sampled. Training of research investigators will be done on the tools, the current health system of the State with initiatives of the Rescue Mission along with an emphasis on continuous documentation, collecting quality data and rapport building with the facilities and State, District and Block functionaries concerned. As the changes in the health system are continuous and dynamic, we intend to assimilate, as much as possible, into the health facilities under study and the communities under them.

To initiate the process, health facilities will form the first point of data collection for the study, after which we will move upwards to the respective Blocks and Districts. The idea behind this approach is to ensure our understanding of a state-wide ground reality and particular district or block specific issues before moving on to asking the right questions to the Block and District functionaries. To ensure triangulation of data, the tools drafted include In-depth Interviews (IDIs), Focused Group Discussions and Observations. IDIs will be utilized for gathering individual level data of State, District, Block and facility functionaries, whereas FGDs will be used for community/VHC/group level data.

There will be an average of 15 to 20 respondents for each District that will be constant over time. Keeping in mind that this is an iterative process, there will be changes to the tools and issues taken up based on observations from Sector Meetings, District Review Meetings, VHNDs, Health Team meetings, interviews and group discussions. Additionally, throughout the process, there may be staggered entry and exit of participants of key interests to keep data collection relevant to the continuous changes in the health system. This will be done through snowballing and as such, the participant list may expand. We should be able to validate data, cover contextual issues, strengths and learnings from each facility, block and district by conducting further visits and interviews with relevant sub-centres and communities.

