Evaluation of initiatives under the project entitled “Improving efficiency of vaccination systems in India in multiple states.”

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Project Information Table

Project/ Outcome Information		
Project/ Outcome Title	**Improving Efficiency of the Vaccination System in India**	
Quantum ID	**00101970**	
CPD outcome and output	**CPD (2023-27)** **CPD Outcome 1 (b): By 2027, communities, especially the most disadvantaged, demand for and benefit from an inclusive, universal, affordable, accessible,** accountable**, and quality health care services, while adopting positive health practices.** **CPD Output 1.2: Improved service delivery of health care and development programmes to the last mile to ensure that no one is left behind**	
Country	**India**	
Region	**Regional Bureau of Asia and the Pacific**	
Date project document signed	**22 May 2019**	
Project dates	**Start**	**Planned End**
	1 January 2018	**31 December 2024**
Project budget	**$ 83,642,657**	
Project expenditure at the time of evaluation	**$ 78,763,419**	
Funding source	**Gavi, State Health Departments**	
Implementing party	**UNDP**	

Evaluation information

Evaluation type (project/ outcome/ thematic/ country programme, etc.)	Project	
Final/ midterm review/ other	Final	
Period under evaluation	**Start**	**End**
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Evaluators	KPMG Advisory Services Private Limited, India	
Evaluator email address	lalitmistry@kpmg.com	rutujapingale@kpmg.com
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Acronyms and Abbreviations

ABDM	Ayushman Bharat Digital Mission
ABHA	Ayushman Bharat Health Account
AI/ML	Artificial Intelligence/Machine Learning
AMC	Annual Maintenance Contracts
ANM	Auxiliary Nurse Midwives
CCE	Cold Chain Equipment
CCH	Cold Chain Handlers
CCL	Cold Chain Logistics
CCP	Cold Chain Points
CHC	Community Health Centre
Co-WIN	Winning over COVID-19
CPD	Country Programme Document
CSC	Common Service Centers
DH	District Hospital
DIO	District Immunization Officer
DPDP	Digital Data Protection Act
DPG	Digital Public Goods
DPI	Digital Public Infrastructure
DQA	Data Quality Assessment
DVS	District Vaccine Stores
eVIN	Electronic Vaccine Intelligence Network
FAQ	Frequently Asked Questions
FEFO	First Expiry First Out
IDIs	In-depth Interviews
ILR	Ice-Lined Refrigerator
FGD	Focused Group Discussions
FIC	Full Immunization Coverage
FIFO	First-in-First-out
GAVI	Global Alliance for Vaccine and Immunization

GOI	Government of India
GMSD	Government Medical Store Depots
HF	Health Facility
HMIS	Health Management Information System
HSS	Health System Strengthening
ISCL	Immunization Supply Chain and Logistics
ITSU	Immunization Technical Support Unit
KMS	Knowledge Management System
LGBTQIA+	Lesbian, Gay, Bisexual, Transgender, Queer (or sometimes questioning), Intersex, Asexual, and Others.
LMS	Learning Management System
MeitY	Ministry of Electronics and Information Technology
MoHFW	Ministry of Health and Family Welfare
MO	Medial Officer
NCCMIS	National Cold Chain Management Information System
NCCVMRC	National Cold Chain and Vaccine Management Resource Centre
NCDC	National Centre for Disease Control
NFHS	National Family Health Survey
NGOs	Non-Governmental Organizations
NHM	National Health Mission
NLP	Natural Language Processing
PHC	Primary Health Centre
PIP	Programme Implementation Plans
PO	Project Officer
PPM	Planned Preventive Maintenance
RCH	Reproductive and Child Health
ROAR	Results Oriented Analysis Report
ROI	Return On Investment
RVS	Regional Vaccine Store
SC	Sub-Centre
SDH	Sub District Hospital
SIO	State Immunization Officers
SPO	State Program Officer
SVS	State Vaccine Store
TSU	Technical Support Unit

UIP	Universal Immunization Program
UNDP	United Nations Development Programme
UT	Union Territory
VCCM	Vaccine Cold Chain Managers
VVM	Vaccine Vial Monitor

Executive Summary

Brief Project Description

The Ministry of Health and Family Welfare (MoHFW) and the United Nations Development Programme (UNDP), with financial support from GAVI, launched the Health System Strengthening (HSS) initiative in two phases (2013-2018 and 2018-2024). This initiative is designed to utilize digitalization and supportive technologies to bolster the Universal Immunization Program. As a part of the HSS initiative, digital platforms of eVIN and Co-WIN were designed to improve supply chain management for routine immunization and COVID-19 vaccines, respectively.

The project's outputs include the use of the real-time vaccine logistics and cold chain management system (eVIN) by all government Cold Chain Points (CCPs) to ensure an adequate supply of vaccines stored at the right temperature. Furthermore, all government vaccinators use the real-time vaccine coverage system (COWIN) to ensure beneficiary coverage during COVID vaccination drive in the country.

As the HSS II initiative (second phase, 2018-24), comes to an end, an end term evaluation was undertaken, to assess the extent to which the project achieved its specified objectives, outputs, and comment on the overall preparedness to transition to the next phase. The assessment was also expected to highlight key learnings, which are vital considerations for future development of innovative digital health solutions and similar programmatic implementations.

The intended audience for the evaluation includes Ministry of Health and Family Welfare, National and State Governments, GAVI, UN agencies, stakeholders from the UNDP India and Country offices, private sectors, policymakers, health administrators, donors and civil societies. The evaluation aims to provide these stakeholders with insights into the effectiveness, efficiency, and sustainability of the eVIN and Co-WIN solutions. The findings will inform future decision-making, policy formulation, and resource allocation to enhance the Universal Immunization Program. Additionally, the evaluation will help identify best practices and areas for improvement, ensuring that vaccination services are inclusive, equitable, and sustainable.

Purpose and objectives

The primary objective of the evaluation was to assess the contribution of the eVIN and Co-WIN platforms in enhancing the efficiency of the vaccination system in India. This included evaluating how these digital solutions fostered accountability, transparency, and data-driven decision-making processes. A critical aspect of this evaluation was the analysis of cost-efficiency, focusing on the investments made by GAVI, UNDP, and the Ministry of Health and Family Welfare to ensure the effective rollout of these initiatives.

Specific objectives of this evaluation include:

a) To assess the contribution of eVIN and Co-WIN in improving the efficiency of the vaccination system, thereby contributing to accountability, transparency, and data-driven decision-making.
b) To assess the cost-efficiency of eVIN and Co-WIN with respect to the investments done by GAVI, UNDP, and the Ministry of Health and Family Welfare for the effective roll-out of the two solutions.

c) To analyze the effectiveness of eVIN and Co-WIN in ensuring an inclusive Routine Immunization and COVID-19 vaccination drive in the country, thereby leaving no one behind.
d) To measure the effect of these digital innovations on gender equality and social inclusion.
e) To assess the role of eVIN and Co-WIN in ensuring equitable access to vaccination services with respect to availability and quality assurance of vaccines.
f) To assess the sustainability of eVIN and Co-WIN solutions with respect to financial resources, technical knowledge transfer, open source, and overall approach of the Government of India with respect to Digital Public Infrastructure (DPI) and Digital Public Goods (DPG)

Approach and Methodology

The evaluation used a participatory, contribution analysis and output mapping in which both primary and secondary research were conducted. The primary data included both quantitative and qualitative components, while the secondary data were triangulated, analyzed, and synthesized to assist in the primary assessment. The evaluation study undertook a thorough assessment of how the project successfully mainstreamed other UNDP priorities, including but not limited to gender and cross-cutting issues such as social inclusion, empowerment of women, considerations of disability inclusion, and other disadvantaged and marginalized groups. Gender equality and social inclusion were added as assessment criteria in the evaluation study tool, approach, and methodology.

A robust assessment framework was developed under the categorization of input, process, and output/outcome indicators, data collection methods, and sources. The indicators spanned the entire immunization value chain, aiming to analyze the four principles of Organization for Economic Co-operation and Development (OECD) Development Assistance Committee (DAC) evaluation criteria: relevance, effectiveness, efficiency, sustainability, impact, and inclusivity (REESI framework).

The secondary review of available progress reports, work plans, quality assurance reports, knowledge products, success stories across states, developed policies, and subject matter articles was conducted to understand the current situation of the country. Primary data collection involved different types of stakeholders at state, district and CCP (Cold Chain Point) level. These varied range of stakeholders (includes State Immunization officer, State Programme Officer, District Immunization Officer, Vaccine Cold Chain Manager, Cold Chain Handlers, Vaccinators, and beneficiaries) were asked pertinent questions related to the relevance, effectiveness, efficiency, sustainability, impact, and inclusivity aspects of the HSS-II project through different types of study tools to get a holistic picture.

For analysis, periodic data cleaning and qualitative analysis were conducted using software like R, MS Excel, and Weft QDA. Data was analyzed both inductively and deductively, with thematic areas emerging from desk research and primary data collection. A thematic framework and codebook were developed, and data was analyzed separately for different stakeholders, leading to a final coding framework by consensus.

Evaluation Rating Table

The evaluation is based on the rubric to ensure consistent and objective assessment of the final evaluation report. The evaluation rating table (annexure 8) provides a rubric for assigning ratings to evaluation reports, detailing the criteria and corresponding values for each rating category.

Principle Findings

Relevance: Highly Satisfactory

The project was found to have a strong alignment with Universal Immunization Program, Sustainable Development Goal targets and UNDP’s country strategy. The project was planned to ensure that immunization services are made universally accessible and structured to be agile and responsive to any emerging requirements. In addition to the alignment to health priorities, the project also showed coherence with the national focus on digitalization of services, to improve service quality, efficiency and develop scalable technology solutions.

Effectiveness: Satisfactory

The project had set out targets to cover 24 States, covering over 29,000 cold chain points across the country. Given the geographic and cultural diversity and high degree of variability in availability of critical digital infrastructure, across the urban and rural geographies, staggering targets were set on an annual basis, with the intent to achieve 100% targets, by the end of the project. In the initial years of the project, several annual targets were missed. However, at a cumulative level by 2022, 100% of the target cold chain points were successfully digitalized. Additionally, more than 203% of the stipulated target for training of cold chain handlers was achieved in the initial half of the HSS II initiative. The project was able to install digital temperature loggers in 104% of the target cold chain points, by the closure of the HSS II initiative. Strong collaboration with government and other implementation partners coupled with a robust governance and monitoring system which provided ongoing supportive supervision, played a vital role in the achievement of the targets.

Efficiency: Satisfactory

The project efficiency was evaluated in terms of its ability to achieve the stipulated targets in a timely manner, within the allocated resources and funds. It was worth noting that the targets with respect to digitalization and training of cold chain handlers was achieved, within the first four years of the six-year project. Even on the matric of deployment of temperature loggers, 68.5% of the achievement was completed within the first four years of project. The funds allocated to the project were used in a staggered and efficient manner and no additional funds were required. The project also ensured data security measures to prevent any data breach and ensure confidentiality. The project followed the National Digital Health Mission/ Ayushman Bharat Digital Mission guidelines, which allow the platform to be used as a digital public health good in the future. The eVIN program helped improve the way vaccine drives were planned and helped optimize the utilization of vaccines. It was estimated that during FY 2022-23, the eVIN initiative achieved significant cost savings at three levels. At the strategic level, savings amounted to INR 1,489 crores, primarily from optimized vaccine logistics. The planning level saw savings of INR 132 crores due to improved vaccine distribution processes. At the service delivery level, efficient stock management and reduced wastage led to savings of approximately INR 1,489.68 crores for Routine Immunization (RI) vaccines. Additionally, overall savings at the service delivery level were INR 309 crores. A strong contribution to this was the development of the platform, that helped in improving the supply chain functions. The COVID-19 vaccination drive has been estimated to have significantly contributed to saving lives, with Co-WIN playing a crucial role in this success. Preliminary estimates suggest a total projected economic value of lives saved was approx. INR 197,000 crores.

Sustainability: Satisfactory

The project was found to have a reasonably well-defined sustainability plan. Firstly, the programme funding was gradually transferred to the NHM PIP (National Health Mission, Program Implementation Program), to ensure fund continuity post exit by UNDP. Secondly, collaboration with local authorities and regular supportive supervision framework, acted towards institutionalization of certain practices

and behaviors were put in place. Furthermore, UNDP has documented some of the good practices and measures and intends to share it with National and State governments.

Impact: Highly Satisfactory

The project was observed to have a positive impact on multiple counts, which in turn will ensure the future sustainability and continuity of the project and its components. Primarily, the project has helped in improving communication and reducing the spread of misinformation by imparting better visibility to stakeholders, about critical information. Secondly, it helped enhance digital literacy of the healthcare workforce and made them more amenable to change. Thirdly the project, by virtue of better information access to the field force, helped them in gaining recognition and acceptance in the community, which in turn contributed to higher confidence and commitment towards the national immunization program. Additional areas of impact included improved coordination between government and developmental partners and streamlining of documentation practices.

Gender equality and social inclusivity: Satisfactory

The project was able to improve the inclusivity for marginalized communities through its technological interface, robust planning, and execution of the project. Communities such as women, children, transgender individuals, PWIDs, LGBTQI, and people living in remote locations that are disproportionately vulnerable were specifically focused and assimilated into the project design for inclusion. The project (eVIN) directly contributed positive change in the healthcare workforce which are primarily women ,in the age group of 40-50 years, training them to operate smartphones, tablets and other digital devices efficiently, and bridging the digital divide.

Summary of Concluding Statements

The evaluation study concludes that the project has been highly successful in aligning with national health priorities and achieving significant milestones in the Universal Immunization Program (UIP). The project's relevance is underscored by its strong alignment with India's health development goals and its adaptability to emerging needs, such as the COVID-19 pandemic.

Effectiveness was demonstrated through the full-scale implementation of technology and training, although some targets, like the deployment of digital temperature loggers, were not fully met. Efficiency was maintained with prudent use of funds and robust data security measures.

The project had a positive impact by improving communication, enhancing digital literacy, and increasing community recognition, leading to higher confidence in the national immunization program. Additionally, it improved coordination between government and developmental partners and streamlined documentation practices. These impacts ensure the project's future sustainability and continuity.

Sustainability is well-supported by the gradual transfer of funding to national programs and the institutionalization of practices through collaboration with local authorities. The project's impact is evident in improved healthcare processes, increased digital literacy, and enhanced coordination between government and development partners.

Gender equality and social inclusivity were addressed by focusing on marginalized communities and creating employment opportunities for women and vulnerable groups. However, there is room for improvement in tracking these indicators more systematically.

Strong government support and commitment to health initiatives, particularly focusing on eVIN, created a favorable environment for strengthening cold chain and vaccine logistics systems. Aligned

policies and funding facilitated implementation and scaling. However, the intervention's dependency on government funding and the build-operate-transfer strategy revealed shortcomings, resulting in satisfactory ratings for efficiency, effectiveness, and sustainability. This reliance on government resources remains a critical factor for the project to remain effective, efficient, and sustainable.

Overall, the project has made significant strides in improving healthcare delivery and ensuring long-term sustainability, with a strong foundation for future initiatives.

Recommendations

Based on the findings of the evaluation study, review of existing literature and field survey, some of the key recommendations for the project were,

Table 1: Recommendations

S. No	Recommendations	Priority Level	Timeframe	Responsible Entity/ Entities
A.	**Recommendations for eVIN**			
1	Complete transition to a paperless immunization supply chain, leveraging the existing eVIN platform.	High	12-18 months	National & State Government/s
2	Develop Workforce Retention Strategy to retain vaccine service delivery staff by minimizing transfers, aligning remuneration with state cadres, and recognizing them as a designated cadre	High	This should have been already in-place as a sustainability plan for the project before its implementation. However, this strategy to be in place by March 2025	National & State Government/s
3	Enhance eVIN Features for Improved Vaccine Management and Compliance	High	By March 2025	UNDP Country Office and National & State Government/s
4	Integrating eVIN into India’s Digital Public Infrastructure (DPI) and Digital Public Goods (DPG) initiative Ecosystem to Promote Innovation, Social Impact, Equitable Healthcare and Global Replication.	High	For next phase of HSSII	National Government
5	Enhancing Project Oversight through regular PSC and IAG meetings	High	For next phase of HSSII	National Government
6	Leverage Advance Data Analytics and AI/ ML to predict demand patterns, inventory levels and lead times for enhancing project’s effectiveness.	Medium	For next phase of HSSII	UNDP Country Office
B.	**Recommendations for CoWIN**			
1	Sustaining CoWIN for Future Needs Vaccination and Public Health needs through continuous Funding, Upgrades, Data Security, and Training	High	Next Three Months	National Government

2	Customizing CoWIN for Digital Public Service Delivery Across Government Ministries/ Departments Technology-Based Systems for Public Services:	Medium	Next Twelve Months	National Government

Chapter 1: Introduction

1.1 Overview

The Universal Immunization Program (UIP) in India is a significant public health initiative focused on improving efficiency and effectiveness of the public health service delivery benefitting children, women, and vulnerable populations. The key objective of the programme is to support in reducing mortality and morbidity associated with vaccine-preventable diseases. The two major milestones of UIP were the elimination of polio (2014) and maternal and neonatal tetanus (2015).

The Ministry of Health and Family Welfare (MoHFW) and United Nations Development Programme (UNDP), along with financial support from GAVI, launched the Health System Strengthening (HSS) initiative in India. This was designed to bolster the Universal Immunization Programme and achieve full immunization coverage for the eligible groups. The project aimed to enhance health systems by institutionalizing real-time digital tracking of vaccines and mapping beneficiary coverage. It also sought to strengthen the supply chain for routine immunization, COVID-19 vaccines, and other health commodities through the implementation of the digital platforms like eVIN and Co-WIN platforms.

The HSS initiative has been implemented in two phases: HSS-I (2013-18) and HSS-II (2018-24).

- **HSS-1:** During the first phase (HSS-I), eVIN was introduced across 12 states (Assam, Bihar, Chhattisgarh, Himachal Pradesh Gujarat, Jharkhand, Madhya Pradesh, Manipur, Nagaland, Odisha, Rajasthan, and Uttar Pradesh). The primary aim was to improve the efficiency of the vaccine supply chain in India by utilizing digital platforms and cloud technology. eVIN digitalized the entire vaccine stock management, vaccine logistics and temperature tracking at all levels of vaccine storage – from national to the sub-district. This gave program managers real-time visibility of the vaccine stock position and storage temperature across all the cold chain points.
- **HSS-II:** In the second phase (HSS II), the eVIN platform was scaled up to the remaining 24 states and Union Territories (UTs). Currently, the program covers more than 29,000 cold chain points. During the COVID-19 pandemic, the MoHFW mandated UNDP to expand the technical assistance to support the world’s largest COVID-19 vaccination drive. Under the guidance of the MoHFW, as part of HSS-II, UNDP developed the Co-WIN (Winning Over COVID), a digital platform designed to facilitate the COVID-19 vaccination program’ s planning, management, implementation, and monitoring.

1.2 Purpose, Rationale and Coverage of the Evaluation

The end-term evaluation of the project titled "Improving Efficiency of Vaccination Systems in Multiple States," also known as the HSS-II Project (2018-2024), was designed to conduct a detailed review of the project’s progress. The primary focus of the evaluation aimed to assess the extent to which the project has achieved its specified objectives and outputs since its implementation in 2018. Additionally, it aimed to outline a future roadmap for implementation as the project transitions into the new phase.

The evaluation aimed to provide comprehensive assessment of the implementation approach, scale, and key learnings from the project to facilitate cross-learning for future initiatives and providing valuable insights on the overall impact on vaccination delivery systems and

strengthening last-mile healthcare delivery. The insights derived from this evaluation are meant to assist the MoHFW, GAVI, UNDP, and associated funding partners in planning future expansions and developing innovative digital solutions in health and other developmental sectors. These findings aim to enhance preparedness for future health emergencies, contributing to a robust, responsive, and agile healthcare system.

The evaluation of the project rigorously assessed the project's progress in relation to its stated purpose, objectives, outputs, and indicators assuming underlying assumptions and associated risks. A critical evaluation of the technical and operational approaches was conducted, focusing on deliverables, result quality, impact, and alignment with national priorities and stakeholder needs. Additionally, the evaluation examined the project's methodologies, particularly regarding mainstreaming gender equality and social inclusion, with a specific emphasis on the engagement of women and marginalized groups. It identified and evaluated risks and opportunities related to resource mobilization, synergy, and potential future interventions required to strengthen vaccine delivery and management. The external factors beyond the project's control which influenced its outcomes—both positively and negatively were also reviewed. The evaluation scrutinized the planning, management, and quality assurance mechanisms in place for effective project delivery, as well as assess coordination and communication processes with stakeholders, providing ratings based on relevance, effectiveness, efficiency, sustainability, impact, and the integration of gender equality and social inclusion.

To conduct this evaluation, 143 cold chain points across 11 states (9 were approached in-person and 2 online) and 22 districts were selected, in which field visits were conducted in 18 districts. To enable a comprehensive evaluation, stakeholders from the entire vaccine supply chain management lifecycle were interviewed through 143 Focused Group Discussion and 186 In-depth interviews. This approach provided valuable insights into the various components of vaccine management, facilitating a thorough understanding of the existing strengths and weaknesses at each stage. Engaging with a diverse group of stakeholders—including State Immunization Officers, District Immunization Officers, State Program Officers, Vaccine Cold chain managers, cold chain handlers and vaccinators—allowed for a multi-faceted perspective on the processes.

These interviews helped to identify specific challenges faced in the vaccine distribution and administration processes, as well as best practices that could be leveraged for future improvements. Furthermore, stakeholder feedback highlighted areas where alignment with national priorities and stakeholder needs could be enhanced.

1.3 Evaluation Objectives

The primary objective of the evaluation was to assess the contribution of the eVIN and Co-WIN platforms in enhancing the efficiency of the vaccination system in India. This included evaluating details about these digital solutions fostering accountability, transparency, and data-driven decision-making processes. A critical aspect of this evaluation was the analysis of cost-efficiency, focusing on the investments made by GAVI, UNDP, and the Ministry of Health and Family Welfare to ensure the effective rollout of these initiatives. The evaluation covered six main criteria: relevance, effectiveness, efficiency, sustainability, impact, and gender equality and social inclusion. Furthermore, during the evaluation, comprehensive interviews with key stakeholders, including government officials, state officials were conducted to gather valuable insights and perspectives.