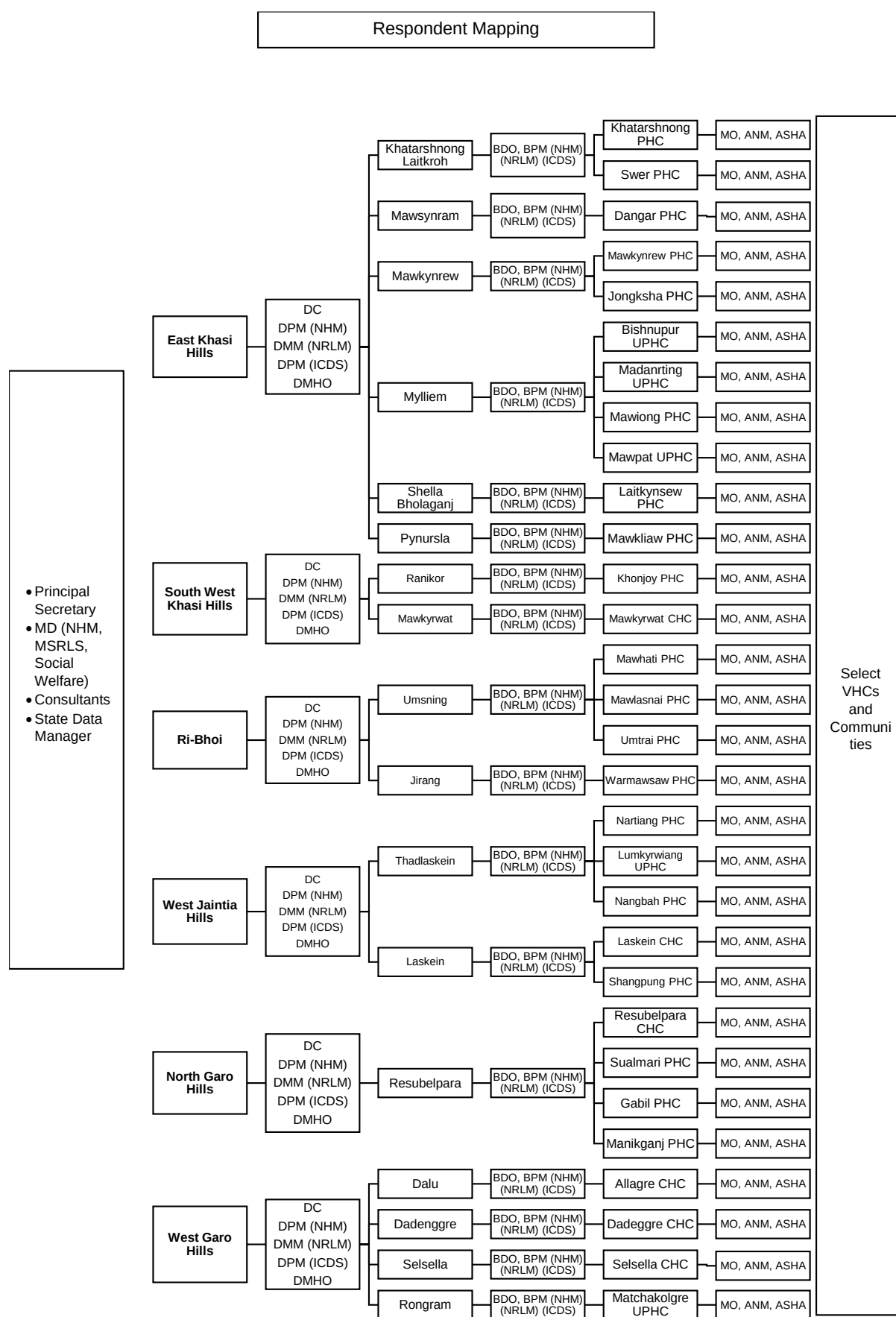
Table 11 Data collection mapping

Domain	Specific RQs	Data Type	Data Source				
			Interviews	FGDs	Meeting Observations	Guidelines or Reports	MOTHER app
Intervention content/uptake	What is the Rescue Mission approach?	Qualitative	x		x	x	
	What are the activities/processes under Rescue Mission supposed to be?	Qualitative	x		x	x	
	Are these activities/processes happening?	Qualitative & Quantitative	x		x	x	x
	How are the activities/processes under Rescue Mission happening?	Qualitative	x		x	x	
	What are the priorities under Rescue Mission?	Qualitative	x		x		
Context	What do you think is driving this change?	Qualitative & Quantitative	x		x	x	x
Implementation Processes	What has changed after RM? Departures, additions, omissions in "routine" work.	Qualitative	x		x	x	
	What are the challenges? What are the enabling factors?	Qualitative	x	x	x		
Process Changes	Who is responsible for what under the Rescue Mission? Who outside of the health department is involved? How?	Qualitative	x	x	x	x	
	Is data being used? How?	Qualitative & Quantitative	x		x	x	x
	Is there community engagement? How does it happen?	Qualitative	x	x	x	x	

Table 12 Data Collection: Periodicity

LEVEL	PARTICIPANTS	MONTH											
		1	2	3	4	5	6	7	8	9	10	11	12
State	Principal Secretary	x											x
	MD NHM	x											x
	MD MSRLS	x											x
	MD Social Welfare	x											x
	Consultants	x					x						x
	Data Manager	x					x						x
District	DC		x			x			x			x	
	DPM – NHM		x			x			x			x	
	DPM – MSRLS		x			x			x			x	
	DPM – ICDS		x			x			x			x	
	DMHO/DMCH		x			x			x			x	
Block	BDO		x			x			x			x	
	BPM – NHM		x			x			x			x	
	BPM – MSRLS		x			x			x			x	
	BPM – ICDS		x			x			x			x	
Facility	MO	x			x			x			x		x
	ANM	x			x			x			x		x
	ASHA	x			x			x			x		x
Community	CGHA	x			x			x			x		x
	SHG	x			x			x			x		x
	VHC	x			x			x			x		x
	FGDs with the community/women to be conducted based on data emerging/community-dependent												

Figure 10 Respondent Mapping Across Districts



Data collection tools

Data collection tools have been developed based on field visits and exploratory interviews. The initial phase of data collection may result in further changes to these tools, as expected during the course of qualitative research. The list of tools is below, with the full set in Annex III.

List of Tools

- State – Principal Secretary, Mission Directors, Data Managers and Consultants
- District and Block Officials
- Facility – MO, ANM, ASHA
- Community – Women and VHC members

Analysis and Feedback

We will analyse qualitative and quantitative data on an ongoing basis, to ensure responsive feedback to stakeholders and identify emerging themes. Data will be synthesized through concurrent triangulation, using monitoring/administrative and secondary survey data, along with interviews, to identify implementation processes, enablers and barriers. Depending on the nature of variation that emerges, we will develop representative “cases” of different facility cluster types to highlight important contextual (sociodemographic, political), administrative or management factors that characterize performance.

Technical Advisory Group

We propose the following experts to be on our Technical Advisory Group:

1. Prof Sandra Albert, Director, IIPH Shillong
2. Dr. Rajani Ved, Director, Health, Bill & Melinda Gates Foundation India
3. Dr Rakhal Gaitonde, Professor, Sree Chitra Tirunal Institute for Medical Sciences and Technology, Trivandrum
4. Yamini Aiyar, President, Centre for Policy Research

Next Steps and Timeline

We are currently awaiting Institutional Review Board approval and reviewing applications for research investigators/field team. Upon receiving approval and hiring local investigators, we will begin training and data collection in September 2022. The timeline below reflects the data collection process. This will be followed by a three-month synthesis period.

DATA COLLECTION	MONTH											
	1	2	3	4	5	6	7	8	9	10	11	12
IRB approval												
Recruitment & Training of field staff												
Data Collection												
Data Analysis												

We will submit regular progress updates and a mid-term report. We will also share periodic case studies and learning briefs to highlight enablers and barriers to implementation and help the state adapt its strategy and processes. At the end of the evaluation, a final report and case study will be developed that synthesises the overall trajectory of change, both to inform adjustments to ongoing strategies and to inform multi-sectoral approaches within and beyond the state.