Specific objectives of this evaluation include:

1. To assess the contribution of eVIN and Co-WIN in improving the efficiency of the vaccination system, thereby contributing to accountability, transparency, and data-driven decision-making.
2. To assess the cost-efficiency of eVIN and Co-WIN with respect to the investments done by GAVI, UNDP, and the Ministry of Health and Family Welfare for the effective roll-out of the two solutions.
3. To analyze the effectiveness of eVIN and Co-WIN in ensuring an inclusive Routine Immunization and COVID-19 vaccination drive in the country, thereby leaving no one behind.
4. To measure the effect of these digital innovations on gender equality and social inclusion.
5. To assess the role of eVIN and Co-WIN in ensuring equitable access to vaccination services with respect to availability and quality assurance of vaccines.
6. To assess the sustainability of eVIN and Co-WIN solutions with respect to financial resources, technical knowledge transfer, open source, and overall approach of the Government of India with respect to Digital Public Infrastructure (DPI) and Digital Public Goods (DPG)

1.4 Evaluation Criteria and questions

The evaluation criteria and performance standards used for the evaluation are based on the OECD-DAC framework, chosen for its comprehensive approach to assessing development initiatives. The selection of this approach was guided by its global acceptance and suitability for evaluating public health interventions in diverse settings. This framework emphasizes relevance, efficiency, effectiveness, impact, and sustainability, aligning well with the objectives of improving vaccination systems (detailed evaluation criteria matrix attached in the annexure 5).

1.5 Evaluation Report Structure

The evaluation report is structured in an organized manner to improve readability and ease of understanding.

The final evaluation report starts with an executive summary, highlighting the project summary, approach and methodology, rating scales, key findings, concluding statement, recommendations, and lessons learnt of the evaluation. Chapter One – Introduction – presents overview of the project, the purpose rationale and coverage of the evaluation, and objectives of the evaluation. Chapter two - outlines the evaluation's purpose, beneficiaries, and addressed issues, detailing the expected results, implementation strategies, and key assumptions. It links the intervention to national and international priorities, identifies key partners, and highlights social, political, and economic contexts, including challenges and opportunities. Chapter three approach and methodology highlights the evaluation including study types, types of data collection methods, sampling for primary assessment, study tools, data analysis and synthesis of results. Chapter four focuses on findings derived from secondary and primary assessments and presents the associated recommendations. Relevance (Section 3.1) evaluates the project's design and approaches, assessing alignment with objectives, inputs, activities, outputs, and indicators. It examines adaptation to target groups' needs, including gender equality and social inclusion, ensuring meaningful contributions to the Country Programme Document (CPD) outcomes and outputs. Effectiveness (Section 3.2**)** analyzes the quality, quantity, and timing of activity delivery, factors influencing outputs, lessons learned, and feedback incorporation. Efficiency (Section

3.3) highlights resource utilization efficiency—human, material, and financial—toward timely results, empowering healthcare workers, and optimizing workloads. It examines project management structures, implementation strategies, eVIN and Co-WIN's role in enhancing accountability and transparency, and adherence to data security standards. Sustainability (Section 3.4) analyzes interventions for sustaining results, including local authorities' continuation plans and innovative measures. It addresses lessons learned documentation, strategies to strengthen sustainability and exit plans, commitment to eVIN and Co-WIN solutions, and opportunities to enhance diversity and inclusion. Impact (Section 3.5) evaluates the projected impact of initiatives on future outcomes and developmental impact through economic modeling, including years of schooling added, contributions to the economy, and public health expenditure savings. Gender equality and social inclusion (Section 3.6) analyzes eVIN and Co-WIN's effectiveness in providing inclusive immunization and COVID-19 vaccination services. It evaluates the project's impact on women, marginalized and vulnerable groups, benefits to local communities, and unintended effects on disadvantaged populations. Chapter five presents, lesson learnt, and conclusions and recommendations respectively. All necessary support and reference documents have been Annexed in the last section.

Chapter 2: Description of the Intervention

2.1 Evaluation Focus, Beneficiaries, and Addressed Issues

The evaluation focuses on the Electronic Vaccine Intelligence Network (eVIN), a digital platform designed to enhance the efficiency and effectiveness of vaccine distribution and management of Universal Immunization Program (UIP) in India. This initiative primarily benefits the Ministry of Health and Family Welfare (MoHFW), healthcare workers, and the beneficiaries of the immunisation program with a particular focus on children and pregnant women.

The core issue addressed by this project is the increase in efficiency of vaccine distribution and management. Prior to eVIN, the vaccine supply chain in India faced significant challenges, including disparities in vaccination coverage, frequent stock-outs, and high levels of vaccine wastage. These issues were exacerbated by a lack of real-time data and poor visibility into vaccine inventory levels, leading to suboptimal decision-making and resource allocation.

The eVIN project aimed to tackle these challenges by ensuring that vaccines are available in the right quantity, quality, at the right time, and at the right temperature. By digitizing the vaccine supply chain, eVIN provides real-time data on vaccine stocks and storage temperatures at every level of health system administration including National, state, districts and across all cold chain points in the country This system enables better planning and management of vaccine distribution, reducing the likelihood of stock-outs and minimizing wastage.

Through the implementation of eVIN, the project supported in improving immunization coverage and supported reduction in the incidence of vaccine-preventable diseases. By ensuring that vaccines are consistently available and properly managed, the project aimed to increase the number of children and pregnant women who receive timely and complete immunizations. This, in turn, contributes to better health outcomes and supports India's broader public health goals.

In addition to eVIN, the Co-WIN platform played a crucial role in managing India's COVID-19 vaccination drive. Co-WIN facilitated the registration, scheduling, and tracking of COVID-19 vaccinations, ensuring efficient and equitable distribution of the vaccine. This digital platform enabled beneficiary tracking for their vaccination status, significantly contributing to the success of India's vaccination campaign.

2.2 Expected Results Model, Implementation Strategies, and Key Assumptions of the Theory of Change

The results model as defined in the UNDP Project Document is grounded in the Theory of Change (ToC)**,** which was designed to enhance the delivery of immunization services, till at the last mile. This framework builds upon the extensive work of UNDP India **in** strengthening health systems and is closely aligned with the UN Sustainable Development Cooperation Framework (UNSDCF) Outcome 1**.** This outcome focuses on ensuring that communities, especially the most disadvantaged, benefit from inclusive, universal, affordable, accessible, accountable, and quality healthcare. The result model underwent minor modifications,

especially in light of COVID pandemic and mandate to support in the development of the CoWIN application (Figure 1. ***Logical Model***)

Key Implementation Strategies

A. **Digitalization Vaccine Supply Chains through eVIN**: The **Electronic Vaccine Intelligence Network (eVIN)** is a digital platform that provides real-time data on vaccine stocks and storage temperatures across all cold chain points in India. This system enhances the efficiency and transparency of vaccine distribution, ensuring that vaccines are available in the right quantity, quality, at the right time, and at the right temperature.
B. **Capacity Building for Government employees**: Training and capacity-building initiatives are essential to equip government health work force with the necessary skills and knowledge to effectively manage and utilize the eVIN system. This includes training on digital tools, data management, and best practices in vaccine logistics.
C. **Strengthening Supply Chains for Routine Immunization and COVID-19 Vaccines**: The project aimed to bolster the supply chains for both routine immunization and COVID-19 vaccines. This involves improving infrastructure, streamlining processes, and ensuring that vaccines are consistently available and properly managed from the national level to the last mile.
D. **Developing and Upgrading Digital Health Systems like Co-WIN and U-WIN**: Building on the success of eVIN, the project included the development and enhancement of other digital health systems such as Co-WIN and U-WIN. Co-WIN was instrumental in managing the COVID-19 vaccination drive, and U-WIN has been conceptualized to extend these capabilities to the Universal Immunization Program (UIP). These systems provide end-to-end support for vaccination drives, including beneficiary registration, session planning, vaccine tracking, and real-time data analytics.

Key Assumptions

The successful implementation of this model relied on several key assumptions:

A. **Availability of Government Support**: Continuous backing and collaboration from the government at both national and state levels was crucial for the project's success.
B. **Funding**: Adequate and sustained financial resources were necessary to support the various components of the project, including technology development, training, and infrastructure improvements.
C. **Retention of Trained Human Resources**: Maintaining a skilled and motivated workforce was essential for the effective operation and management of the digital health systems and vaccine supply chains.

By addressing these assumptions and implementing the outlined strategies, the project aimed to significantly improve immunization coverage, reduce vaccine-preventable diseases, and contribute to better health outcomes for the population, particularly for children and pregnant women.

Based on this the original and revised logical model for the evaluation is reconstructed and presented below:

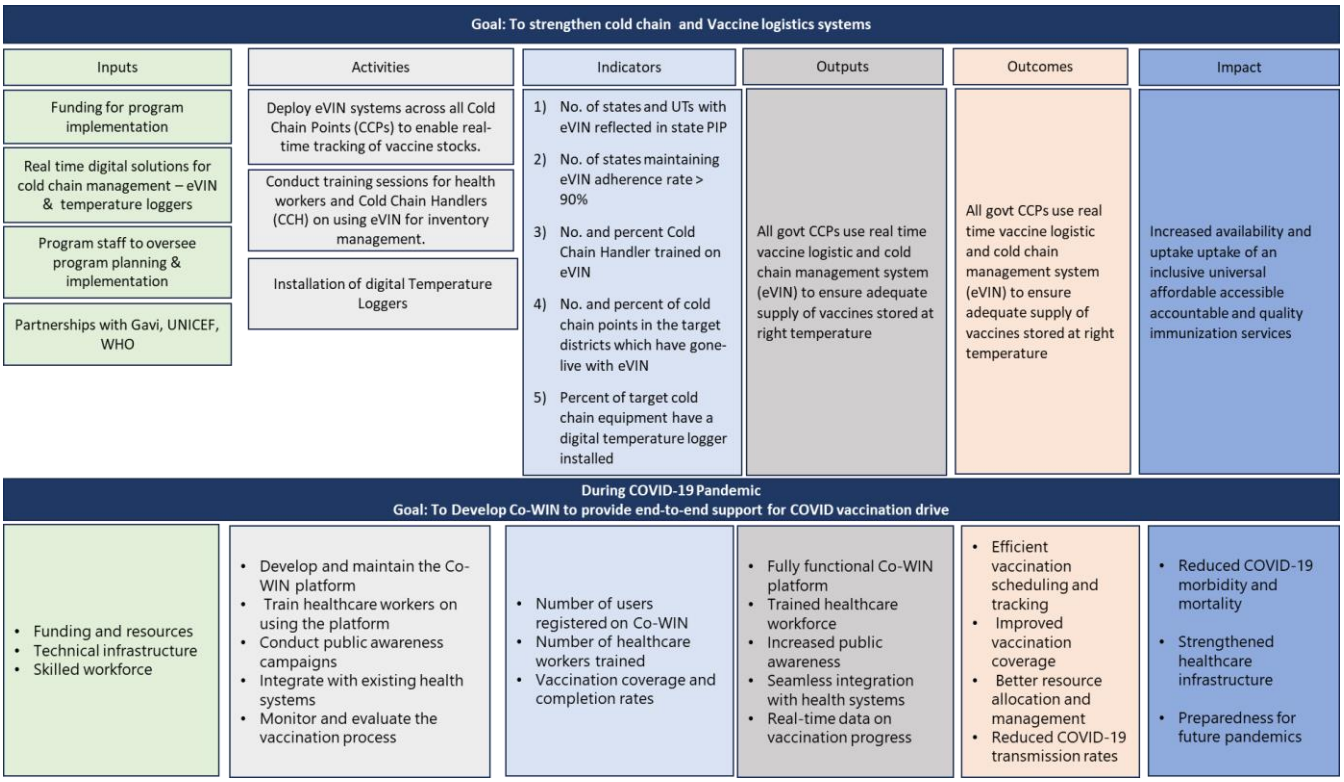

Figure 1: Logical Model

2.4 Alignment of the Intervention with National and International Priorities and Strategic Goals

The intervention aligned with several key frameworks and priorities at both national and international levels, ensuring a comprehensive approach to improving health outcomes in India. The intervention aligns with the below mentioned priorities:

National Priorities: National Health Policy 2017

The National Health Policy 2017 of India emphasizes the need for strengthening health systems and improving immunization coverage. The policy outlines several strategic objectives, including:

A. **Enhancing the efficiency and effectiveness of health service delivery**: By digitizing vaccine supply chains through the Electronic Vaccine Intelligence Network (eVIN), the intervention aimed to streamline vaccine distribution and management, ensuring that vaccines are available in the right quantity, quality, at the right time, and at the right temperature.
B. **Increasing immunization coverage**: The intervention focused on reducing disparities in vaccination coverage, addressing stock-outs, and minimizing vaccine wastage. By improving the availability and management of vaccines, the project aimed to increase the number of children and pregnant women who receive timely and complete immunizations.

C. **Strengthening health infrastructure**: The project included capacity-building initiatives for government staff, enhancing their skills and knowledge in vaccine logistics and digital tools. This contributed to a more robust health system capable of delivering high-quality immunization services.

UN Sustainable Development Cooperation Framework Priorities

The intervention aligns with the UN Sustainable Development Cooperation Framework (UNSDCF) Outcome 1, which focuses on ensuring inclusive, universal, affordable, accessible, accountable, and quality healthcare services. Key aspects include:

A. **Inclusivity and universality**: The intervention aimed to provide equitable access to immunization services for all population groups, particularly the most disadvantaged and marginalized communities.
B. **Affordability and accessibility**: By digitizing vaccine supply chains and improving service delivery, the project ensured that vaccines were available and accessible to all, regardless of their socio-economic status.
C. **Accountability and quality**: The use of digital health systems like eVIN and Co-WIN enhanced transparency and accountability in vaccine distribution and management, leading to higher quality healthcare services.

UNDP Country Programme Document (CPD) for India (2023-2027)

The intervention is closely aligned with the UNDP Country Programme Document (CPD) for India (2023-2027), outcome 1 which emphasizes improving service delivery to ensure no one is left behind. Specific objectives include:

A. **Improving last-mile service delivery**: The project focused on enhancing the efficiency and effectiveness of immunization services till the last mile, ensuring that vaccines reach even the most remote and underserved areas.
B. **Strengthening health systems**: By building the capacity of government staff and developing robust digital health systems, the intervention contributed to a stronger health system capable of delivering high-quality services to all.
C. **Ensuring equity**: The project addressed disparities in vaccination coverage and aimed to provide equitable access to immunization services for all population groups, particularly women and children.

The UNDP Country Programme Document for India (2023–2027) builds on the successes of the previous cycle (UNCPD 2018-2022), particularly in enhancing public health systems' efficiency and effectiveness. The earlier programme focused on improving public health systems for women and the poor. The new programme continues this focus while expanding its scope to ensure no one is left behind. Output 1.2 aims to improve health care and development program delivery to the last mile, while Output 1.3 focuses on enhancing efficiency and effectiveness. This comprehensive approach ensures that even the most remote and underserved populations benefit from health services, with improved

logistics and evidence-based policymaking reducing disparities and improving health outcomes for all, especially women and the poor.

Sustainable Development Goals (SDGs)

The intervention supports the achievement of the Sustainable Development Goals (SDGs), particularly SDG 3: Good Health and Well-being. Key contributions include:

A. **Reducing child mortality**: By improving immunization coverage and reducing vaccine-preventable diseases, the project supported Government efforts in reducing infant mortality rate and under-5 mortality rates.
B. **Ensuring healthy lives**: The intervention aimed to provide timely and complete immunization to children and pregnant women, contributing to better health outcomes and overall well-being.
C. **Strengthening health systems**: The project enhanced the capacity and efficiency of health systems, ensuring that they are better equipped to deliver high-quality healthcare services and respond to future health challenges.

2.5 Phases of Intervention Implementation and their impact on evaluation

A. The intervention had progressed through several distinct phases, each marking significant milestones. Initially, the eVIN (Electronic Vaccine Intelligence Network) was implemented in 12 states, laying the groundwork for a more extensive digital health infrastructure. This was followed by a scale-up phase, during which the program expanded to encompass all 36 states and union territories, ensuring a broader reach and impact.
B. During the COVID-19 pandemic, the focus shifted to the development and implementation of the Co-WIN platform for managing COVID-19 vaccinations. This phase was characterized by rapid development and deployment, with the Co-WIN app being created in a remarkably short period. Training was provided to vaccinators to ensure they could effectively use the new application.
C. Looking ahead, the way forward paved the roadmap for conceptualization of U-WIN, a platform aimed at supporting routine immunization efforts. Significant changes during these phases include the integration of Co-WIN with eVIN and the overall expansion of digital health systems. These advancements had important implications for evaluation, particularly in terms of benefits, scalability, and sustainability of the digital platforms – eVIN & Co-WIN.

The evaluation process dealt with few limitations. The phased implementation initially presented challenges such as recall issues due to the five-year evaluation period. Additionally, the changing human resources landscape, with new recruitments and the need to approach different personnel, complicated the evaluation process. The addition of Co-WIN in phase two implementation of the project required the evaluators necessitating adjustments to stakeholder conversations and seeking the inputs for two distinct applications. These factors at the outset has been foreseen to influence the evaluation process collectively and thus planning of evaluation was done with proper mitigation plan towards it.

2.6 Key Partners and Their Roles in Implementation

The intervention involved collaboration with several key partners, each playing a crucial role in its successful implementation.

Table 2: Key partners and their roles

Implementing Partners	Role
Ministry of Health and Family Welfare	Oversight & guidance to the development partners. Overall ownership of the digital platforms (eVIN & CoWIN) and data. Policy making, Monitoring & Supervision, Governance and reviewing the progress.
State Governments	Implementing partner at the state level, monitoring & supervision for the platforms.
UNDP	Lead technical & Implementing partner. Managing the National PMU, State and District level technical and filed staff for the project, Capacity building of project staff and Govt Health care workers & officials, Programme Monitoring & supervision.
GAVI	GAVI Focuses on vaccine procurement and delivery. They works with partners like UNICEF and WHO to ensure country readiness and effective vaccine distribution. GAVI coordinates the design and implementation.
UNICEF	Supported in Capacity building for Covid vaccination programme
WHO	Supported in Capacity building for Covid vaccination programme
Various Ministries like- Ministry of Home Affairs, Ministry of AYUSH, Ministry of Railways, Ministry of Housing & Urban Affairs, Ministry of Defense, Ministry of Electronics & Information Technology, Ministry of External Affairs, Ministry of Labor & Employment, Ministry of Panchayati Raj, Ministry of Rural Development, Ministry of Science & Technology, Ministry of Women & Child Development, Ministry of Tribal Affairs, Ministry of Youth Affairs & Sports	Implementation partners, session planning, beneficiaries’ mobilisation, awareness.

2.7 Impact Analysis and Cross-Cutting Issues in Immunization Interventions

The intervention was designed to target several key social groups, each of which benefits in distinct ways. The primary beneficiaries were children and pregnant women, who received essential immunization services. This focus was crucial as it addressed the health needs of these vulnerable populations, ensuring they are protected against preventable diseases. As per analysis immunization coverage among children and pregnant women increased from 62% in NFHS-4 to 76.4% in NFHS-5, representing a 14.4 percentage point growth which further contributed to better health outcomes and reduced mortality rates.

Healthcare workers are another critical group impacted by the intervention. They benefitted from capacity-building initiatives and the introduction of digital tools, such as the eVIN and Co-WIN platforms. These tools enhanced their ability to manage immunization programs efficiently, track vaccine stocks, and ensure timely delivery of services. The training equipped the healthcare workers with necessary skills to utilize these digital platforms effectively, thereby improving the overall quality of healthcare services.

Marginalized groups, including those in remote and underserved areas, were focal to the intervention. By addressing disparities in vaccination coverage, the program aimed to ensure that no one is left behind. This approach was vital for achieving equitable health outcomes and reducing health disparities among different social groups.

Several cross-cutting issues were addressed through the intervention:

A. **Gender Equality**: The program ensured equal access to vaccines for all genders . This was achieved by implementing strategies that promote gender-sensitive approaches in immunization campaigns, thereby addressing any gender-based barriers to accessing healthcare services.
B. **Human Rights**: The intervention promoted the right to health by ensuring that all individuals, regardless of their socio-economic status, have access to essential immunization services. This aligns with global health goals and human rights principles, emphasizing the importance of health equity.
C. **Leaving No One Behind**: The program focused on reaching underserved and vulnerable populations, including those in remote and marginalized communities, people with disabilities and people living without identity cards (PLWID). By prioritizing these groups, the intervention aimed to bridge the gap in healthcare access and ensured that everyone benefits from immunization services.

2.8 Scale and Components of the Intervention

As per the UNDP Project Document, the intervention encompassed a comprehensive network designed to ensure effective vaccine distribution and administration across India. It included 29,000 vaccine cold chain points strategically located throughout all 36 states and union territories, ensuring that vaccines are stored and transported under optimal conditions. This extensive infrastructure supported the efforts of 56,326 Cold Chain Handlers, 260,000 auxiliary nurse-midwives (ANMs) and approximately 1 million Accredited Social Health Activists (ASHAs), who play a crucial role in community mobilization and healthcare delivery. The target population for this intervention is the entire population of India, with a particular focus on children and pregnant women, who are among the most vulnerable groups requiring immunization. This holistic approach ensures that the benefits of vaccination are accessible to all, promoting public health and preventing the spread of vaccine-preventable diseases.

In response to the COVID-19 pandemic, the intervention also established 235,000 vaccination centers dedicated to administering COVID-19 vaccines, significantly expanding the reach and capacity of the healthcare system.

2.9 Total Resources and Budget Allocation for the Intervention

The total resources required for the intervention amount to $8,36,42,657. The allocated resources are distributed among various donors and government contributions. Donor allocations include $4,00,15,053 for Health System Strengthening - II, $46,52,750 for COVAX Technical Assistance, $77,67,000 for COVID-19 Vaccine Delivery Support-I, $69,48,302 for COVID-19 Vaccine Delivery Support-II, and $35,01,096 for COVID-19 Vaccine Delivery Support-III. The government has allocated $19,75,869 for Co-WIN infrastructure hosting and $1,79,51,259 for eVIN support from state PIPs. Additionally, UNDP has contributed $5,87,078

for Program Resources (ANCHAL) and $2,44,250 for TRAC (NCD TSU and oxygen generation plants).

Table 3: Total resources required and allocated for the intervention.

Category	Description	Amount (in $)
Total resources required		8,36,42,657
Total resources allocated		
Donor	Health System Strengthening - II	4,00,15,053
	COVAX Technical Assistance	46,52,750
	COVID-19 Vaccine Delivery Support-I	77,67,000
	COVID-19 Vaccine Delivery Support-II	69,48,302
	COVID-19 Vaccine Delivery Support-III	35,01,096
Government	Co-WIN infrastructure hosting	19,75,869
	eVIN Support from state PIPs	1,79,51,259
UNDP	Program Resources (ANCHAL)	5,87,078
	TRAC (NCD TSU and oxygen generation plants)	2,44,250

2.10 Contextual Factors and Their Impact on Intervention Implementation and Outcomes

The intervention operated within a multifaceted context influenced by various social, political, economic, and institutional factors.

Social Factors

The social landscape was characterized by high infant (37 per 1000 live births) and under-5 mortality rates at 43 per 1000 live births, which are often exacerbated by widespread malnutrition (38% of children under 5 years of age are stunted and 35% are underweight)[1]. These health challenges were compounded by significant disparities in vaccination coverage across different regions and social groups. The intervention aims to address these disparities by ensuring equitable access to immunization services, particularly for vulnerable populations such as children and pregnant women.

Political Factors

India has a federal system of public governance, with Central and State administration. Health is the subject of the state administration, under the concurrent list of the constitution. This may often lead to differences in priorities and focus areas. Despite the structure, strong political commitment across Central and State governments, to health system strengthening and the achievement of Sustainable Development Goals (SDGs), contributed positively to the intervention. This political will and alignment was crucial for the successful implementation and scaling of health initiatives. Government policies and strategies were aligned with global health goals, providing a supportive environment for the intervention.

[1] UNDP Project Document

Economic Factors

Amidst multitude of health priorities, provisioning of health services often takes precedence over funding for technology strengthening and innovation. However, a well-articulated budget and mobilization of funding allocation by donor organizations, supported by UNDP and government allocations, prevented any form of financial and economic implication on the program. Furthermore, existing resources of the public system were leveraged for the roll out.

Institutional Factors

Institutionally, there was a need for capacity building and system strengthening. The intervention focused on enhancing the capabilities of healthcare workers, improving infrastructure, and integrating digital health systems to streamline operations. Strengthening institutional capacity was essential for ensuring the sustainability and effectiveness of the intervention.

Challenges

The intervention anticipated several challenges which were mitigated in a timely manner, such as :

A. **Resource Limitations**: Adequate funding and human resources are critical for the success of the intervention. Limited financial resources and a shortage of trained healthcare workers could have hindered the implementation of intervention.
B. **Geographical Disparities**: There were significant variations in vaccination coverage and access to healthcare services across different regions. Remote and underserved areas often faced greater challenges in accessing immunization services.
C. **Systemic Issues**: Weak last-mile service delivery and governance issues would have impeded the effectiveness of the intervention. Ensuring efficient and transparent service delivery was vital for achieving desired health outcomes.

Opportunities

Despite these challenges, the intervention also presented several opportunities:

A. **Digital Health Systems**: The integration of digital health systems, such as eVIN and Co-WIN, enhances the efficiency and transparency of immunization programs. These systems enabled real-time tracking of vaccine stocks, streamline data management, and improve service delivery.
B. **Government Support**: Strong government support and commitment to health initiatives provided a favorable environment for the intervention. Government policies and funding allocations were aligned with the goals of the intervention, facilitating its implementation and scaling.

2.11 Identifying Design Weaknesses and Implementation Constraints

The design of the "Improving Efficiency of Vaccination" project faces several weaknesses and constraints to further strengthen specific aspects of its implementation.

Intervention Logic

One of the primary design weaknesses is the complexity involved in integrating multiple digital platforms. The intervention relies on systems such as eVIN and Co-WIN, which require

seamless interoperability to function effectively. This complexity can pose significant challenges in terms of data synchronization, user training, and system maintenance.

Theory of Change

The project's theory of change is based on certain assumptions, particularly regarding government support and resource availability. While government commitment is crucial, it is not always guaranteed, and fluctuations in political priorities can impact the project's progress. Additionally, assumptions about the availability of financial and human resources may not always hold true, leading to potential gaps in implementation.

Resource Limitations

Resource limitations are a significant constraint for the project. Adequate funding is essential for procuring vaccines, maintaining cold chain infrastructure, and supporting digital platforms. Similarly, a shortage of trained healthcare workers can hinder the delivery of immunization services. These constraints necessitate efficient resource allocation and innovative financing solutions to sustain the project's activities.

Implementation Challenges

Variations in state-level capacities and infrastructure present another challenge. Different states have varying levels of healthcare infrastructure, technical expertise, and administrative capabilities. These disparities can affect the uniform implementation of the project across the country. Tailored strategies are required to address the specific needs and challenges of each state, ensuring equitable access to immunization services.

Chapter 3: Study Methodology and Approach

The end term evaluation of the HSS II initiative, comprised of review secondary literature available in the Quarterly Progress Reports (QPR), Annual Progress Reports (APR), mid-term and interim evaluations conducted from 2018 onwards, along with other relevant project documents. A field survey was conducted across 9 states, 18 districts, covering over 143 cold chain points and conducting nearly 1081 interactions with a diverse set of stakeholders comprising of State Immunization Officers, District Immunization Officers, State Program Officers, Vaccine Cold chain managers, Cold chain handlers and vaccinators. These discussions/ interactions were designed to collect feedback regarding the project’s progress with the stated objectives, outputs, and indicators, along with collating information on lessons learnt, challenges and operational approaches to mitigate the risks and ensure project success. Using the OECD-DAC evaluation framework questions, different tools, and data collection approaches (e.g., In depth interviews with SIOs, DIOs and FGDs for Vaccinators) were designed for different target respondent categories. Additionally, nearly 1700 beneficiaries for Co-WIN and eVIN, were surveyed, to capture their feedback and recollection of experiences, during the duration of the HSS II initiative.

This evaluation was a participatory process that used both quantitative and qualitative methods to assess the project interventions. The findings have been informed by comprehensive analysis of project documentation, UNDP internal reporting processes and discussions, interviews with government counterparts from states, districts, cold chain handlers, vaccinators, UNDP project management team as well as the project beneficiaries, and desk review research.

A phased approach was followed, dividing the study duration into 3 phases with defined and overlapping activities as shown in the snapshot below. For answering key questions pertaining to the evaluation, following types of evaluation methodologies were follows (the detailed mapping of each research question as per the type of evaluation is given in Annexure 1.

a) *Participatory evaluation:* The participatory evaluation method was employed to leverage the diverse insights of stakeholders (UNDP staff, state, and district officials, VCCM and vaccinators), ensuring comprehensive data triangulation and robust synthesis of conclusions and recommendations based on their varied experiences and knowledge.
b) *Contribution analysis:* Contribution analysis was employed to weave an overall story in the evaluation study of the UNDP HSS-II program. This approach was particularly effective given the program’ s various components and sub-components of eVIN and Co-Win, each with distinct functionalities. By systematically assessing the contributions of each element, the analysis provided a comprehensive understanding of how the different parts of the program interacted and contributed to the overall objectives. It highlighted both -individual impacts and their synergistic effects- thereby offering a nuanced and holistic evaluation of the program’ s effectiveness.
c) *Outcome mapping:* Outcome mapping was employed in the evaluation of the HSS-II program, leveraging the pre-defined outcomes outlined in the multiple project documents. This approach investigated the various direct or stated outcomes and indirect or realized outcomes. By mapping the pathways to these outcomes, the evaluation captured both the intended and emergent impacts of the program. This method provided a nuanced understanding of how the program’ s activities and interventions contributed to achieving

its goals, highlighting the interconnectedness and broader effects of its various components.

Study evaluation framework

A robust assessment framework was developed under the categorization of input, process, and output/outcome indicators, data collection methods, and sources. The indicators selected for the study transversed the entire immunization value chain, aiming to analyze the four Organization for Economic Co-operation and Development (OECD) Development Assistance Committee (DAC) evaluation criteria: relevance, effectiveness, efficiency, sustainability, impact, and inclusivity (REESI framework). The detailed indicators as per the REESI framework are attached in Annexure 4. Based on our understanding of the project, a comprehensive results framework was developed to map the key objectives, hypothesis questions, and key evaluation indicators across the REESI framework. The indicators were evaluated across three subcategories: design (input), implementation (process), and results (output). The suggested methodology followed the UNEG norms for evaluations (internationally agreed principles and targets, clear intention of use, credibility, independence from any individual, etc.)

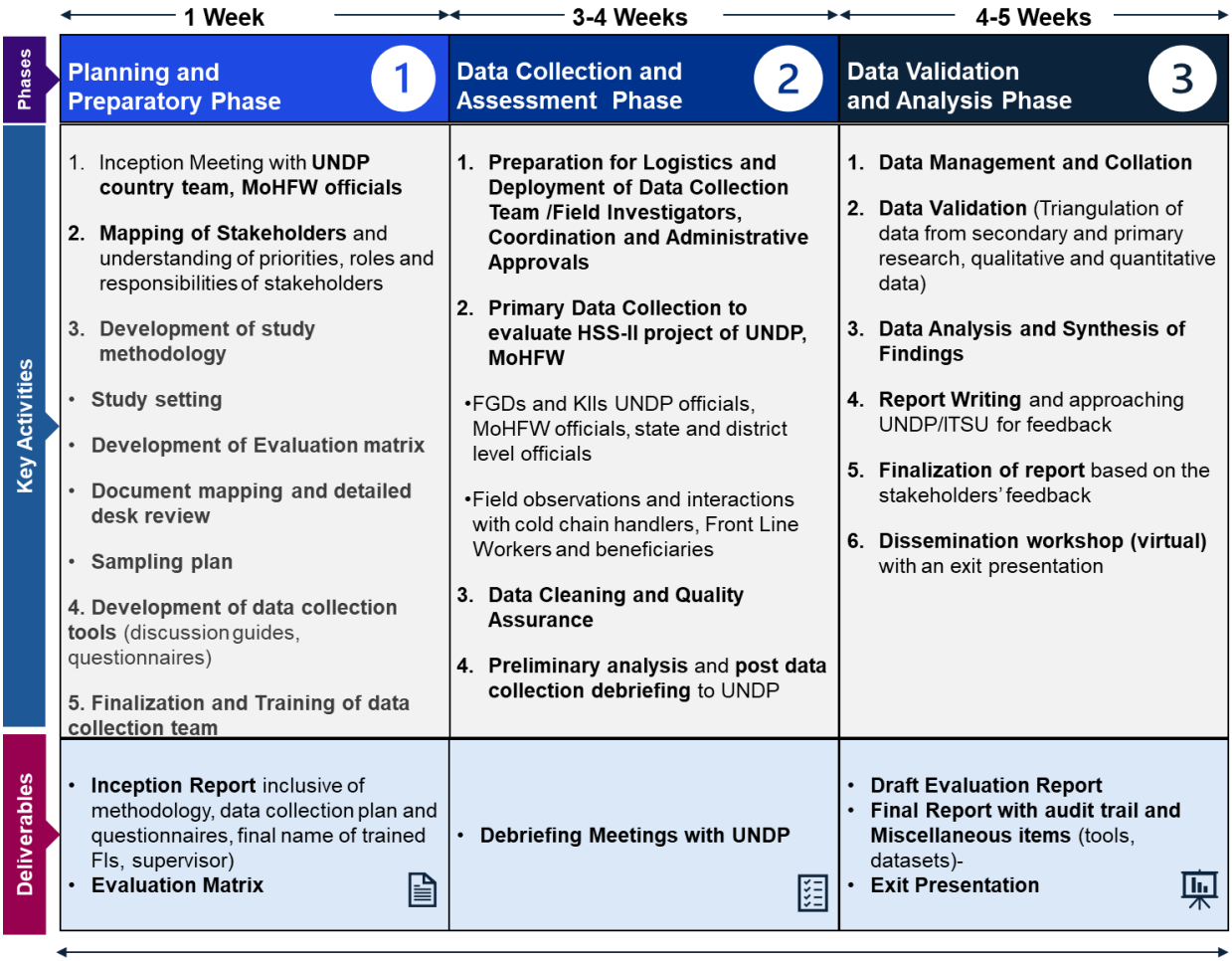

Figure 2: Study evaluation framework

3.1. Integration of cross-cutting issues

The evaluation assessed how the HSS-II project incorporated cross cutting themes like gender and social inclusion in its project design, implementation, and results by incorporating the principle of ‘Leave no one behind’ and ‘gender equality and empowerment of women’ (GEEW). Several relevant country program documents (CPD, UNSDCF, etc.) were referred to develop a study methodology which followed the UNEG norms of evaluation. Based on the components of the REESI framework, the evaluation included gender and social inclusion in the following manner:

1. **Team composition:** The team of evaluators and field assessors for this study, were chosen based on their experience of working in gender and social inclusion. A gender-diverse team was also assembled to conduct the assessment for the ease of interacting with female study participants and stakeholders.
2. **Study tools:** Gender and elements of social inclusion were included in the study tools to capture disaggregated data by gender, age, disability status, socio-demographic-economic background. This was supplemented by secondary research focused on gender and social inclusion in the project intervention and results.
3. **Gender Responsiveness Effectiveness Scale (GRES):** The evaluation employed UN Women’s Gender Responsiveness Effectiveness Scale (GRES) in identifying the various gender targeted, responsive and transformative (if any) project activities which were incorporated in the HSS-II project. For this, in the final database, results pertaining to gender and social inclusion were corroborated through triangulation from both primary and secondary research. This was followed by categorization of each result area as per the GRES and coded. While attributing exact frequencies was out of the scope of this study, the evaluation conducted data analysis focused on identifying gender-specific barriers, challenges faced by people with disabilities, marginalized populations, and vulnerable groups (tribal populations, transgender individuals, prisoner inmates, backward classes, etc.). Detailed evaluation of the study findings, conclusion, and recommendation as per the GRES scale are mentioned in the section gender equality and social inclusivity.

3.2. Evaluation data sampling and collection methods

The evaluation used qualitative and quantitative data received through secondary and primary research. The evaluation focused on the pillars of relevance, efficiency, effectiveness, and sustainability for evaluating eVIN and Co-WIN within the HSS-II project.

Secondary research: The secondary review of available country program documents from UNDP, annual and quarterly progress reports, work plans, quality assurance reports, knowledge products, success stories across states, developed policies, and subject matter articles, were conducted. Additionally, transaction records, and other relevant datasets from the eVIN portal, were also evaluated. The detailed list of documents referred for secondary research are given in Annexure 2.

Primary research: to have a representative sample from across India with respect to region and socio-demographic aspects, 11 states were included (9 were approached in-person and 2 online) in the sampling for primary assessment. The various parameters considered for the selection of states are mentioned below:

State selection

- The selection of states has been ensured to represent geographical diversity as well as socio-demographic characteristics. For every region (North, South, East, West, Central) minimum one state was selected. In some regions, where more than one state was selected, one better performing and one poor performing in terms of full immunization coverage (FIC).
- States were compared against the national Full immunization coverage of 76.4% as per NFHS-5. States below national average were flagged as low coverage. A child is considered fully immunized when they have received these vaccines by their first birthday - one dose of BCG vaccine (for tuberculosis), three doses of DPT/ Pentavalent vaccine (for diphtheria, pertussis, tetanus, and hepatitis B), three doses of Oral Polio Vaccine (OPV) (excluding birth dose), one dose of Measles-containing vaccine (MCV1).
- A mixed of HSS-I (Madhya Pradesh, Bihar and Rajasthan) and HSS-II states (Uttar Pradesh, Haryana, Maharashtra, Tamil Nadu, Andhra Pradesh, Mizoram, Assam, and Uttarakhand) were selected. Due to limited operational feasibility, virtual consultations were held in Mizoram and Tamil Nadu. Field visits were conducted in all the other nine states.

Selection of districts, blocks, healthcare facilities and CCPs

- Two districts were selected in each state through purposive and convenience-based sampling – preferably one capital district and another district and an adjacent district in discussion with the UNDP team and local administration.
- Distance, operational feasibility, and availability of stakeholders were also considered while selecting the districts. The state immunization teams were also consulted to ensure ease of execution and access to key stakeholders on ground.
- In each district, one block and subsequently three to four healthcare facilities (at a secondary/primary level) were selected as per the suggestions of the State/ UNDP Team for conducting additional focused group discussions with healthcare workers and collecting data from beneficiaries. The final CCPs were also selected in each district in a similar manner.

Table 4: Selected states, districts, CCPs and number of stakeholder interactions held in each state.

**States where only virtual consultations were held*

Beneficiaries: In the quantitative survey, a total of 1,787 beneficiaries of eVIN and Co-WIN were interviewed, with approximately 130 beneficiaries from each state. Among them, 1,296 were females (72.5%) and 491 were males (27.4%), capturing relevant information from a beneficiary perspective on eVIN and Co-WIN. Beneficiaries available at healthcare facilities, CCPs or in the nearby catchment area were included in the evaluation through convenience and snow-ball sampling. The detailed travel itinerary for data collection is given in Annexure 3

States	District 1 (n=no. of CCPs)	District 2 (n=no. of CCPs)	State Level		District Level		Block /Facility Level		Beneficiaries	
Stakeholders			**SIO**	**SPO /RPA**	**DIO**	**VCCM**	**CCP/ CCH**	**ANM/ Vaccinator**	**eVIN**	**Co-WIN**
Method of Data Collection			**IDI**	**IDI**	**IDI**	**IDI**	**Survey**	**FGD**	**Survey**	**Survey**
Andhra Pradesh	Vishakhapatnam (n=9)	NTR (n=8)	1	1	2	2	17	17	65	146
Assam	Kamrup Metropolitan (n=6)	Dibrugarh /Sonitpur (n=6)	1	1	2	2	12	12	50	136
Bihar	Patna (n=5)	Nalanda (n=5)	1	1	2	2	10	10	60	142
Haryana	Faridabad (n=5)	Panipat (n=5)	1	1	2	2	10	10	77	139
Madhya Pradesh	Bhopal (n=8)	Vidisha (n=8)	1	1	2	2	16	16	58	146
Maharashtra	Thane (n=15)	Palghar (n=15)	1	1	2	2	30	30	50	136
Rajasthan	Jaipur (n=13)	Udaipur (n=13)	-	1	2	2	26	26	71	65
Uttarakhand	Dehradun (n=4)	Nainital (n=4)	1	1	2	2	8	8	58	158
Uttar Pradesh	Lucknow (n=7)	Varanasi (n=7)	1	1	2	2	14	14	67	163
Mizoram*	Kolasib	Serchip	1	1	2	2	-	-	-	-
Tamil Nadu*	Viruthunagar	Coimbatore	1	1	2	2	-	-	-	-
Total			**10**	**11**	**22**	**22**	**143**	**143**	**556**	**1231**

Data Collection methods, study tools and pre-testing of study tools

To get a holistic picture on the relevance, effectiveness, efficiency, sustainability, impact, and inclusivity aspects of the HSS-II project, various types of data collection methods were employed to gather pertinent information from various stakeholders. The various types of data collection methods employed for specific group of stakeholders/ study participants are mentioned in annexure 7 (The specific study tools used for each type of data collection method are given in Annexure 4).

The development of study tools was a meticulous and collaborative process, grounded in comprehensive literature review of various UNDP documents, project reports, existing scholarly works and previous studies focused on health system strengthening interventions. The questions curated for the different stakeholders in the respective study tools were eventually aligned to retrieve information on relevance, effectiveness, efficiency, sustainability, gender, and social inclusion of HSS-II project. The draft tools were then shared with the UNPD team for their valuable insights and additional perspectives which offered substantive feedback and recommendations.

The revised study tools were pre-tested in Lucknow, Uttar Pradesh by interviewing the State Programme Officer and Vaccine Cold chain Managers to assess the feasibility of introducing the tools, specificity of queries, sequencing, and assess challenges during the data collection. Based on the pre-test findings and with consultation with UNDP necessary modifications were done in the tools.

Table 5: Data collection Methods

Data collection method	Purpose	Stakeholders involved
In-depth interviews	To get in-depth understanding from stakeholders on implementation process, challenges encountered, lessons learnt, best practices, sustainability measures and their adoption, scale-up plan in states, incorporation of gender and social inclusion in project activities.	• UNDP National Team, • State Programme Officer • State and District Immunization Officer (SIO) • Vaccine Cold Chain Manager (VCCM)
Focused group discussions	FGDs were designed to bring together a group of participants, who were hesitant in responding otherwise and where wide range of viewpoints were to be captured, in short span. , The group setting was designed to encourage interaction among participants, leading to spontaneous discussions and the emergence of new ideas, which did not surface in individual interviews. FGDs were conducted to interact with women beneficiaries, aiming to understand their	• Nurses/ Auxiliary Nurse and Midwife (ANMs)/ Vaccinators

	attitudes, beliefs, and experiences regarding vaccination, and to explore the gender aspect.	
Survey	To capture specific information from women beneficiaries and general study participants on aspects of their attitudes, beliefs, and experiences regarding vaccination.	Other eligible recipients of COVID-19 Vaccination, especially vulnerable groups like women and transgender, people with disability, vulnerable populations.
Observation and survey at CCPs	To collect quantitative data as a part of triangulation from CCPs and observe the process and verify presence of registers.	Cold Chain Handlers (CCH)

Note – the detailed roles and responsibilities of various stakeholders are given in Annexure 10

Primary data collection, started on 22nd November, immediately after the approval from the Ministry of health and selected State Governments on 18 November 2024 the exercise was completed on 19th December 2024 . For quantitative data collection, KPMG used the KOBO tool* [2] assisted by tablets/mobiles for application-based online data entry. This improved the consistency of data quality and minimized errors arising from transmission and translation. . For qualitative data collection, the team employed an immediate documentation approach transposing insights into standardized electronic tools using laptops, ensuring real-time data capture, enhanced accuracy, and immediate data management. The data processing for this assessment was done in MS Excel, which involved data entry, data cleaning, and cross-checking of entries.

The evaluators conducted data collection with key stakeholders, including UNDP officials, State Immunization Officers (SIO), and District Immunization Officers (DIO). Furthermore, the interviews with the vaccinators predominantly female were conducted by the female evaluators ensuring inclusive environment for open dialogue. Additionally, a significant proportion of CCH & VCCMs were also females highlighting the critical role women play in the vaccine distribution and management ecosystem. To ensure the study was completed in a timely manner while maintaining quality standards, additional resources were mobilized by engaging a third-party agency to interview the beneficiaries, onboarding technical experts, leveraging advanced data analytics tools, and implementing efficient processes. These measures were taken to enhance the capacity of the team, streamline workflows, and ensure that all aspects of the study met the required standards of excellence.

* Kobo Toolbox is an open-source software designed for data collection and analysis. It's widely used to gather high-quality data for various projects. The platform offers intuitive tools for building forms, collecting data, and managing it efficiently, making it an essential resource for fieldwork and remote data collection.

Training of field staff

Training of field investigators and data collection began after receiving approval from UNDP on the study tools. A comprehensive training program was meticulously designed and conducted to prepare the data collection team on the following aspects of data collection as mentioned in Figure 2. The field investigators were trained to not ask leading questions to prevent any bias that could influence participant/s responses or favor any preconceived assumption.

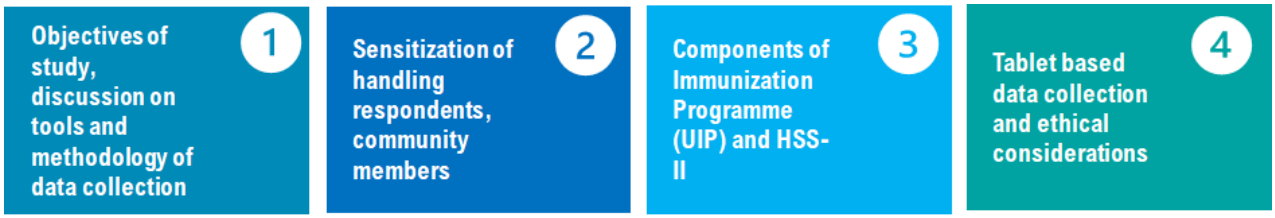

Figure 3: Training of field staff

3.3. Ethical Aspects

Each research assessment underwent rigorous scrutiny at multiple levels, with meticulous attention devoted to ethical considerations throughout the study's design and implementation. The finalized tools for the evaluation study and their approval for field implementation and data collection were sought from UNDP. The team adhered to the UNDP Evaluation Guidelines and norms. All interviews conducted with UNDP and state officials were preceded by obtaining verbal informed consent from the participating stakeholders, ensuring ethical compliance and voluntary participation in the research process. The design, data collection, analysis, and other aspects of the study were also aligned with the UNEG Ethical Code of Conduct, which is attached in the Annexure 6.

Figure 4: Ethical considerations

3.4. Data Analysis

Basic data cleaning was done periodically and entered on the same day in MS Excel. Any redundancies, inconsistencies, or repetitive information were removed. Data was analyzed inductively and deductively, with particular thematic areas emerging from the desk research and others emerging organically while collecting primary data (FGDs and IDIs). Hence, the analysis and data collection were done in parallel so that preliminary analysis could be used to decide which areas should be examined in more detail.

Analysis of Qualitative data

The qualitative data obtained was transcribed for familiarization and to gain an overview. A framework was developed by sorting and coding the data, which was maintained in digital format. A codebook was also developed to analyze the transcribed data. The data was further analyzed until specific domains/themes emerged.

Data was analyzed separately for different stakeholders (policymakers, program officials, healthcare providers, and beneficiaries) across different operating layers and re-analyzed to assess emerging findings. Best practices/ case studies which stood out while doing the qualitative data collection are being put in the findings section under the REESI framework along with nuanced testimonials from various stakeholders. A final coding framework was developed by consensus among the team. The linear fashion in which qualitative analysis was undertaken is shown below:

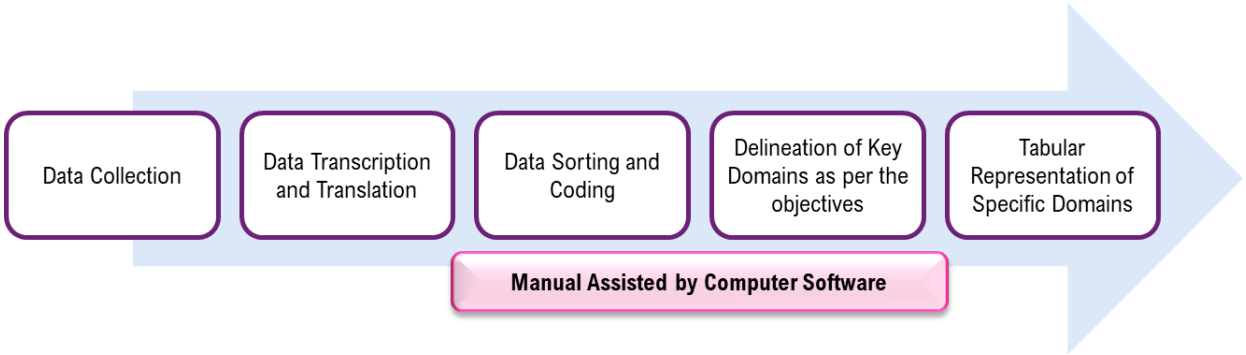

Figure 5: Qualitative analysis framework

Analysis of quantitative data

MS Excel was used for quantitative data analysis based on the indicators finalized for the REESI framework of the HSS-II project. Frequency tables, cross-tabulations, trend analysis and scoring matrices were designed based on the responses from stakeholders. This scoring matrix aimed to comprehensively assess the project's effectiveness, efficiency, relevance, performance, and success, including the long-term sustainability of its outcomes. It was developed based on findings from the indicators identified in previous phases, facilitating an understanding of implementation strategies, progress achieved, challenges faced, and overall development impact. This process also helped identify best practices, leading to specific recommendations for future actions.

Project monitoring data was derived from the eVIN monitor to analyze the pre and post eVIN data pertaining to reduced wastage, reduction in vaccine replenishment time, target vs achievements, stock positions from ledger, IRL monitoring etc. The same was verified by the visiting team from the manual registers being maintained at CCPs.

3.5. Quality Assurance Mechanism

Data Collection Process: The quality of the data collection process was of prime importance for accurate, dependable, and valid results. Given the importance of the results of this assessment, rigorous quality assurance procedures were put in place to achieve commonly agreed and feasible quality standards regarding sample selection methodology, achievement of acceptable response rates, treatment of missing data, calculation of measures of reliability, and checks for comparability of the data across population subgroups and facilities. The team adhered to the data privacy terms and conditions of both KPMG and UNDP.

Study Evaluators: The study evaluators comprised a diverse group of professionals with specific backgrounds and skill sets:

- **Subject Matter Experts/Advisors**: comprised of senior team members with experience in conducting large-scale public health research, with expertise in immunization, digital health, data analytics, and program management. Provided remote guidance and oversight, ensuring the technical accuracy and relevance of the data collected.
- **Field Investigators**: Trained on the project specifics and equipped with project information collaterals to ensure informed and effective data collection. Some of the field investigators were SMEs/ advisors who were directly involved in the data collection and evaluation process.

Multilevel Quality Checks: The field management and quality assurance were undertaken through two major modalities.

Remote data quality monitoring

Real-time quality checks through the backend team were ensured. A monitoring and quality supervisor with experience in leading quality assurance for large public health assessments oversaw and managed the process. The team scanned and scrutinized the completed assessments shared by field investigators (FI). The basic sanity check of the data collected and progress updates in summary sheets were done by field investigators. State coordinators sent daily progress reports to the team lead.

The state coordinators reviewed data for inconsistencies and sent daily feedback to the FIs for corrective action. KPMG tracked enumerators’ productivity and assessment completion rates by monitoring indicators such as the number of beneficiaries covered weekly, KIIs conducted, conversion rate from facility/village visits to assessments completed, and functional timing on the data collection platform.

A field management and data reporting dashboard was created to monitor the progress of data collection, collation, response, and feedback from the field. Photo documentation of facilities, stock registers, distribution registers, ANMs, stakeholder consultations, and FGDs (after obtaining consent) were regularly shared with the state coordinators via formal channels.

On-spot field Monitoring

Supervision of FIs by supervisor and team lead of the core team who are in-charge of execution. Since this is done in the inception stages of the fieldwork for all field investigators, corrective action, if required were taken.

Project core team (state coordinators/local KPMG team) accompanied the FI team in few facility visits, KIIs (with the state/district officials) and to provide them supportive supervision. The core team members also conducted monitoring visits on field in the subsequent weeks to ensure quality in data collection.

In addition to other data QA mechanisms, KPMG planned meetings and ensured that 100% of data collection is supervised by the project lead, who also oversees 5% of the field activities. This contributes to our quality assurance procedures, helping to improve the quality of data collected and support the overall objectives of the program. Additionally, a random check of 5% of electronic data is matched with photos of registers from field visits.

Independent Monitoring visits by UNDP National and State Teams: To ensure quality of the data collected, independent monitoring visits were conducted by UNDP National and State members in some of the sample states. The feedback received from the field monitors were shared on a regular basis and the needed remedial actions were incorporated in a timely manner by the KPMG thereafter.

Limitations/Challenges of the Study

Table 6: Limitations of the study

Limitations/ Challenges of the Study	Mitigation measures taken
Administrative and Government Approvals: There were challenges in obtaining the necessary permissions from the national and state governments given its complexity impacting the study timelines.	Additional team members were onboarded to complete the data collection process in the given time with the entire team moving simultaneously to various states to complete data collection process. Virtual interviews were deployed with stakeholders where appointment for in person interview was difficult to align.
Non-availability of Stakeholders: Key stakeholders, such as government officials were not always available during the study period, in lieu of their other commitments running parallel to data collection activity	Interviews with other stakeholders were conducted in the place of those that had to be rescheduled. For stakeholders who were unable to provide in person interview were approached through virtual means.
Non-availability of Registers at CCPs: During the assessment, 20% of the cold chain points were replaced due to non-availability of registers and staff. This caused a slight delay in the process of data collection.	Other CCPs were selected randomly from the list of remaining CCPs to compensate for the total number of CCPs. Additionally, data was triangulated with UNDP team for any clarification.
Time Constraints: The primary data collected in assessment considered an observation period of six months, as there was a possibility of non-availability of registers in pre-eVIN period beyond this time.	Representative sample data from other states were taken
Variable timelines: eVIN was implemented in a phased approach across the states, resulting in varied roll-out times. Consequently, the six-month observation period for pre-eVIN assessment was inconsistent across different states due to the differing roll-out schedules.	Representative sample data from other states were taken and analysis was done for the common time.
Refusal to Participate: some of the study participants refused to participate in the study due to privacy concerns, lack of interest, or conflicting schedules.	Any refusal to participate was respected and accommodated in the study by ensuring that the data collection process remains flexible. Alternative methods, such as anonymized surveys or different scheduling options, were offered to mitigate concerns. Additionally, any gaps in data

	resulting from non-participation were carefully considered and addressed during the analysis to ensure the integrity and robustness of the study’s findings.

Chapter 4: Study Findings

4.1 Relevance

This evaluation focuses on examining the project design's relevance by assessing its logical structure, comprehensive consideration of critical success factors and risks, and alignment with national priorities, the UNDP Country Programme Document, as well as benefit extended to target groups and sub-groups. The study aims to evaluate the progress of the project in relation to its intended purpose, objectives, outputs, and performance indicators as outlined in project document. This includes an in-depth analysis of key components such as the Theory of Change, Results and Resources Framework, and the Monitoring and Evaluation (M&E) framework. Additionally, the study also aims to determine whether underlying assumptions and identified risks continues to hold valid.

4.1.1 Relevance of the project in national health priorities

Relevance of eVIN to the national health priorities: The project design

Immunization programme has been top public health priorities for Government of India because it aimed at protecting children and pregnant women from preventable diseases. India’s immunization programme, launched in 1985 has evolve over period of time into the flagship programme “Mission Indradhanush” in December 2014 to achieve more than 90% full immunization coverage in the country. India made remarkable progress in improving child health and immunization coverage, however due to systemic development challenges like poor logistic and supply chain, lack of availability of vaccines, quality control, and human resources availability continued to impact the progress from achieving its intended goals. The National Health Policy, released by the Government of India in 2017, further outlined the national health priorities which includes improving child health, strengthening of health system, and achieving universal immunization coverage target to reach more than 90% of the newborn to be fully immunized by one year of age by 2025.

Analysis of the Project documents, secondary sources and primary discussion with key stakeholders indicates that project design was well developed aligning to the priorities set under the National Health Policy (NHP), 2017 as well as Universal Immunization Programme (UIP). The implementation of the Health System Strengthening (HSS)-II project in India has significantly impacted the country’s immunization status, particularly through the introduction and scaling up of the Electronic Vaccine Intelligence Network (eVIN). The relevance to the national health priorities could be summarized below:

a) **Health System Strengthening:** The project intervention eVin was designed and successfully implemented in more than 750 districts across 36 states and union territories of India. Among HSS-II states, vaccine stock scan be seen real-time on eVIN covering 18,053 CCPs across 360 districts of all 25 states and union territories (UTs). Throughout the tenure of the project UNDP has trained 32,297 CCHs and alternate CCHs. Additionally, 13,836 next-gen temperature loggers have been installed in nine HSS-II states and UT and eVIN teams continue to support their monitoring mechanisms.

b) **Improving immunization coverage and health Indicators:** The Full immunization coverage has increased in the last decade from 62% 2015-16 (NFHS-4) to 76.4% in

2019-2021 (NFHS-5) and 93.5% in 2023-24[3] . In the same tenure, 2016 to 2023, India witnessed a significant decline in key health indicators like the Infant Mortality Rate (IMR) which decreased from 40.7 per 1,000 live births in 2016 to 35.2 per 1,000 live births in 2021[4] Similarly, the Under-Five Mortality Rate (U5MR) dropped from 49.7 per 1,000 live births in 2016 to 41.9 per 1,000 live births by 2021[5]. The correlation of the progress in health indicators can be strongly attributed to many factors including the rollout of eVIN which played a vital role in ensuring equitable distribution and complemented the government's efforts in enhancing the immunization coverage.

c) Human resource availability and capacity building: The project interventions focused on augmenting availability and capacity building of vaccine service delivery cadre, across last mile, which was in alignment to the national health priorities. The project trained approximately 54,000 frontline workers in vaccine logistics and cold chain management to manage vaccine stocks, using digital technology.

d) **Strengthening Governance:** The emphasis on a strong governance system for public health to achieve targeted results is imperative. . The project incorporated rigorous review mechanisms and governance frameworks, including quarterly and bi-annual review meetings, intended to monitor programmatic and financial progress.

e) **Data Driven Decision making:** The real time visibility of vaccine stocks across various vaccine storage points was made possible by establishing demand enabled logistic and supply chain system. This led to increased vaccine availability, reducing stock outs and reducing inventory holding. This helped reduce 80% of instances of vaccine stock-outs and ensured improved availability of adequate and potent vaccines for all targeted children and pregnant women.

f) **Universal healthcare coverage**- The project directly supports the National Health Policy's core objective of achieving comprehensive health coverage, with an emphasis on immunization as a critical preventive healthcare intervention.

g) **Equity in Healthcare**: By focusing on immunization, the project addresses the National Health Policy's commitment to reducing health disparities and ensuring access to essential health services to all with specific focus on marginalized and vulnerable populations.

h) **Preventive Healthcare Approach:** The project's immunization focus aligns perfectly with the National Health Policy (NHP 2017) emphasis on preventive and promotive healthcare strategies focusing on women and child health.

The project's alignment with national health priorities and its integration with the Ministry of Health and Family Welfare's initiatives underscore its relevance. Furthermore, the expansion of the project during the COVID-19 pandemic to support the development of Co-WIN platform highlights its adaptability and critical role in strengthening India's digital health infrastructure. The HSS II project, therefore, plays a pivotal role in augmenting the immunization landscape in India, contributing to the broader goals of health equity and sustainable development.

Relevance of Co-WIN to national health priorities: The scale of the COVID-19 pandemic and subsequent health system disruptions across world , exposed critical vulnerabilities in the national immunization infrastructure , particularly in remote areas. In India, the pandemic

[3] Health Management Information System. GOI

[4] Economic Survey 2021-22

[5] National Family Health Survey 4 (2015-16) & 5 (2019-20)

severely impacted routine immunization coverage, creating significant challenges in maintaining vaccination schedules and addressing existing healthcare inequities.

a) Health System Strengthening:

- Co-WIN was designed and implemented to manage COVID-19 vaccination across India, ensuring efficient vaccine distribution and administration.
- The platform facilitated real-time tracking of vaccine stocks and vaccination status, enhancing the overall health system's responsiveness.

b) Human Resource Availability and Capacity Building:

- The project focused on training healthcare workers in using the Co-WIN platform, improving their capacity to manage vaccination logistics and data.
- Thousands of healthcare workers were trained to ensure smooth operation and data entry, empowering them with digital skills.

c) Strengthening Governance:

- Co-WIN incorporated rigorous review mechanisms, including regular monitoring and reporting, to ensure transparency and accountability in the vaccination process.
- The platform enabled the government to monitor vaccination progress and address issues promptly.

d) Data-Driven Decision Making:

- Real-time data on vaccine stocks and vaccination coverage allowed for informed decision-making and efficient resource allocation.
- The platform helped reduce vaccine wastage and ensured optimal use of available doses.

e) Equity in Healthcare:

- Co-WIN aimed to ensure equitable access to COVID-19 vaccines, prioritizing vulnerable and marginalized populations.
- The platform's data-driven approach helped identify and address gaps in vaccine coverage.

f) Preventive Healthcare Approach:

a) The focus on COVID-19 vaccination aligns with the National Health Policy's emphasis on preventive healthcare.

b) Co-WIN's success in managing the vaccination drive contributed to broader public health goals, including disease prevention and health promotion.

g) Adaptability and Integration:

- Co-WIN's expansion during the COVID-19 pandemic demonstrated its adaptability and critical role in strengthening India's health infrastructure.
- The platform's integration with existing health initiatives underscored its relevance and effectiveness in addressing national health priorities.

Degree of alignment of HSS-II to the Sustainable development goals

The project exhibits significant alignment with multiple SDG goals, particularly:

a) SDG 3 (Good Health and Well-being): Direct contribution to reducing child mortality (end preventable deaths of newborns and children under 5 years of age) and preventing communicable diseases through comprehensive immunization programs.
b) SDG 10 (Reduced Inequalities): Targeting immunization in underserved and remote areas to bridge healthcare access gaps.
c) SDG 17 (Partnerships for the Goals): Demonstrating collaborative approach between UN agencies - UNDP, UNICEF, WHO and national health systems.

The UNDP Health System Strengthening-II Project exhibits exceptional alignment with India's national health priorities. By meticulously integrating with existing policy frameworks, SDG goals, and immunization guidelines, the project represents a strategic and comprehensive approach to healthcare system strengthening. The project's success lies in its adaptive, collaborative, and targeted interventions that not only address immediate health challenges but also contribute to long-term systemic improvements in India's healthcare ecosystems.

4.1.2 Relevance of the Project Design

The analysis of the project document clearly indicates that project design was based on the identified key development challenges of the Indian health system and immunization service delivery. The project outputs and outcomes were well aligned to the Indian health system priorities as defined in the National Health Policy 2017 and in line with UNSCDF Outcome 1 (*By 2027, communities, especially the most disadvantaged, demand for and benefit from inclusive, universal, affordable, accessible, accountable, and quality healthcare services, while adopting positive health practices*). The project design of eVin was structured around the needs of the target beneficiaries, namely healthcare workforce involved in the immunization service delivery, and indirect beneficiaries like children, pregnant women, men, and general population at large. The design identified relevant stakeholders and developed an engagement plan at the project design stage to include all key stakeholders. The stakeholders included MOHFW, State Health Departments and healthcare workforce involved in the vaccination service delivery, which allowed coordination and alignment of the project resources in terms of human resources, digital technologies , and Standard Operating Procedures (SOP) The collaborative approach was crucial for this project in lieu of the ambitious target to cover pan India. MOHFW partnership with UNDP was embedded in its experience with UNDP for HSS-I project implementation and future possibilities to foster greater collaboration and synergies on other health system related priorities .

The core processes and resources identified at the project design stage like digitalization of vaccine logistics management, digital temperature monitoring, beneficiary coverage monitoring, capacity building of healthcare workforce, financing and data driven program governance, were crucial in the project implementation and achieving target results. The program implementation guidelines/ standard operating procedures reviewed during the evaluation study indicated alignment with the project design and envisaged outcomes . Some of the key risks and assumptions identified during the project design were,

- Government Cost-Sharing Model: There was a possibility that the continuous flow of resources from the government cost-sharing model may face challenges, impacting the financial sustainability of the program.

- UNDP Funding: Attracting large donor funds was crucial for maintaining a financially viable office. There was a risk that UNDP might encounter difficulties in securing these funds.
- Remuneration Differences: Variations in the remuneration of eVIN staff positions (SPOs as state leads and POs as regional leads) across 36 states could have posed challenges.
- Scope Creep: Additional requirements and scope expansion could have increased development costs and extended implementation timelines.
- Local Support and Collaboration: Limited support from local authorities and challenges in collaborating with other partners could have affected the project's progress.

The above-mentioned risks were closely monitored and analyzed, periodically. The appropriate mitigation measures were planned, developed, and captured in the project progress report.

Unidentified risks: While the project made efforts to identify and address potential risks, there were certain risks that were not fully considered. For instance, poor telecommunication networks and power connectivity, in rural parts of India, impacted the online communication and real time coordination. . This issue could lead to delays or inefficiencies in the distribution of vaccines, particularly in remote areas where network connectivity is limited.

Another potential risk that was not adequately addressed in the project documentation is the impact of emergency health crises, such as disease outbreaks or pandemics, which could divert the healthcare workforce from vaccine delivery efforts. A contingency plan for such scenarios was missing.

Furthermore, while the project document mentioned sustainability and scaling-up plans, there was limited focus on the mitigation strategies and back up plans in case of potential breakdown of the vaccine logistics system. For example, logistical challenges such as transportation delays, cold chain disruptions, or insufficient storage facilities could pose serious risks to the continuity of vaccine delivery. These risks were not sufficiently outlined in the original project assumptions and strategies to address to them, through proactive risk management strategies, were missing.

Analysis of the project document, primary discussions with key stakeholders, secondary sources, and the project reports confirmed that the objectives of the project design (inputs, activities, outputs and their indicators) and its theory of change logical and coherent to the local development context and needs of the targeted beneficiaries.

4.1.3 Relevance to the needs and priorities of the Target groups/beneficiaries

The program was conceptualized and designed to make services available till the last mile and ensure that no one is left behind. In the current program cycle (2018-22, with subsequent extension till 2024) the e-Vin program was rolled out across remaining 24 districts and achieved coverage for 100% districts, with nearly 29,000 cold chain points. This ensured pan India coverage and eventually resulted in a considerable reduction in instances and duration of stock out events, with vaccine availability at all times.

During COVID-19 pandemic, the national priority shifted towards ensuring vaccine coverage to prevent the spread of the disease. The program design was agile enough to shift focus on development of digital solutions like Co-WIN, intended to support in COVID-19 vaccine drive. Co-Win was successful in registering nearly 109 crore eligible individuals and recorded an administration of 197 crore vaccine doses by June 2022, which translates to 90% of coverage.

The program has worked towards providing coverage for all target groups with essential immunization services, with penetration and coverage improving over time. The evaluators noted that during their interactions with the field staff, there was a mention of various special outreach campaigns, including home visits for women, elderly, disabled, and marginalized populations for improving coverage under the Co-WIN program. As per latest available statistics for COVID 19 immunization, the program covered 4,15,53,156 beneficiaries aged between 12 and 14 years, 6,25,56,427 beneficiaries aged between 15 and 17 years, 82,85,00,461 beneficiaries aged between 18 and 59 years, and 13,78,93,534 beneficiaries aged above 60. In terms of gender, 54,54,38,484 males, 52,01,97,413 females, and 2,61,833 others have been vaccinated. Additionally, special COVID-19 vaccination drives were organized covering 77,31,77,876 people in rural areas and 50,13,67,034 in urban areas.[6]
It was worth noting that 1,13,03,808 people living without identity card, were immunised. Additionally, there are 38,10,93,138 elderly individuals, including those with disabilities, which were covered under these campaigns. Similarly, special drives were for homeless and prisoners. Furthermore, 25,20,67,508 individuals were vaccinated, at their place of work, addressing the needs of those who could not attend vaccination centers due to potential wage cuts. To avoid technology from becoming an hinderance for access, individuals without access to mobile phones were also covered by modifying the protocols for mobile number-based registrations. The focus, therefore, was to prioritise ensuring access to services and develop protocols which are supportive in ensuring mass coverage.

“ We faced some issues initially, since not everyone had unique mobile nos. we realized this early on and protocols were immediately modified, so that we were allowed to register 10 patients against a particular unique mobile no. This was important to ensure COVID-19 Vaccine coverage of the entire community .” – IDI with Cold chain handler

The eVIN project (Improving efficiency of Vaccination System in multiple states) on the other hand, was focused on routine immunization with target beneficiaries as women and children. The key indicators to measure the relevance of the program was the percentage of children aged 12-23 months who are fully immunized, with a baseline of 76.4% in 2021 and a target of 90% by 2027. Additionally, the project aimed to institutionalize real-time digital tracking of routine immunization coverage in districts, with a baseline of zero in 2022 and a target of 734 districts by 2027. These targets were designed in alignment to the improving coverage for the target beneficiary groups and the overall project objectives.

The eVIN project (Improving Efficiency of Vaccination System in Multiple States) was well-understood by stakeholders, adequately coordinated and resourced, ensuring the delivery of quality services. The system's digital tracking of vaccine supply chains was well-managed, effective, and accountable, with resource management being transparent, equitable, effective, and efficient at all levels. The project provided technical assistance to national and state governments, mobilizing expertise to offer demand-driven support for scaling eVIN across the country. According to stakeholders (SPOs, SIOs) interviewed, the project was highly relevant to their needs. They noted that the project's focus on strengthening cold chain points for efficient vaccine logistics management was crucial. This focus contributed significantly to the effective strengthening of public health systems and improved the efficiency of the Universal

[6]As per information provided by UNDP India team for Co-WIN.

Immunization Program, including monitoring and evaluation. Since reducing vaccine wastage was a major need in India, the project was particularly helpful, thereby increasing immunization coverage and reducing vaccine wastage.

4.1.4 Relevance of the Project objectives with UNDP’s Country Programme

The project design was aligned and contributed to the UN Sustainable Development Cooperation Framework (UNSDCF 2023-27) and UNDP Country Programme Document for India (UNDP CPD 2023–27). The output indicator for this is the number of states that institutionalized strengthened systems for health and development programs for equitable access to services, with a baseline of zero in 2022 and a target of 36 states and UTs by 2027. This target was also achieved ahead of time by December 2023, with eVIN playing a crucial role in providing equitable access and strengthening health systems. Specifically, the project design contributed to the Outcomes, Outputs and Indicators under UNSDCF and UNCPD, such as:

UN Sustainable Development Cooperation Framework (2023-2027)

1. Outcome Area 1: By 2027, communities, especially the most disadvantaged, demand for and benefit from inclusive, universal, affordable, accessible, accountable, and quality healthcare services, while adopting positive health practices.

The outcome indicator defined for the Outcome Area 1 under the project design was as follows:

2. Outcome Indicator: % Children (ages 12-23 months) fully immunized.

   Baseline (2021): Total: 76.4%; Target (2027): Total: 90%

3. Output Indicator 1.2.4: Number of districts that institutionalized the real-time digital tracking of routine immunisation beneficiary coverage.

   Baseline (2022): 0; Target (2027): 734

The UNDP Country Programme Document for India (2023–2027) builds upon the achievements of the previous cycle (UNCPD 2018-2022), particularly in enhancing the efficiency and effectiveness of public health systems. The earlier programme, under Output 1.3, focused on improving public health systems to benefit women and the poor. The new programme not only continues this focus but also expands its scope significantly. The UNCPD 2018-2022 aimed to improve the efficiency and effectiveness of public health systems, targeting women and the poor, and achieved enhanced public health service delivery and better access to health services for vulnerable populations. The UNDP Country Programme Document for India (2023–2027) retains this focus but broadens its reach to ensure no one is left behind, with Output 1.2 aiming to improve service delivery of health care and development programs to the last mile. By supplementing the goals of improved service delivery (Output 1.2) with enhanced efficiency and effectiveness (Output 1.3), the programme ensures a comprehensive approach to public health. The focus on reaching the last mile ensures that even the most remote and underserved populations benefit from health services. Improved logistics and evidence-based policymaking support the effective delivery of health services, reducing disparities and improving health outcomes for all, especially women and the poor.

UNDP Country Programme document for India (2023–2027)

1. Output 1.2: Improved service delivery of health care and development program to the last mile to ensure that no one is left behind.

The outcome indicator defined for the Output indicator under the project design was as follows:

2. Output Indicator 1.2.1: Number of states that institutionalized the strengthened systems for health and development program for equitable access to services.

   Baseline (2022): 0 Target (2027): 36 States and UTs

3. Output Indicator 1.2.2: Number of people that benefited from the strengthened systems on health and development program.

   Baseline (2022): 0 Target (2027): 150 million

The Project was marked with the UNDP gender marker GEN2 meaning that the project was expected to have promotion of gender equality a significant objective. The project had a focus on women beneficiaries and increasing the healthcare accessibility and availability.

The project aimed at improving efficiency of vaccination systems in India across multiple States. The constituents of this project included:

- Collaboration with multiple partners (50+) including government, private sector, civil society and academia to provide necessary expertise for execution.
- Constant and continuous capacity building through structured program to enhance administrative capabilities of state governments to bolster implementation abilities.
- Programmatic support to develop and scale innovative solutions (ex eVIN, Co-WIN), to improve material resource management and ensure efficient delivery of services.
- Focus on circular economy principles and ensure efficient use of material resources and minimize wastage.
- Robust planning and risk management framework, to proactively minimize delays and ensure timely implementation, supported with robust monitoring and evaluation frameworks.
- Adaptive program design to adapt to new information and rapidly respond to emerging changes and avoid delays.
- Design orientation of inclusiveness with special attention to marginalized populations, including persons living with HIV/AIDS, LGBTIQ individuals, and other vulnerable groups.
- Wide beneficiary coverage to improve access to health care and development services.

During the project implementation, the focus was to build digital cloud-based platform for real time visibility, systematize standard operating procedures and provide support and supervision at each district level. During this period, with the advent of COVID-19, UNDP provided technical and implementation assistance in for COVID-19 vaccination drive and rolling out of Co-WIN, a cloud-based IT application system designed for planning, implementation, monitoring, and evaluation of COVID-19 vaccines. The support ranged from software development and hosting to micro-plans for COVID-19 vaccine sessions. UNDP was aligned and agile to the emerging requirement in India’s healthcare landscape and responded proactively.

The project objectives are aligned with UNDPs strategy and worked on leveraging innovative digital solutions, to improve delivery and reduce wastages. Furthermore, in alignment to UNDP’s strategy, the program is structured to engage with multiple partners, including state governments and invest in strengthening their capacity to improve delivery of services. Agility, adaptive programming and ability to actively respond to emergency situations was an integral part of the program and strongly aligned to UNDP strategy to strengthen the health systems.

4.1.5 Rating on Relevance

Relevance	Overall Rating	Highly Satisfactory

The project has a strong alignment with India’s one of the national health development priorities and Universal Immunization Program (UIP). This alignment is designed to further bolster the long-term commitments towards achieving Universal Health coverage, health equity and achievement of relevant Sustainable Development Goals (SDG-3 and SDG-10). The project is also aligned to UNDP’s Country programme and focused on making services available till the last mile and ensure that no one is left behind. The project was also planned with much needed agility, which allowed it to respond, to any emerging requirement like COVID-19 pandemic. The Co-WIN component of the project provided necessary support in development of scalable technology solutions and implementation assistance for roll out. The evaluation study was highly satisfactory with respect to the objectives of the project design (inputs, activities, outputs and their indicators) and its theory of change being logical and coherent to the local development context and needs of the targeted beneficiaries.

4.2 Effectiveness

The Effectiveness of the Project was evaluated based on the extent of achievement of the intended objectives for the Project as per the theory of change. Through desk review of project implementation documents information was triangulated with relevant references, independent databases and primary discussions (IDIs). The critical questions in this section have been comprehensively addressed below.

4.2.1 Progress made towards the effective achievement of outputs.

The eVIN project has shown significant progress in meeting its intended goals and aligns well with the timelines set out in the UNDP project document and the Country Programme Document (CPD). This was confirmed through in-depth interviews with project staff and the output indicator, which tracks the number of states and UTs incorporating eVIN into their state Program Implementation Plans (PIPs). The indicator showed a steady increase from coverage of 12 states in 2018 to coverage of 23 states by December 2023, demonstrating strong buy-in and readiness among the States, to integrate this highly effective digital platform into their vaccine supply systems.

During the survey, a 5-point rating code was used, to ascertain the level of concurrence to a particular viewpoint. Data analysis of SIOs feedbacks (n=7) indicated that 42.9% agreed, the program was most effective in rolling out eVIN temperature logger and quality assurance, , followed by the improved traceability of vaccine stock, which helped resolve issues related to overstocking or stock-outs. Similarly, analysis from DIO feedbacks (n=14) showed that 83.3% believed the program was most effective with regards to installation of temperature logger and quality assurance followed by improved traceability of vaccine stock., .

“eVIN is incredibly helpful. Every morning, I open the application on my mobile to check the status of vaccines. This allows me to see how many District Immunization Officers (DIOs) are using the application, ensuring that vaccine supply and management are being actively reviewed and monitored by district officials.”- In-depth interview with SIO

The initiative achieved full-scale implementation across India, successfully digitalizing 100% of the target i.e., 29,000 vaccine cold chain points, and enabling real-time tracking of vaccine logistics and temperature management. It was noted during the field survey that all Cold Chain Points (CCPs) surveyed utilized the eVIN system, which aided in precise vaccine supply management. The project has contributed to improvement of the country’s vaccination coverage, with national data showing an increase from 62% in NFHS-4 to 76.4% in NFHS-5, representing a 14.4 percentage point growth.

"As a cold chain handler, eVIN has significantly improved real-time record-keeping. This digital system empowers me to make informed decisions on stock management, temperature monitoring, and indenting." - CCH, Madhya Pradesh

About 71.4% of SIOs (n=7) strongly agreed and another 28.6% agreed, that the program effectively involved state authorities, Similarly, during, DIOs interviews, (n=12) 57.1% strongly agreed, and 42.9% agreed that capacity building and handholding support was provided to the local governments, seamless and effective implementation.

Feedbacks from SIOs (n=7) indicated that both the applications (eVin and CoWIN) significantly improved the capability of the human resource in organizing Routine Immunization (RI) and COVID-19 vaccination drives, with 85.7% of respondents (57.1% strongly agree and 28.6% agree) expressing positive views. This strong consensus was suggestive of the strengthen of both the digital platforms in contributing effectively to the targeted objectives. .

> *"Before eVIN, whenever a senior official requested urgent data, we had to sit at the Cold Chain Point (CCP) and manually compile reports from physical registers. Now, with eVIN, it takes just a few minutes to prepare the report and send it via WhatsApp, without even needing to visit the CCP or sift through bulky physical registers." - CCH, Rajasthan*

The project intervention has been highly effective. By 2023, 100% of the target (29,000) cold chain points were successfully digitalized, demonstrating a significant achievement in enhancing the efficiency of the vaccination system. Additionally, the project exceeded expectations in training cold chain handlers, achieving more than 167% of the stipulated target of 39,500 by 2020 and 203% by 2023. This indicates a strong commitment to capacity building and ensuring that personnel are well-equipped to manage the digitalized systems. The project faced challenges in installing digital temperature loggers during initial years but achieved 104% of the target cold chain points by 2023. A target vs achievement analysis is presented in 4.3 Efficiency Section, with the detailed description in Table 6

4.2.2 Factors for achievement of intended outputs

Several factors have contributed to achieving the intended outputs of the eVIN project:

a. Government Commitment: The unwavering commitment from the government has been the cornerstone of the project's success. This includes consistent policy support, adequate funding, and a clear vision for improving vaccine logistics and management. The government's dedication has ensured that the necessary resources and infrastructure are in place to support the eVIN initiative. During primary discussions, all SIOs (n=7), DIOs (n=12), and other project staff expressed that the Ministry of Health and Family Welfare (MoHFW), Government of India (GOI) provided full support in making this initiative successful.

b. Collaboration and Buy-In from All Stakeholders and Partners: Effective collaboration and strong buy-in from all stakeholders, including health departments, international organizations, and local partners, was crucial. This collective effort facilitated the smooth implementation and integration of eVIN across various regions. Stakeholders' active participation also helped in addressing challenges promptly and efficiently. SIOs (n=7) and DIOs (n=12) interviewed during the assessment opined that rollout of a program of such a magnitude (like eVIN) was only possible through collaborative partnerships.

c. Regular Trainings: Regular training sessions have played a significant role in fostering a sense of inclusiveness and ownership among the participants. These trainings provided, a platform for Cold Chain Handlers (CCHs) and Auxiliary Nurse Midwives (ANMs) to clear doubts, share experiences, and interact with senior officials. This open communication channel has enhanced their understanding and confidence in using the eVIN system. Primary discussions with Cold Chain Handlers (n=143) revealed that 79.7% had received training on the 2016 Cold Chain Handlers Module, and 83.2% had been trained on the eVIN application when they were assigned the responsibility of managing the cold chain, for the first time. All

SIOs concurred that the project interventions have significantly contributed towards the achievement of results . The regular training of CCHs by Vaccine Cold Chain Managers (VCCMs) has built capacity and ensured effective field implementation. However, the existence of multiple portals necessitates better data integration to avoid redundant entries and maintain consistency across records. Overall, these interventions in human resource trainings have been crucial in delivering the project's outcomes.

d. Handholding and Supportive Supervision: Continuous handholding and supportive supervision, both online and offline, by Vaccine Cold Chain Managers (VCCMs) was instrumental in achievement of the outcomes. VCCMs provided round-the-clock support to CCHs and ANMs, addressing both technological and programmatic issues. In all 143 Focus Group Discussions (FGDs), ANMs expressed that VCCMs were available 24/7 for any support, which significantly boosted their ability to manage the system, effectively.

e. Agility of the Program: The agility of the eVIN program allowed it to adapt quickly to changing circumstances and challenges during the COVID-19 pandemic. This flexibility was vital in ensuring that the project remained on track and continued to meet its objectives despite the unforeseen obstacle. The program's ability to pivot and implement necessary changes swiftly was a key factor in its success.

These factors collectively ensured that the eVIN project not only meet its intended outputs but also set a strong foundation for vaccine management practices.

4.2.3 Lessons and their incorporation in planning and implementation

a. Collaboration: Effective collaboration among various stakeholders is crucial for the success of large-scale programs. The eVIN initiative demonstrated that strong partnerships and collective efforts can significantly enhance project outcomes.

b. Regular Trainings: Continuous and regular training sessions are essential to ensure that all participants are well-equipped with the necessary skills and knowledge. These trainings fostered a sense of inclusiveness and ownership, and enabled participants to confidently manage and operate the system. Training on the eVIN mobile app and the use of temperature loggers enhanced their ability to manage vaccine logistics efficiently, highlighting the need for ongoing education and support to maintain high standards. Feedback received through in-depth interviews highlighted that regular trainings were crucial in building competence and confidence, ensuring consistency and standardization, and, enhancing problem-solving and strengthening support networks.

c. Ramp-Up Across States and Phased Approach: Implementing a phased approach for rolling out of such a large program proved highly effective Initially, the intervention was piloted in states and districts that were open to testing this innovation. Following the successful pilot phase, eVIN was subsequently implemented in other states. This strategy allowed for gradual scaling, addressing challenges incrementally, and ensured smoother transitions and adaptations at each stage. This phased roll-out plan, coupled with a robust monitoring plan, was crucial in maintaining the program's momentum and ensuring its overall success.

d. Attritions - Process and System Driven: To mitigate the impact of staff attrition, it was important to have processes and systems in place rather than relying on individuals’ judgement. Setting clear targets across different roles/ cadres ensured continuity and consistency in the program's operations, even when there was attrition .

e. Effective Vaccine Management Through Real-Time Data: Real-time data on vaccine stocks and cold chain conditions proved essential for effective vaccine management. The ability to monitor stock levels and storage conditions in real time helped reduce vaccine wastage, prevent stock-outs, and ensure vaccines were stored at the correct temperatures. Integrating various technological solutions, such as eVIN and the National Cold Chain Management Information System (NCCMIS), improved data management and decision-making processes. The harmonization of data from different sources provided a comprehensive view of the immunization landscape, facilitating better planning and resource allocation. All Cold Chain Handlers (n=143) agreed that the implementation of remote monitoring for Ice-Lined Refrigerator (ILR) temperatures using temperature loggers significantly improved their efficiency and simplified their daily tasks. This technology allowed them to monitor and manage the temperature conditions of vaccine storage units in real-time, reducing the need for constant manual checks. As a result, they were promptly able to address to any temperature deviations, which ensured the vaccines remained potent and safe, This advancement has not only enhanced their operational efficiency but also contributed to better overall vaccine management.

These lessons highlight the importance of strategic planning, continuous support, and robust systems in achieving the intended outcomes of large-scale initiatives like eVIN.

Incorporation of Feedback and Learning

Based on positive outcomes and feedback, eVIN was scaled up to cover all remaining states and Union Territories. This expansion ensured that the benefits of real-time vaccine logistics management were extended nationwide, optimizing the supply chain at all levels. Feedback from initial training sessions led to the development of more comprehensive and user-friendly training modules. These modules were designed to address specific challenges faced by CCH and vaccinators, ensuring they were well-equipped to use the digital tools effectively.

The feedback highlighted the need for more user-friendly and efficient technological solutions. As a result, additional modules were developed to optimize the vaccine logistics pipeline and reduce financial burdens. The NCCMIS was upgraded to be more user-friendly and to integrate data from other systems like eVIN. The importance of supportive supervision was reinforced through feedback. A mobile-based application was developed to capture real-time data from the field, including cold chain, communication, and operations. This application provided a user-friendly dashboard and analytical features to facilitate faster decision-making and corrective actions at the local level. Feedback from remote and hard-to-reach areas highlighted the need for alternative vaccine delivery options. Various strategies were explored and implemented to ensure vaccines reached these challenging locations, ensuring no child was left behind. The program adopted a continuous improvement approach, regularly incorporating feedback from the field to refine and enhance processes. This adaptive strategy ensured that the program remained responsive to emerging challenges and needs, maintaining its effective progress and delivery results against the targets.

4.2.4 Interventions for women's empowerment

The program has focused on building the capacity of Cold Chain Handlers (CCH) and vaccinators through continuous training and support. This improved their digital literacy and ability to manage vaccine logistics effectively. The SIOs (n=7) and VCCMs (n=24) stated that yearly trainings have been regularly conducted so that knowledge transfer and their capacities to use digital technology can be strengthened.

As per the primary field study, it is observed that approx. 73.4% (n=143) of Cold Chain Handlers were women. They shared their experience of the training conducted and confirmed that it improved their work efficiency and coordination with their colleagues. Additionally, it has enhanced their social status and recognition. The digital enablement of the CCP processes has also enhanced their decision making, better control over sessions and connect with the community.

> *“Back in 2018, when eVIN was introduced, we were given smartphone which added to our status in my neighborhood. Still, I was hesitant of using the smartphone and eVIN, but the training and support from VCCM helped me navigate the system. Now I train other cold chain handlers.” - CCH, Rajasthan*

The project has been highly effective in enhancing the capacity of local governments through several key mechanisms. With a focus on women specific interventions, pink sessions were organized for COVID-19 vaccination in country. They were focused on pregnant women wherein the information regarding COVID-19 vaccine was disseminated to ally the stigma and fear associated with the vaccine. The HSS-I and HSS-II has enabled the vaccinators and CCHs to drive the sessions effectively with minimal interventions from the higher administration.

The eVIN and Co-WIN also enabled vaccinators to plan the sessions effectively, leading to a reduction in their overall trips to the facility for vaccine collection. However, in FGDs (n=143), vaccinators highlighted that this digital enablement has saved their time and efforts from manual entry resulting in more time for other duties.

> *The CoWIN platform has significantly boosted women's participation in healthcare by introducing roles such as vaccination counselors. The Co-WIN platform has significantly boosted women's participation in healthcare by introducing roles such as vaccination counselors. This initiative has empowered numerous women, particularly in rural areas, to become part of the healthcare workforce. It has not only provided them with a source of income but also enhanced their confidence and visibility in a field traditionally dominated by men. This progress marks a positive step towards achieving greater gender equality within the community. – ANM, Madhya Pradesh*

IEC from mobile phones/online to have anytime access to trainings materials.

Overall, the program has been highly effective in strengthening the women related aspect of immunization systems, enabling CCPs with more control, decision making and skill development.

Rating on Effectiveness

Effectiveness	Overall Rating	Satisfactory

The project successfully achieved its performance targets, including full-scale technology implementation and 100% digitalization of 29,000 vaccine cold chain points by December 2023. By 2023, training was provided to over 203% of the target cold chain handlers. Digital temperature loggers were supplied to approximately 104% of the target points by December 2023. Key factors in the project's success included strong government collaboration, regular

training, and supportive supervision by the UNDP team. The innovative eVIN technology transformed vaccine delivery services in India.

4.3 Efficiency

This section on efficiency provides detailed insights into the key drivers behind the project's success and intended outputs. These drivers encompass the efficient use of manpower, material, and financial resources to achieve timely results, ensuring that all resources are optimally utilized. Additionally, the empowerment of healthcare workers, including female cold chain handlers, through workload optimization has been crucial, enhancing their productivity. The appropriateness and efficiency of the existing project management structure have also played a significant role in generating the expected results, demonstrating the effectiveness of the organizational framework. Furthermore, the efficiency and cost-effectiveness of the project implementation strategy and its execution have been pivotal, ensuring that the project is delivered within budget and on schedule, thereby maximizing the impact and sustainability of the outcomes.

4.3.1 Efficiency of resources, including human, material and financial, to achieve timely results.

The project required a network of highly qualified human resources across the country to deliver the program effectively. During HSS II, by December 2023, eVIN was fully operational in 752 districts across 36 states and UTs of India, covering all 29,000 vaccine cold chain points. During this course, eVIN built capacities of 56,326 cold chain handlers to strengthen India's vaccine management system. [7]

India’s Immunization supply chains (iSC) is a vast network of ~29,000 cold chain points, which cater to a huge cohort of ~26 million infants and ~ 30 million pregnant women for administering ~390 million doses through 9 million sessions annually. - Universal Immunization Programme Comprehensive Multi-Year Plan 2018-2022

The data analyzed from the Quarterly Progress Reports (QPRs) from 2018-2023 [table 6] on eVIN indicates a successful implementation and scaling of the eVIN system infrastructure across states and UTs from 2018 to 2023. The consistent achievement of targets, particularly in training and infrastructure setup, reflects a well-coordinated effort and effective project management. The high adherence rates and technological advancements further underscore the program's success.

[7] Project Annual Progress Report India Country Office, UNDP January - December 2023

Table 7: Quarterly Progress Reports (QPRs) from 2018-2023

		2018		2019		2020		2021		2022		2023	
Activity description	**Activity / Indicator description (GPF)**	**Annual Target**	**Annual Achievement**	**Annual Target**	**Annual Achievement**	**Annual Target**	**Annual Achievement**	**Annual Target**	**Annual Achievement**	**Annual Target**	**Annual Achievement**	**Annual Target**	**Annual Achievement**
3.5 Establish eVIN system infrastructure in the additional new States/UT	**3.5|IR-T 3.5.1** No. of states and UTs with eVIN reflected in state PIP	12	12 (100%)	15	12 (80%)	20	12 (60%)	20	20 (100%)	20	21 (105%)	-	23 (115%)
3.5 Establish eVIN system infrastructure in the additional new States/UT	**3.5|IR-T 3.5.2** No. of states maintaining eVIN adherence rate > 90%	75%	Expected reporting from Jan 2019	85%	100%	100%	99.2%	100%	98%	100%	99%	-	100%
3.5 Establish eVIN system infrastructure in the additional new States/UT	**3.5|PR-T 3.5.1** Number and per cent Cold Chain Handler trained on eVIN	8,500	7411 (87.1%)	14,000	16,297 (116.4%)	17,000	28,437 (167%)	17,000	29,254 (172%)	17,000	35,569 (209.2%)	-	34,562 (203%)
3.5 Establish eVIN system infrastructure in the additional new States/UT	**3.5|PR-T 3.5.2** Number and per cent of cold chain points in the target districts which have gone live with eVIN	8,500	5452 (64.1%)	14,000	9,570 (68.3%)	17,000	17,663 CCPs (103.9%)	17,000	17,949 (106%)	17,000	18,024 (106%)	-	18,158 (107%)
3.5 Establish eVIN system infrastructure in the additional new States/UT	**3.5|PR-T 3.5.3** Percent of target cold chain equipment have a digital temperature logger installed	5,000	0%	12,500	5053 (40.4%)	20,000	9,994 CCEs (49.9%)	20,000	10,839 (54%)	20,000	13,709 (68.5%)	-	20,784 (104%)

Source: India HSS II Grant - Quarterly Progress Reports 2018-2023

Notes: Since the annual targets for 2023 are not available, the annual targets for 2022 have been used to calculate the achievement percentage for 2023.

Establishment of eVIN System Infrastructure (IR-T 3.5.1) The goal was to integrate the eVIN system into state NHM (National Health Mission) PIPs (Project Implementation Plan) across various states and UTs, starting with a target of 12 states/UTs in 2018 and in remaining 24 states in program cycle (2018-22). The actual achievements consistently met these targets, slightly exceeding them by 2023, with 23 states/UTs reflecting eVIN in their PIPs. This steady progress indicates a well-coordinated effort and strong collaboration between central and state governments, ensuring the widespread adoption and integration of the eVIN system into the health infrastructure. Detailed NHM PIP guidelines were prepared and shared by the Joint Secretary (Policy), Ministry of Health and Family Welfare in year 2021.

Adherence Rate (IR-T 3.5.2) From 2019 onwards, the adherence rates for states maintaining eVIN were consistently high, ranging from 85% to 100%. This high level of compliance demonstrates the robustness of the eVIN system, and the effectiveness of the training and support provided to the states. Maintaining these high standards is crucial for the reliability and accuracy of vaccine data, supporting better decision-making and resource allocation.

Training of Cold Chain Handlers (PR-T 3.5.1) The target for training cold chain handlers on eVIN was set at 8,500, with an achievement of 7,411 (87.1%). The following year, the target increased to 14,000, with an achievement of 16,297 (116.4%). The target was then raised to 17,000 for the next three years, with achievements of 28,437 (167%), 29,254 (172%), and 35,569 (209.2%), respectively. The final year saw an achievement of 34,562 (203%). This indicates a robust training program and a strong emphasis on capacity building, ensuring that the eVIN system is supported by knowledgeable and capable personnel. Primary discussions with Cold Chain Handlers (n=143) revealed that 79.7% had received training on the 2016 Cold Chain Handlers Module, and 83.2% had been trained on the eVIN application. They also shared that the trainings were timely and efficient. The remaining 16.8% that did not receive trainings, were only recently assigned the responsibility, with a target to be trained within three months. In the meantime, they are assisted by VCCM, link person and others with prior experience on the program, to carry out their routine duties.

Additionally, discussions with State Immunization Officers (SIOs) confirmed that the positive feedback from Cold Chain Handlers (CCHs) was consistent across all states. The SIOs reported that CCHs universally appreciated the training programs, noting that they were both timely and efficient. This widespread satisfaction underscores the effectiveness of the training initiatives and the support systems, ensuring that even newly assigned CCHs receive the necessary guidance and assistance from VCCMs, second cold chain handlers, or previously assigned handlers. This collaborative approach helps maintain high standards of service delivery across the board. Concerns regarding attrition rates between 2018-2022, were highlighted, which may have impacted the programs efficiency.

Cold Chain Points Going Live (PR-T 3.5.2) The target for cold chain points going live with eVIN was set at 8,500, with an achievement of 5,452 (64.1%). The following year, the target increased to 14,000, with an achievement of 9,570 (68.3%). The target was then raised to 17,000 for the next three years, with achievements of 17,663 (103.9%), 17,949 (106%), and 18,024 (106%), respectively. The final year 2023 saw an achievement of 18,158 (107%).

Installation of Digital Temperature Loggers (PR-T 3.5.3) The target for installing digital temperature loggers in cold chain equipment was set at 5,000 in 2018, with no achievement recorded. The following year 2019, the target increased to 12,500, with an achievement of 5,053 (40.4%). The target was then raised to 20,000 for the next three years, with achievements of 9,994 (49.9%), 10,839 (54%), and 13,709 (68.5%), respectively. The final year 2023 saw an achievement of 20,784 (104%).This steady increase indicates a growing emphasis on using technology to ensure the quality and safety of vaccines, demonstrating a commitment to leveraging technology to improve vaccine management.

As per the Annual Progress reports, material resources were utilized to enhance the vaccine supply chain infrastructure, comprised of 36,243 cold chain equipment being upgraded with next-generation digital temperature loggers.[8] This technological integration led to reducing instances of stock outs by 72%[9] And ensure the availability of vaccines at more than 95% of cold chain points for more than 27 days each month, significantly improving vaccine availability. Similarly, smartphone-based digital technology facilitated real-time data collection and monitoring, which was readily accepted and adopted by government staff, further streamlining the logistics process and bolstered the programs efficiency.

During the survey, a 5-point rating code was used, to ascertain the level of concurrence to a particular viewpoint. Analysis from Cold chain handler feedbacks (n=143) showed that 73.4% believed the program was most effective with regards to installation of temperature logger and quality assurance. This high rating places these advantages second in the overall ranking of benefits from eVIN. However, discussions with state authorities in Maharashtra and Madhya Pradesh indicated the non-availability of digital temperature loggers at some cold chain points in the States.

Financial Resources

Financial resources were efficiently managed with 100% utilization and disbursed to support the project's expansive reach and technological advancements. The outlay of $ 8,36,42,657 was utilized effectively from 2018 to 2023 (table 8)[10] and has been successfully transitioned to funding under the National Health Mission. The budget, utilization, and expenditure details from the table below highlights significant aspects of the project's financial management. The "Sustained eVIN Implementation in initial 12 states" project, funded by eVIN Support from state PIPs, received a total of $1,79,51,259. The annual utilization rates varied, starting at 7.7% in 2018 and reaching 30.6% in 2022, with a total cumulative expenditure matching the funds received. The gradual increase in spending efficiency over the years apparently was in line with the programmatic progress and roll out. Similarly, the "Enhance and maintain eVIN" project under Health System Strengthening - II along with other programmatic components had a total expenditure of $6,56,91,398, showing 100% utilization. The cumulative utilization rate over the duration of the project was 100%, with annual utilizations ranging from 11.6% to

[8] Project Annual Progress Report India Country Office, UNDP January - December 2023

[9] The Techno-Economic Assessment of Electronic Vaccine Intelligence Network, published by Immunization Technical Support Unit (ITSU) of MoHFW

[10] PROJECT DOCUMENT [Country: India] Project Title: Improving efficiency of Vaccination System in multiple states; 1 January 2018 to 30 June 2024

21.4%, in line with the programmatic progress and rollout. This suggests that the project's financial management were well-planned without significant variances and prudent financial management. The insights gained from this project should be leveraged to enhance financial forecasting, financial management and resource allocation in future large-scale projects.

Table 8: Fund received and utilized 2018-23

Output	Donor	Funds Received (in dollars)	Expenditure (in dollars)						
			2018	2019	2020	2021	2022	2023	Total
Sustained eVIN Implementation in initial 12 states	eVIN Support from state PIPs	1,79,51,259	13,81,396	27,09,502	19,62,536	28,22,755	54,94,917	35,80,153	1,79,51,259
		% Utilized	7.7	15.1	10.9	15.7	30.6	19.9	100
Enhance and maintain eVIN	Health System Strengthening - II	4,00,15,053	76,34,589	8,9,89,307	91,82,471	1,40,46,334	1,28,78,489	1,07,10,156	6,56,91,398
Enhance and maintain Co-WIN		2,48,45,017							
ANCHAL	Program Resources	5,87,078							
TSU for Non-Non-Communicable Disease and Establishment of Oxygen Generation	TRAC	2,44,250							
	Sub Total	6,56,91,398							
		% Utilized	11.6	13.7	14.0	21.4	19.6	16.3	100
Grand Total		**8,36,42,657**	**13,81,396**	**27,09,502**	**19,62,536**	**28,22,755**	**54,94917**	**35,80,153**	**1,79,51,259**

Source: Project Document [Country: India]: 1 Jan 2018 to 30 Jun 2024

The integration of eVIN with the Co-WIN platform during the COVID-19 pandemic exemplifies the project's adaptability and efficiency.[11]. The project's success in maintaining high adherence rates, reducing stockouts, and ensuring vaccine availability highlights its efficiency in achieving its goals within the set timelines.

4.3.2 Appropriateness of project management structure

The project's governance mechanism is governed by the Immunization Advisory Group (IAG) and the Project Steering Committee (PSC). The IAG, chaired by the Joint Secretary (RMNCH+A) of the Ministry of Health and Family Welfare, Government of India, includes members from MoHFW, NIHFW, GAVI, and other development partners. This group meets regularly to review and monitor programmatic and financial progress, policy decisions, and project implementation.[12]

It is worthwhile to note that all SIOs and DIOs concurred that the program governance structure was agile, responsive and well-planned to deliver the desired results. The governance structure was designed to allows for strategic planning, financial management technological integration and facilities responsiveness to emerging priorities. Additionally, the State-level program management framework supported continuous training, strong collaboration with local administration and strong monitoring systems. Overall, the project management structure (table 8) of the eVIN project was appropriate and efficient in generating the expected results.

"Based on my experience, the mechanisms for monitoring and reviewing Cold Chain Points (CCPs) through eVIN are robust and effective. In addition to these monitoring and review processes, the handholding support provided through regular training sessions has been a crucial factor in the program's success. However, I suggest that newly recruited staff or a second line/link person should also receive equivalent training. This would ensure that a second line of Cold Chain Handlers (CCHs) is prepared and ready to be deployed when needed, thereby enhancing the system's overall preparedness and resilience."- In-depth Interview with State Immunization Officer

Table 9: Governance Structure

Governance Level	Committee/ Role	Collaboration	Role/ Function
National	Immunization Advisory Group (IAG)	GoI Apex bodies/ Institutes, Inter & intra departmental	Review and monitor the programmatic and financial progress, policy decisions (such as CPMB, COBP etc.), and implementation
National & State		Inter-departmental and inter-state collaboration	Overall governance oversight of the eVIN project.
State	State Immunization Officers	State and District	Roll-out and Implementation of eVIN

[11] 12.9 Attachment 1_Implementation QA_00107172

[12] 12.8 Attachment 1_Implementation QA_00098752 (Implementation Stage Quality Assurance Report)

	State Project Officers	State and District	Roll-out and Implementation of eVIN
District	District Immunization Officers	Inter-District	Managing Implementation and Regular Monitoring
Grassroot/ Field	Vaccine Cold Chain Managers (VCCMs)	Intra-District	Assisting in Implementation, real-time monitoring, handholding & capacity building

The governance structure for the project, as illustrated in the table 8 above, was meticulously designed to ensure comprehensive management, oversight, and monitoring across all levels—national, state, district, and grassroots/field (CCPs). This multi-tiered framework facilitates seamless coordination and accountability, ensuring that each level is adequately covered, and no aspect is overlooked. Strategic direction and policy formulation are prioritized at the national level, while state and district levels focus on implementation and operational efficiency. Grassroots and field levels (CCPs) ensured that the project reached its intended beneficiaries, effectively. These teams were embedded within the existing government structure, ensuring seamless integration and coordination with state health departments. This robust governance structure left no gaps, thereby guaranteeing that all components of the project were managed with precision and effectiveness.

This comprehensive governance structure facilitated regular monitoring and review, resulting in efficient decision-making, resource allocation, and implementation of project activities, contributing significantly to the project's success.

"In 2018, when we were first introduced to the new eVIN system, my initial reaction was one of skepticism. I wondered how we would manage to implement this, given that the Cold Chain Handlers (CCHs) were not digitally equipped or technologically savvy. It required a significant effort and behavioral change on their part. However, after a few months of using the new system, I realized that it was well thought out and seamlessly integrated within the government framework. The technical support from UNDP extended down to the district level and below, with Vaccine Cold Chain Managers (VCCMs) available 24/7. This arrangement of upward and downward support, along with continuous handholding, is truly commendable for a country like ours." – In-depth Interview with State Immunization Officer

4.3.3 Efficiency and cost-effectiveness of project implementation strategy

Efficiency and Cost-Effectiveness of Project Implementation Strategy and Execution

Quality and Adequacy of Project Financial Management Procedure

The project implementation strategy for improving the efficiency of the vaccination system has demonstrated a high level of efficiency and cost-effectiveness, particularly in terms of financial management. The financial management procedures were robustly designed to ensure transparency, accountability, and optimal use of resources. These procedures included detailed tracking of funds, timely disbursement of payments, and stringent checks to prevent any misuse

of resources. The financial management system was robust, allowing for real-time monitoring of financial transactions, which facilitated prompt corrective actions when necessary.

A thorough review of the project documents reveals that the project maintained a rigorous schedule of internal audits, financial reviews, and Results Oriented Analysis Reports (ROAR) on a quarterly, bi-annual, and annual basis. These measures were crucial to monitor expenditures and ensure strict adherence to budgetary allocations. Furthermore, the project underwent independent third-party interim and mid-term evaluations. These evaluations played a vital role in assessing the project's progress and validating that it was on the right trajectory to achieve its intended outcomes. This comprehensive approach to monitoring and evaluation ensured that the project remained transparent, accountable, and aligned with its financial and programmatic goals. The same was corroborated by the interviews conducted with key stakeholders – project staff and SIOs during the interactions and field visits.

The project also incorporated regular monitoring and evaluation mechanisms to ensure financial integrity. These mechanisms included quarterly financial reviews, annual audits, and continuous oversight by the project management team. The involvement of the Ministry of Health and Family Welfare (MoHFW) and other stakeholders in financial oversight further enhanced the quality and adequacy of the financial management procedures.

It is evident from the review of data and reports, including verifying the documents from the field visits across states, that monitoring indicators were meticulously tracked and reviewed, allowing immediate action to be taken whenever issues or deviations from intended outcomes were identified. This proactive approach significantly reduced the turnaround time for resolving any problems. Some of the key indicators that were consistently monitored included 1) the number of high-level meetings/IAG conducted in a year, which ensured continuous oversight and strategic direction; 2) the number of states and UTs with eVIN reflected in state Program Implementation Plans (PIPs), ensuring widespread adoption; 3) the number of states maintaining eVIN adherence rates above 90%, which helped maintain high standards of implementation across states; 4) the number and per cent of Cold Chain Handlers trained on eVIN, ensuring that a significant proportion of handlers were adequately trained to use the system; 5) the number and per cent of cold chain points in the target districts that have gone live with eVIN, ensuring the rollout was progressing as planned; and 6) the per cent of target cold chain equipment with a digital temperature logger installed, ensuring the equipment was equipped with the necessary technology to maintain vaccine integrity. By closely monitoring these indicators, the project team was able to swiftly address any issues, ensuring the program remained on track to achieve its goals.

Assessment of the Results Framework

The result framework outlined in the UNDP Project Document is robust and well-structured, aligning closely with the UNSDF Country Programme Results and Resource Framework. The tool was designed to track the project's progress towards its intended outcomes. The framework includes specific indicators such as the percentage of children under five years of age who are stunted, with a baseline of 38.7% and a target of 27.9% by 2022. This indicator is well-defined and aligns with the S.M.A.R.T. criteria: it is Specific (focused on stunting in children under five),

Measurable (percentage-based), Achievable (targeting a 40% reduction), Relevant (addressing a critical health issue), and Time-bound (to be achieved by 2022). The framework also includes output indicators like the number of states covered through health systems strengthening, with clear annual targets and data sources specified.

The reporting on these indicators was structured to provide regular updates on progress, with data collected and analyzed quarterly and annually. This ensured that any deviations from the expected progress was promptly addressed. The final achievements were documented in annual reports and reviewed by the Project Steering Committee (PSC), ensuring accountability and transparency. The indicators are not only well-designed but also effectively monitored and reported, facilitating the achievement of the project's goals. The use of disaggregated data for gender and other targeted groups, further enhanced the framework's ability to provide detailed insights into the project's impact on different population segments.

Assessment of the Monitoring System

This analysis is based on a range of project documents, including Quarterly Progress Reports, Annual Progress Reports, Project Steering Meeting Minutes, and the Project Risk & Issues Matrix developed during the project. The analysis suggests that the project tracked results and monitored and managed risks on a quarterly basis. According to the monitoring plan, the project also captured knowledge, good practices, and lessons regularly, actively sourcing from other projects and partners to integrate back into the project. These elements were documented in the Annual Progress Reports. These activities were crucial for maintaining the project's alignment with its goals and for making timely adjustments when necessary. The quarterly tracking of results progress, for instance, allowed for regular assessment of the project's achievements against the predefined indicators, ensuring that any deviations were promptly addressed by project management. This systematic approach to monitoring demonstrated a high level of M&E performance and competency, as it ensured that data was collected, analyzed, and utilized effectively for decision-making.

Based on primary data collection with relevant stakeholders at the national, state, and district levels, the implementation of the M&E plan underscores the project team's competencies in executing these activities. The plan's emphasis on learning and adaptation, through capturing good practices and lessons from other projects, indicates a proactive approach to continuous improvement. The involvement of key stakeholders, such as the Ministry of Health and Family Welfare (MoHFW) and GAVI, in both monitoring and evaluation activities, ensured that the M&E processes were collaborative and inclusive, enhancing the overall effectiveness of the plan.

The Project Steering Committee's oversight function played a critical role in the effectiveness of the M&E activities. The committee was responsible for reviewing progress reports, providing feedback, and making decisions based on M&E findings. However, it was observed that only five Project Steering Committee (PSC) meetings were conducted, despite the initial plan for these meetings to be held bi-annually throughout the course of the project. Similarly, only one Immunization Advisory Group (IAG) meeting minutes dated 12th November 2021 were available, highlighting the need for more regular monitoring. The evaluators noted that there was a need for

more frequent t PSC and IAG meetings, possibly at the Joint Secretary level, to closely assess the project's trajectory. Although there were informal mechanisms such as weekly debriefs to monitor and review the project, formal documentation and structured action points should recorded . This would have helped averted any unforeseen issue and supported in creating an institutional memory. This as per the evaluators is particularly important for a large project, as it allows for the proper recording of learnings, challenges, and mitigation strategies. Such documentation can play a supportive role in maintaining continuity and provides valuable insights for future initiatives.

Finances Budget vs Actual Expenditure

The comparison between the financial budgeted and actual expenditure rates reveals that the project maintained a commendable balance between planned and actual spending. The project was able to stay within its budgetary limits while achieving its objectives, indicating efficient use of financial resources. Variances between the budgeted and actual expenditures were minimal, reflecting careful planning and prudent financial management. Any deviations were promptly addressed through the reallocation of funds or adjustments in project activities, ensuring that financial constraints did not hinder the progress of the project.

"Every morning I review this eVIN dashboard. If I notice no changes, such as this data highlighted in red indicating a stock-out of vaccines at a particular Cold Chain Point (CCP), I investigate further. Often, it's not an actual stock-out but rather a delay in data entry, possibly because the Cold Chain Handler (CCH) is on leave or there is a system issue. Every Friday, the Vaccine Cold Chain Manager (VCCM) sends me a status report, and based on that, I take the necessary actions." – In-depth Interview with District Immunization Officer

For instance, the project had a total budget of $8,36,42,657, with funds allocated from various sources, including Health System Strengthening - II, COVAX Technical Assistance, and COVID-19 Vaccine Delivery Support. The actual expenditures closely matched the budgeted amounts, demonstrating effective financial management. The project also utilized additional resources efficiently, sanctioned from MoHFW ECRP funds for Co-WIN hosting, ensuring that all financial resources were optimally used.

As mentioned in section 3.3.1, the progress of various activities related to the establishment of the eVIN (Electronic Vaccine Intelligence Network) system infrastructure across different states and UTs (Union Territories) from 2018 to 2023. From 2018 to 2019, the initial targets were modest, focusing on foundational training and infrastructure setup, which saw significant achievements. From 2020 to 2021, there was a marked increase in targets, especially in training and infrastructure expansion, with achievements consistently meeting or exceeding these elevated goals. The period from 2022 to 2023 witnessed the highest targets, with accomplishments reflecting a mature and well-established system. This clearly is reflected and aligned with the project budget and its utilization (table below)

Project Milestones in Time vs Cost

The project implementation strategy also effectively met its milestones within the allocated time and cost. The timeline for the rollout of eVIN across various states and Union Territories was adhered to, with most milestones being achieved as planned. This timely execution was a result of meticulous planning, regular monitoring, and adaptive management practices. The project team employed a proactive approach to identify potential delays and implement corrective measures, ensuring the project stayed on track.

Similarly, as mentioned in section 3.3.1, the analysis of annual targets versus achievements reveals a pattern of reasonable coverage when compared to cost utilization. Despite the relative utilization being less during the initial years, the inference drawn shows that targets have been escalating over the past three years, consistently running at 100%.

Cost management was another area where the project excelled. By leveraging technology and optimizing logistics, the project was able to reduce operational costs significantly. The use of digital tools for real-time monitoring and management of vaccine stocks and cold chain conditions not only improved efficiency but also resulted in cost savings. These savings were reinvested into the project to enhance its scope and impact, further demonstrating the cost-effectiveness of the implementation strategy.

The project milestones were achieved within the planned budget and timeline, reflecting efficient project management. For example, the expansion of eVIN to cover all 36 states and Union Territories was completed as scheduled, with the project successfully deploying a strong network of human resources and digital infrastructure. The integration of Co-WIN for COVID-19 vaccination further exemplified the project's ability to meet critical milestones efficiently.

4.3.4 Efficiency of the vaccination system, contributing to improved accountability, transparency, and data-driven decision-making timely

e-VIN

The eVIN platform was designed to address the issues of manual supply chain management, stockouts and inefficient vaccine management. The application had real-time tracking features designed for stock management, digital indentation, stock allocation, stockout details, role-based access, event-based alerts, and MIS to improve transparency, accountability and support in data-driven decision making. The role-based access framework ensured that accountability was defined at every level, and this was communicated to the team through regular capacity-building and training activities.

During the field survey, 96.5% - of the cold chain handlers (n=139) agreed that eVIN system has supported their roles for efficient delivery of services with almost 60.1% of them highlighted that it has reduced the manual stock keeping and helped in managing the optimum stock at each facility. 100% of the interviewed SIOs (n=7) and DIOs (n=12) agreed that eVIN program has made their roles to monitor vaccine management easier. 91.7% of DIOs (n=12) and 100% of SIOs (n=7) agreed that regular human resource training and capacity-building initiatives have significantly improved the organization of RI and COVID-19 vaccination drives.

"Due to lack of digital literacy and awareness in the initial phase, there were challenges pertaining to using the application and mobile devices. But due to regular training and hand holding workshops, such challenges were overcome"- In-depth Interview with Cold chain handler

The transparency of the eVIN across the vaccine value chain has enabled the decision-makers to ensure transparency on vaccines, starting from the vaccine stores till the vaccine is administered to the beneficiary. The vaccinators have highlighted that the digital entry system has helped them digitalize the data at the point of vaccination.

With a comprehensive MIS and dashboards for administrators, and by leveraging the large data set, the eVIN system employed significant data architecture that generates actionable analytics and insights for decision-makers, enabling data-driven decisions and supports consumption-based planning to maintain optimum stocks of vaccines, leading to cost savings. Further the data from eVIN was corelated with geographic, demographic data sets for larger population-based analysis of vaccination in country.

100% cold chain handlers have agreed that MIS and real time data availability through eVIN system were helpful in making quick decisions on stock management in field especially during the COVID-19 pandemic, when it was crucial .

Co-WIN

Co-WIN application was designed to manage the vaccination of the COVID-19 vaccination drive. The Digital QR code-based vaccination certificate ensured that the beneficiary was traceable, and follow-ups could be conducted for the second dose. SMS services are utilized to ensure adherence to the national policy for precaution doses. During the field survey, 100% of the DIO (n=12) and SIOs (n=7) agreed that Co-WIN helped in increasing access to vaccination and simplified the distribution of digital certificates. 63.2% of ANMs (n=49) highlighted that regular human resource and capacity-building trainings helped in organizing the vaccination drives more effectively.

Further, stakeholders in States and Districts have agreed that Co-WIN created a system of unbiased distribution of vaccines through a single source of data, and remove information asymmetry, multiple registers and data sources and helped align stakeholders to ensure transparency at every level.

The Co-WIN application created an accountable system wherein role-based access ensured that the responsibilities were defined and rendered per the timeline. State and District Immunization Officers along with vaccinators stated that MIS and reporting has helped them to manage the program.

60.1% of the vaccinators (n=143) have highlighted that the digital data entry system helped to capture data at the point of vaccination and reduced the documentation burden. 97.2% of cold chain handlers (n=143) supported the fact that digital demand generation reduced vaccine wastage and has led to an increase in more successful vaccination sessions.

4.3.5 Efficiency of data security measures

The Co-WIN application has enabled more than 1 billion beneficiaries to access the COVID-19 vaccination from their chosen vaccination center in the country.

it was assessed that the Co-WIN application has been built on the Open-Source Platform complying with the Open-source policy by MeitY (Ministry of Electronics and Information Technology); it implemented the system-level controls in compliance with the Cyber Security guidelines by government of India . Furthermore, the application complies to the Standard Operating Procedure (SOPs) defined in the data backup policy. Co-WIN is M1 and M2 compliant with the Ayushman Bharat Digital Mission (ABDM) sandbox environment and capable of generating ABHA Numbers for beneficiaries. As assessed from the Co-WIN dashboard, Co-WIN has been instrumental in generating ABHA IDs, with nearly 71% of ABHA IDs generated through Co-WIN application alone, by December 2021.

Co-WIN is in compliance with all ABDM measures and policies securing data during generation, storage, transfer, and retrieval.

At application level, for generating the UID (Unique Identification), the beneficiary requires a government ID for Identity management, a mobile number for OTP verification, etc. Co-WIN design ensured that the minimum sensitive and only necessary data was collected and stored.

At the server level, the Co-WIN operates with Web Application Firewall, Anti-DDoS, SSL/TLS, with periodic vulnerability assessments . In order to ensure access control, Co-WIN application has implemented Identity & Access Management protocols . Beneficiaries can only access the Co-WIN portal through an OTP based process based on reference information shared at the time of registration .

For purpose of integrations with other applications like Arogya Setu, Digilocker, and third-party apps, a white-listing methodology is followed through API integration, and only the minimum and necessary approved dataset is shared. For accessing the personal data of beneficiary, external applications require OTP authentication. As an additional level of control, , a 4-digit security code process is integrated with Co-WIN, which requires the vaccinator, to enter the code, received on the beneficiary’s registered mobile number, before updating details or closing the vaccination process.

Further, it was clarified that the Co-WIN has also deployed the anonymization methodology to store the data in an encrypted format, thereby protecting beneficiary identify in case of data breach. . The QR code-based Digital Certificate further adds a layer of security to the data of the beneficiary.

While the current Co-WIN application is complaint to established standards, additional upgradations may be required in light of the upcoming Digital Data Protection Act (DPDP) Act.

4.3.6 Value for money and return on investment.

eVIN

The rollout of the Health System Strengthening (HSS) II project was intended to enhance the efficiency of the immunization supply chain in the country. The investments made throughout the lifecycle of the project were intended to improve economic efficiency at every level including reduction in wastage, improvement in utilization and optimization of indirect cost resulting from efficient planning.

A Techno-Economic Assessment of the Electronic Vaccine Intelligence Network conducted in December 2018, by MoHFW, commended the efforts of eVIN in cost savings arising from vaccine utilization, prevention of vaccine wastage, saving from missed opportunity. This report estimated a return of investment of INR 2.9 for every spent INR 1.

The data for value for money and return on investment was provided by UNDP country office and triangulated by evaluators. Based on UNDP data and triangulated information, the implementation of eVIN has led to significant cost savings in vaccine logistics management across the country. The UNDP internal analysis conducted for the fiscal year 2022-23 assessed these cost savings at three levels: Strategic, Planning, and Service Delivery.

a) Strategic Level:

eVIN provided the Ministry of Health and Family Welfare (MoHFW) with valuable strategic data, not limited to stock visibility and adequacy but also supported in generating consumption-based reports. Prior to eVIN rollout, vaccine supply and logistics were based on targets received from the statistics division. However, with the nationwide implementation of eVIN, MoHFW uses actual consumption data to determine the appropriate requirements of states and UTs, taking into account factors such as capacity to administer doses, cold chain space availability, and transit time. This shift to consumption-based planning has contributed to improved efficiency.

Key modalities contributing to for consumption-based planning include:

A. Variation in Estimated Targets: The difference between estimated targets and actual doses consumed in a financial year, improving planning. .
B. Distribution Planning Linked to Cold Chain Space: eVIN facilitates linking distribution plans to available cold chain space at Primary Vaccine Stores (PVS), Secondary Vaccine Stores (SVS), and cold chain points, ensuring optimal utilization.
C. Flexibility in Supply Schedules: Alignment to manufacturer supply schedules and unforeseen batch failures, to manage fluctuations and variations in monthly and quarterly targets.

Cost Savings:

The evaluation team assessed the data received from the Immunization Division, MoHFW, the analysis revealed an estimated cost savings of approximately INR 1,489 Crores, with maximum potential for savings for PCV vaccine, (approx. INR 1060 crores) and least savings for BCG vaccines(approx. INR 3.29 crores) (summary table 9; for detailed table refer to Annexure 11.1).

The strategic and planning level benefits of eVIN have demonstrably led to significant cost savings. The data-driven approach facilitated by eVIN has empowered MoHFW to make informed decisions regarding vaccine logistics, leading to optimized resource allocation and reduced waste.

Table 10: Estimated Cost Saved FY 2022-23 - India.

Vaccines	Target (Doses)	Supply (Doses)	Difference (Doses)	Cost per dose (INR)	Total Cost (INR)
BCG	54,172,040	45,229,500	8,942,540	3.68	32,908,547
bOPV	150,327,411	155,618,620	(5,291,209)	5.64	(29,842,419)
DPT	60,130,964	39,026,410	21,104,554	5.01	105,733,818
fIPV	67,647,335	73,390,800	(5,743,465)	91.35	(524,665,532)
Hepatitis B	30,065,482	7,876,850	22,188,632	5.30	117,599,751
MR 5	72,048,813	66,739,885	5,308,928	45.00	238,901,769
PCV	90,196,447	36,651,090	53,545,357	198.00	10,601,980,607
Pentavalent	90,196,447	60,431,990	29,764,457	51.98	1,547,156,454
Rotavac dose	108,073,220	73,812,985	34,260,235	67.46	2,311,195,440
Td	105,229,188	54,222,980	51,006,208	9.72	495,780,339
				Total Estimated Savings (INR)	**14,896,748,773**
Source: Immunization Division, MoHFW					

b) Planning level:

At the planning level, program managers have effectively leveraged eVIN data to meticulously plan the distribution of vaccines from the State to the District level, and further from the District to Cold Chain Points. The introduction of the new indent module within eVIN has empowered vaccine stock managers at all levels to streamline distribution based on calculated maximum and minimum stock levels, considering consumption and expiry alerts.

This planned approach, coupled with the expiry and wastage alerts generated by eVIN, has facilitated inter-district and intra-district transfers of vaccines. This proactive measure effectively prevents vaccine wastage by ensuring the timely movement of vaccines to areas where consumption is expected to be higher than current stock levels.

During the UNDP internal analysis period of 2022-23, the timely transfer of vaccines to relevant cold chain points and districts has resulted in a remarkable cost saving of approximately INR 132 crores. This achievement is particularly noteworthy, with PCV Vaccine achieving the highest estimated cost savings of INR 43 crores, while DPT vaccines saw a minimum cost saving of INR 1 crore (summary table 10; for detailed table refer to Annexure 10.2a).

Evaluation team also considered lateral movement of COVID-19 vaccines conducted to optimize vaccine allocation based on the requirements of different states and the priorities outlined in the COVID-19 Vaccination program.

These positive outcomes highlight the significant role eVIN plays in optimizing vaccine distribution and minimizing wastage, ultimately contributing to substantial cost savings.

Table 11:Cost Saving due to Timely Transfer of Vaccines - India FY 2022-23

Vaccines	Doses	Total Cost (INR)
BCG	3,075,302	11,317,111
bOPV	4,348,980	24,528,247
DPT	2,176,680	10,905,167
fIPV	4,757,185	434,568,850
Hepatitis B	616,858	3,269,347
JEEV	173,310	16,778,141
JENVAC	378,780	36,669,692
MR	44,190	1,610,726
MR 5	2,595,620	116,802,900
PCV	6,424	1,271,952
PCV 5	1,916,690	432,807,769
Pentavalent	2,693,990	140,033,600
RotaSil	22,054	1,487,763
Rotavac Cap-VVM	959,750	2,429
Rotavac Label-VVM	14,445	974,460
Rotavirus 1	865,495	58,386,293
RVV	890	60,039
Td	3,939,655	38,293,447
Total Estimated Cost Savings (INR)		**1,329,767,932**
Source: Immunization Division, MoHFW		

c) Service Delivery level:

At all cold chain points and vaccine stores, analysis of eVIN data was undertaken to understand:

- Vaccine stock transfers prompted by alerts from temperature loggers.
- Early utilization of vaccines following "Early Expiry First Out" (EEFO) alerts.
- Replacement of cold chain equipment due to alerts from temperature loggers indicating power failure or equipment malfunction.

Cost Savings:

The evaluation team reviewed action taken data for the financial year 2022-23 in Chhattisgarh and Himachal Pradesh. These two states collectively achieved cost savings of INR 3.9 crores. Extrapolating these savings to the country's total of 29000, cold chain points, we project total cost savings of INR 309 crores during the evaluation period (Table 10). These findings demonstrate the effectiveness of the eVIN system in facilitating optimal cold chain management and optimizing vaccine utilization.

Table 12: Cost saved FY 2022-23 (INR)

Months	Reason for vaccine shifting				Total Cost saved
	Expiry Alert	Equipment Breakdown	Power Failure	Excess Stock	
Apr-22	9,312,975	58,557	-	1,339,275	10,710,807
May-22	4,381,838	75,185	80,149	404,015	4,941,186
Jun-22	1,662,639	170,425	-	106,313	1,939,376
1st Quarter	15,357,451	304,167	80,149	1,849,602	17,591,369
Jul-22	1,729,399	360,233	134,239	2,884,613	5,108,484
Aug-22	1,865,366	-	-	2,957,529	4,822,895
Sep-22	1,522,616	-	-	4,216,235	5,738,851
2nd Quarter	5,117,381	360,233	134,239	10,058,377	15,670,230
Oct-22	1,106,213	23,510	-	339,806	1,469,528
Nov-22	2,507,090	114,307	-	94,373	2,715,769
Dec-22	1,216,688	95,392	-	245,150	1,557,230
3rd Quarter	4,829,990	233,209	-	679,329	5,742,527
Jan-23	250,100	42,234	-	76,293	368,628
Feb-23	378,988	74,231	-	83,560	536,779
Mar-23	21,005	13,785	-	3,851	38,641
4th Quarter	650,093	130,251	-	163,704	944,047
Annual Saving	**25,954,914**	**1,027,860**	**214,388**	**12,751,011**	**39,948,173**

Source: Immunization Division, MoHFW & UNDP Cost Saving tool

Co-WIN:

The HSS-II has infused the digital platform of Co-WIN for COVID-19 vaccination, which has supported the country with efficient, timely and demand-based allocation of life-saving vaccines. Co-WIN helped decision makers understand the geographic profile of beneficiaries, requirement of session site, type of beneficiaries, vaccine requirement in advance, availability of vaccinators, AEFIs (Adverse Events Following Immunization), etc. This, combined with the eVIN supply chain, has led to the equitable distribution of vaccines in the country and achieving the target of 100

crores vaccinations within a short span of 9 months and 200 crores in 18 months at a rapid phase than other comparable countries.

To support the role played by Co-WIN in saving lives, the Economic Survey 2022 highlighted that the administration of more than 220 crore COVID-19 vaccine doses was made possible because of the robust digital infrastructure of Co-WIN. It was this broad interlock of digital framework and the Government’s vigor of continuously improving its outreach for better inclusion that India could register a quick and durable economic recovery while continuing to secure both lives and livelihoods. The indirect cost saving due to Co-WIN and immunization van be attributed to fact that digital tracking and transparency of vaccination drive have plugged the wastage of COVID-19 vaccines, which otherwise occurred pre-Co-WIN.

Further a working paper titled ‘Healing the Economy: Estimating the Economic Impact of India’s Vaccination and Related Measures’ prepared by Institute of Competitiveness and Stanford US-Asia technology management center, highlighted that the potential income generated by lives saved through COVID-19 vaccination on the parameter of GDP per person was significant at approx. $15.28 billion. The direct and total impact of vaccination varied from about $ 1.03 billion to $ 2.58 billion if minimum wages are considered with the age distribution category. The same, however, varied from about $ 3.49 billion to $ 8.7 billion if GDP per person employed (constant) was considered. The net benefit/loss varied from (-) $1.74 to (-) $0.2 billion for minimum wages, whereas it varied from $0.71 to $5.95 billion, for GDP per person employed (constant).

Evaluation team also analyzed significant cost savings achieved through the efficient vaccine distribution facilitated by the CoWIN and eVIN platforms. The timely transfer of vaccines, guided by data from these systems, played a crucial role in optimizing our COVID vaccination planning. Preliminary estimates suggest a total projected economic value of life saved was approx. INR 1,97,000 crores, with the highest savings attributed to COVISHIELD, at INR 1,22,000 crores (summary table 12; for detailed table refer to Annexure 10.2b).

The data provided by CoWIN and eVIN enabled health workers and program managers to:

a) Track vaccine stock availability in real-time: This allowed for efficient allocation and timely replenishment, minimizing wastage and ensuring consistent vaccine supply.
b) Optimize vaccine distribution logistics: Data insights helped streamline transportation and delivery routes, reducing logistical costs and ensuring timely vaccine access to recipients.
c) Monitor vaccine utilization and identify potential bottlenecks: Enabled us to proactively address any challenges and ensure smooth vaccine administration.

These achievements demonstrate the transformative impact of data-driven decision making in public health initiatives.

Table 13:Estimated Cost Saving due to Timely Distribution of Vaccines - India FY 2022-23

COVID Vaccines	Doses	Total Cost (INR)
CorBEvax	9,273,680	2,929,599,360
COVAXIN	9,017,340	2,035,664,505
COVAXIN 10	11,410,320	2,575,879,740
Covaxin 5	1,225	276,544
COVISHIELD	56,815,810	12,229,603,103
Total Estimated Cost savings		19,771,023,251
Source: MoHFW		

Return on Investment (ROI):

The National Health Policy (NHP) 2017 prioritize the further improvement of immunization coverage with quality and safety, improve vaccine security as per National Vaccine Policy 2011 and the introduction of newer vaccines based on epidemiological considerations. Further, interventions like the successful implementation of Mission Indradhanush and digitalization of the supply chain corroborated the implementation framework, in turn leading to efficiency at multiple levels; with these overarching policy drivers and implementation support provided by UNDP on skill building, capacity enhancement and technological advancements, overall India’s immunization system has been able to work on multiple drivers like vaccine wastage reduction, efficient material utilization, event-based alarm system with the expansion of eVIN in all States.

Estimated Cost savings achieved through the eVIN initiative, based on evaluations conducted at the strategic, planning, and service delivery levels. The table below presents the total estimated cost savings at strategic and planning levels of program planning and implementation, along with the return on investment (ROI) for both the digital initiatives eVIN and CoWIN.

At the strategic level, the eVIN initiative achieved direct cost savings of INR 1489 crores for FY 2022-23. In the planning level, total cost savings amounted to INR 132 crores, while at the service delivery level, the savings were INR 309 crores. Additionally, the estimated total savings for COVID-19 vaccination reached an impressive INR 197 thousand crores.

For the project duration savings, the strategic level projected savings of INR 4467 crores over three years post nationwide eVIN scale-up. The planning level projected savings of INR 660 crores over five years, and the service delivery level projected savings of INR 1545 crores over the same period. Overall, the total projected cost savings for the project amounted to INR 6869 crores.

Return on Investment - eVIN.

With total project expenditures of USD 83.6 million (equivalent to INR 715 crores at an exchange rate of 85.5), the return-on-investment ratio was 1:9.6, indicating that every INR invested in eVIN yielded a return of INR 9.6.

This analysis highlights a significant and positive return on investment for the eVIN initiative, which is largely attributed to the concerted efforts of both National and State Governments. These

governments have played a crucial role in the successful implementation and scaling of the eVIN program, ensuring that the necessary resources and support were available at every stage.

The dedication and hard work of government functionaries within the health system have been instrumental in achieving these impressive results. Their commitment to improving vaccine management and distribution has led to substantial cost savings and enhanced efficiency across various levels of the health infrastructure. By leveraging technology and data-driven approaches, the eVIN initiative has not only optimized vaccine logistics but also ensured better health outcomes for the population.

Overall, the strong collaboration between different levels of government and health system functionaries has been a key factor in the success of the eVIN initiative, demonstrating the power of coordinated efforts in driving positive change and achieving significant financial returns.

The significant cost savings achieved across multiple levels, particularly in relation to the project expenditures, highlight the initiative's financial viability and its positive impact on public health.

Table 14: Cost Saving and Return on Investment FY 2022-23 (India)

	Cost savings FY22-23 (INR)	**Projected cost savings for 3 years post nationwide scale up of eVIN (INR)**
Strategic Level	14,890,000,000	44,670,000,000
	Cost savings FY22-23 (INR)	**Projected cost savings for 5 years (INR)**
Planning level	1,320,000,000	6,600,000,000
	Cost savings FY22-23 (INR)	**Projected cost savings for 5 years (INR)**
Service Delivery	3,090,000,000	15,450,000,000
	Cost Savings during COVID Vaccination (INR)	
Planning level	1,970,000,000	
Total Savings (INR)	68,690,000,000	
	USD	**INR (Exchange Rate 85.54)**
Total Expenditures	83,640,000	7,154,565,600
ROI	9.60086242	

4.3.7 Planning the Supply of Vaccines and Cost Savings

Co-WIN ensured that a unique ID were issued to every beneficiary during registration, and the same was linked to his/her digital certificate. Registration was mandatory through the mobile phone and OTP, thus ensuring there is no duplicity in registration. The unique ID was coupled with a government ID (AADHAAR Card, Driving License, PAN Card, Passport, Pension Passbook, NPR Smart Card, Voter ID (EPIC), Unique Disability Identification Card (UDID), Ration Card with Photo). Further the same mobile number was utilized for sending reminder SMS, so

that beneficiary were identified in the system rightly. To minimize the issue of wrong entry by the vaccinator, a 4-digit code-based validation was mandated at session sites. . Due to these stringent application-level validations, the duplicity was avoided, the wastage at the session was minimal, the stock management and session planning was data-driven, and vaccinators had clear visibility of the demand at the location. Further, these stringent processes ensured that the vaccines are traced and tracked throughout the system ensuring reduction in wastage of vaccines both at the session site and during the storage.

The Co-WIN module ensured that every vaccination is tracked and traced to the beneficiary through the issuance of QR code-based digital certificates reflecting the technological prowess of the Co-WIN system. The QR code-based certificate was integrated with 3rd party applications like Arogya Setu, Digi locker, etc., providing ease of access to beneficiaries. The QR Code based certificate acted as the COVID-19 passport for the beneficiaries to avail public services and uniqueness of certificate led to identification of the beneficiary in the system, which helped administrators in efficient planning of the vaccines for follow up doses.

Co-WIN vaccinator module, beneficiary module and session planning has ensured that the vaccine, beneficiary, vaccinator, session, and stock is tracked and traced across the system. This real-time data of multiple KPIs at the level of MoHFW, States and Districts enhanced the monitoring of the vaccine management system, in turn helping in timely policy decisions.

Primary discussions with SIOs (n=7) on Co-WIN platform, demonstrated exceptional cost saving through a data driven pre planned supply chain management. Unique identification and OTP verification reduced duplicate registrations, ensuring efficient use of resources. Efficient appointment scheduling and real-time inventory management minimized vaccine wastage, optimizing vaccine utilization. Automated reminders and digital records ensured timely vaccinations, reducing the need for manual follow-ups. Instant generation of digital certificates streamlined the process, while real-time data facilitated effective resource allocation and policy formulation. Awareness campaigns and pooling beneficiaries for vaccination sessions further reduced wastage. By adjusting vaccine distribution based on shortages and using near-expiry vaccines, Co-WIN maximized resource use, leading to significant cost savings and more efficient vaccination processes. Over 90% of stakeholders at the State and District levels (n=20) agree that data-driven decisions have significantly improved session planning, reduced waste, and optimized vaccine supply.

Rating on Efficiency

Efficiency	Overall Rating	Satisfactory

The project was efficient in terms of achieving the stated goals of the program. The key performance indicators of roll out and digitalization and training of the cold chain handlers were achieved within the first 4 years of the program. However, the targets with regards to deployment of temperature loggers remained underachieved throughout the period. The funds assigned to the project ($ 8,36,42,657), were used in a staggered and efficient manner. The funds were utilized in line with the implementation plan and no additional funding demands were made. For

the project duration, the strategic level projected savings of INR 4,467 crores over three years post nationwide eVIN scale-up. The planning level projected savings of INR 660 crores over five years, and the service delivery level projected savings of INR 1,545 crores over the same period. Overall, the total projected cost savings for the project amounted to INR 6,869 crores. Efficient data security measures were used to prevent any form of data breach and maintain compliance with confidentiality protocols. The application complies with the Standard Operating Procedures (SOPs) defined in the data backup policy. Co-WIN is M1 and M2 compliant with the Ayushman Bharat Digital Mission (ABDM) sandbox environment and is capable of generating ABHA Numbers for beneficiaries. Additionally, Co-WIN is compliant with all ABDM measures and policies, ensuring data security during generation, storage, transfer, and retrieval.

4.4 Sustainability

The sustainability of the project was evaluated to understand the extent to which project interventions were designed to ensure that they continue to achieve the outcomes into the future. The study assessed sustainability by reviewing the project progress reports, MoA with the Centre/ States, desk review of UNDP communication network and triangulated with the information received by discussion with various stakeholders.

The governance structure, processes and the innovative technology solution, were conceptualized with due consideration to ensure the projects long-term sustainability, and in turn strengthen the Universal Immunization Programme (UIP). Integrating robust automation tools, fostering institutional capacity building, and establishing collaborative frameworks and partnerships, were some of the components that were evaluated to assess the projects overall sustainability.

4.4.1 Contribution of project interventions towards sustaining the results achieved by the project.

The analysis of the project progress reports and evaluation reports, various independent research papers, and primary discussion with key stakeholders during the evaluation study indicate that interventions identified at the project design stage were appropriate, mutually complementing, and holistic in addressing not only existing gaps in the immunization service delivery in India, but also critical for sustaining the results in the future. The key drivers for the project’s sustainability were its innovative and strategic interventions like embedding robust technology solution, institutional capacity building and training of healthcare workers, and successful participation of the local government.

The project focused on empowerment of frontline workers in vaccine logistics and trained around 56,326 cold chain handlers to manage vaccine stocks using digital technology. Mobile apps like MYeVIN have promoted proactive monitoring among district immunization officers. This low-cost digital solution, coupled with regular trainings, have embedded eVIN into the core of the routine immunization program. The capacity building and training of healthcare workforce under this project have institutionalized vaccine logistic and supply chain management. During primary discussions with the State (SIOs) and District (DIOs) level officials (n= 20), they reiterated that regular trainings and supportive supervision, led to embedding of the eVIN application, into the supply chain management functions of routine immunization programs, and thereby contributed to sustainability. Additionally, state Immunization officer (n=5) rated institutionalizing technical and HR support as very vital, to ensure future continuity and sustainability, post the HSS II initiative.

The Co-WIN developed under this project allowed individualized tracking of beneficiaries, planning immunization sessions, appointment bookings, facilitating registrations for vaccination, providing immunization certificates and communication with beneficiaries. Over 235,000 vaccination centers carried out transactions on Co-WIN across India. The robust and user friendly Co-WIN application facilitated better planning and resource allocation, ultimately contributing to the success of India's COVID-19 vaccination campaign. The advantages demonstrated by Co-

WIN presented a strong use case for further integration with eVIN to develop comprehensive vaccination management platform i.e., U-WIN, that was launched by the Government of India as a pilot in January 2024 and finally launched for nationwide adoption in December 2024. The adoption of Co-WIN in the U-WIN will continue to deliver value and results in the UIP and overall public health outcomes.

The project has significantly augmented transparency and data driven decision making empowering key stakeholders and beneficiaries by embedding these interventions into routine workflows. 88%(n=18), strongly agree that the eVIN applications made processes easier and assisted in streamlining operations. These project interventions have contributed towards ensuring sustainability of its results and paving the way for a successful Universal Immunization Programme (UIP) through its holistic interventions rightly addressing the systemic gaps of the public health system and needs of the beneficiaries.

“For eVIN, wastage of vaccine has been reduced. Huge cost savings through this. Economic Survey 2018-19 mentioned that Govt of Assam saved crores due to reduced vaccine wastage. Once it is digitalized, it can be better monitored.”- IDI with SPO

4.4.2 Approaches by local authorities to ensure continuity of initiatives after the project end.

Health is a state subject, and it was mandatory for the project implementing partners to engage, consult, and collaborate with the local authorities in each State/UT. The local authorities had an extensive role in planning, monitoring, and transition plans of this project in the respective state/ UT.

As a first step, the local authorities have transitioned UNDP project staff at the district level to the state/UT health department cadre to ensure continuity of trained and skilled vaccine service delivery workforce. The financial allocation for eVIN was made by all 28 states and 8 union territories under the National Health Mission funds ensuring easy and effective healthcare service delivery in India. The state/ UTs have proposed eVIN budget in PIP 2022-24, to transition eVIN expenses to PIP funding. By the end of 2024, 36 States/ UTs have signed MOA/LOE with UNDP for technical support for continuity of the project intervention and results.

The local authorities interviewed during the primary discussion indicated complete alignment to institutionalize technical and operational guidelines of the MOHFW UIP program and eVIN, sustain training and capacity building efforts, and continue to operate as per the existing project governance structure to ensure continuity of the project results. One of the pivotal strategies has been the Secretarial Support provided to MoHFW, which helped streamline efforts for the immunization programme. The two-member HSS Grant Secretariat, operational since 2014, ensured the institutionalization of project interventions, paving the way for their seamless transfer to government structures.

MoHFW established a Vaccines & Immunization Research Network, including a Scientific Advisory Group, to support evidence generation and actionable data. An iterative and strong

evidence generation system helped in better program designing. By integrating these systems into routine processes, state and district authorities have institutionalized evidence-based decision-making, ensuring long-term sustainability.

> *"The costing of HR, sim costing, ILR temperature logger costing is from NHM only from last 4 years. UNDP helped NHM in making the PIP for the eVIN program which involved the costings. 5 crore is the costing that is put in PIP." – IDI SPO*

4.4.3 Potential new areas of work and innovative measures for sustaining the results.

The project document analysis and primary discussion with key stakeholders indicates the following interventions could be explored to ensure sustainability of the project. Development of a robust and comprehensive Knowledge Management System (KMS) for transitioning of this project to MoHFW and state health departments with an extensive technical and functional capabilities to capture, store, and share knowledge in various formats with the government users and beneficiaries across geographies. Sustaining the quality of training and capacity building across the vaccine delivery cadre will be one of the most critical pillars of this project. Development of an e-Learning Management System (LMS) with multi-media and collaborative tools enabled with mobile and web-based compatibility.

State health departments could explore possibilities of recognizing vaccine service delivery staff as designated cadre to standardize skill sets and capabilities for enhancing the project sustainability. Develop an AI/ ML driven data analytics module to predict demand patterns, inventory levels, and lead times. Train models on historical data to forecast future trends, automated procurement, replenishment, and scheduling. Such module has potential to augment sustainability of the project results and minimize human dependency for key tasks and decision making.

Taking the learnings from implementation of eVIN and CO-WIN, UNDP has been actively working in various other areas, like One Health. UNDP, in collaboration with the National Centre for Disease Control (NCDC, MoHFW has launched a dedicated helpline (0120 6025400) to eliminate dog-mediated rabies. This helpline is operational in five states and aims to report dog bite incidents and guide victims to vaccination centres. Additionally, UNDP is working with the Ministry of Fisheries, Animal Husbandry & Dairying to implement comprehensive rabies vaccination campaigns for animals. UNDP has also been supporting Ministry of Agriculture and Labour in digitalization support. Expansion of the eVIN to other public health programs will aide in strengthening public health system and larger adoption by the users.

4.4.4 Documentation of lessons learned by the project.

The project document outlined broad knowledge management activities undertaken during the project implementation phase. The project documents, secondary sources, and primary discussion with key stakeholders during the evaluation study indicates that UNDP has been

periodically documenting the project activities, challenges encountered, and lessons learnt in their Annual Progress Reports, Quarterly Progress Reports, Results Oriented Analysis Report (ROAR), Project Steering Committee Meeting notes, Board of Audit report, monitoring and evaluation reports with MoHFW, GAVI and other key partners. Some of these challenges and lessons learnt were often discussed at the Project Steering Committees meetings to scale-up these practices and lessons learnt.

There is a mechanism established to document the lessons learnt in terms of challenges faced on the ground through a defined governance structure corroborating the feedback from stakeholders from districts and aggregating it at state level. There are reference instruction manuals, advocacy and instructional videos, brochures and posters prepared for the end users like government staff and public. There was an active media engagement garnering interest and increasing awareness about this large- scale project. Apart from this, best practices and case studies from both eVIN and Co-WIN have been captured and showcased at various forums like India’s Co-WIN Global Conclave (where the Hon’ble Prime Minister offered the Co-WIN platform as a digital public good), video on Women in Immunization (2018), article on empowering women health staff through eVIN published in the UNDP Asia Pacific Gender Equality Dispatch newsletter (2018), and others.

Based on these captured lessons learnt and best practices, eVIN and Co-WIN had received various accolades and prestigious mentions in media. GoI had also launched a video on CO-WIN and published a series of COVID-19 stories capturing the success stories of COVID-19 vaccination through Co-WIN. Learnings were also shared through UNDP, MOHFW and other UN social media handles. Delegates from Malawi's Ministry of Health visited India to learn about the eVIN system, observing its implementation in Agra and Madhya Pradesh for its cost-saving and efficient vaccine management. In 2020, eVIN was rolled out in Malawi, Sudan and Afghanistan, with baseline assessments completed and training initiated, although they were stalled due to change in local administration. UNDP India has been supporting eVIN’ s expansion in Indonesia (SMILE project) since 2018 and is providing comprehensive technical support to other countries for implementing eVIN.

The project analysis indicates although there were constant and significant efforts to capture lessons learned, knowledge sharing, outreach, and other such activities. However, a single well-organized source preferably a technology-based knowledge management system capturing all the project learnings, best practices, case studies, media outreach, project records, and other such relevant project information throughout the project lifecycle could have added significant value to this project.

4.4.5 Strengthening exit strategies and sustainability of the project.

The project document and MOA/ LOE with MoHFW and various states health department outlines the exit strategies and sustainability of the project with respect to funding, HR, hosting, development of new module, technical expertise, and other aspects. UNDP continues to offer high quality technical assistance and implementation support to the MoHFW along with other partner ministries on systems strengthening for better service delivery through eVIN.

Setting up a permanent or long-term Technical Support Unit (TSU) at the MoHFW and State Health Departments to work with the UNDP team to work with various partners and focus on single agenda of institutionalizing and future sustainability of the project interventions. Similar central and state level TSUs were witnessed under the TB program and other public health programs. A project of such critical nature and expansive scope shall benefit by addition of a Knowledge Management System (KMS) as part of the exit strategy to ensure continuity and institutional memory. Sustaining the quality and effectiveness of training and capacity building across the vaccine delivery cadre will be one of the most critical pillars of this project and addition of an e-Learning Management System (LMS) as a part of the exit strategy will benefit the project.

4.4.6 Sustainability of eVIN and Co-WIN solutions in terms of funds commitment, technical knowledge transfer, open source, and overall approach of GOI

a) Fund Commitment: From 2018, UNDP had started engaging with the states for incorporation and maintenance of eVIN in the state Program Implementation Plans (PIP), and by 2024, all 36 States and UTs had budgeted eVIN cost in their domestic funds. Through memorandum of agreements/ Letter of engagements state disburse/ intend to disburse funds to UNDP for eVIN maintenance which includes human resource, capacity building, procurement of Temperature Logger, sim cards and other contingencies. The development, maintenance and hosting of eVIN application remains with GAVI. Additionally, UNDP’s partnership with GAVI, Government of Japan and various other donors has helped UNDP to realize successful country wide system strengthening efforts. UNDP has continued to strengthen existing partnerships with the private sector, civil society, UN agencies and IFIs, as well as forge new partnerships in key areas. To support the COVID-19 response, UNDP reached out to 87 private sector entities, signing a new partnership with American Express. Partnerships were expanded with Hindustan Coco Cola Beverages, HDFC Bank, Nayara & Hindustan Unilever in plastic waste management, and with Marico, Nayara, SAP, LTPCT in the Inclusive Growth portfolio, in addition to a Women Accelerator Program with Renew Power. Signed private sector partnerships totalling to $4.7 million.
b) Open Source: The Government of India’s “Policy on Adoption of Open-Source Software” by the Ministry of Electronics and Information Technology (MeitY) promotes the use of open-source solutions to reduce dependence on proprietary systems. e-VIN and Co-WIN applications aligns with the Government of India’s commitment to transparency, cost-efficiency, and collaboration in digital governance. By adopting open-source principles, these platforms allow developers, stakeholders, and organizations to access, modify, and improve their source code. This move enhances the flexibility and adaptability of these systems, ensuring they can meet the dynamic needs of vaccine logistics and immunization management.
c) Technology Transfer: The eVIN system has been designed in a way that lends to a smooth transition to the state health department right from its inception. The eVIN hardware – smart phones and temperature loggers get handed to the state governments at the beginning of the program, the entire basic data for eVIN is entered into the software by cold chain handlers who are existing government employees, with UNDP providing

technical support, the vaccine cold chain manager who works at the district level is costed at NHM salary rates to ensure a smooth takeover by the state government at the time of eVIN handover.

“UNDP is supporting programme for TN. For operational purposes, we are taking UNDP’s support. for the state, they have a separate mechanism for monitoring. we share data with them from weekly reviews and state reviews it once monthly. As such so transition here. HR managed by state and operations managed by UNDP.”- IDI with SPO

4.4.7 Broadening the project’s contribution to enhancing diversity and inclusion.

eVIN

The development of a pan-India network like eVIN resulted in the upskilling of millions of healthcare workers, majority of them women in the age group of 40-50 years as they were trained to operate smartphones, resulting in bridging the digital divide. Leaning on GOI’s key motto of an inclusive national COVID-19 vaccination drive, UNDP made unique provisions in the program design ensuring accessibility to COVID-19 vaccination for the LGBTQI+ community, women, citizens without an identity card, and other vulnerable and marginalized communities.

Supporting the national communication and outreach strategy: UNDP, along with UNICEF and WHO produced targeted IEC/ BCC and social media campaigns like live expert chats ‘Busting COVID-19 Vaccine Myths’, ‘Addressing Mental Health During COVID-19’, video series on the provisions and rights under the HIV and AIDS Act 2017, weekly online broadcasts in multiple languages reaching nearly 4 million impressions.

Working with transgenders and LGBTQIA+ communities: To address socio-economic disparities amongst transgenders and other LGBTQIA+ population, UNDP collaborated with State AIDS Prevention and Control Societies to facilitate COVID-19 vaccinations and raise awareness, reaching approximately 7,000 individuals. They also developed training modules for holistic psychosocial support to LGBTQIA+ communities during the pandemic.

Working with marginalized communities: UNDP's first crowdfunding campaign, ‘Open Up India’, highlighted the impact of COVID-19 on informal workers, garnering 4.5 million social media impressions and 64 million through 19 media stories. The ‘Unite for India’ campaign during the second COVID-19 wave received 6.72 million impressions. UNDP partnered with the Ministry of Health, UNICEF, and WHO to raise awareness about the COVID-19 vaccine drive, promote COVID-19-appropriate behavior, and address vaccine hesitancy, reaching 13.5 million people on UNDP platforms and achieving 46.9 million twitter impression.

"Establishing feedback mechanisms allowed teams to share insights on what was working and what needed adjustment. This iterative process not only improved project implementation but also reinforced learning, ensuring that everyone felt involved and valued. Furthermore, Cross-Program Learning: I organized joint meetings between different public health programs and development partners to share successes and challenges. This cross-pollination of ideas helped teams learn from each other, identify best practices, and adapt strategies to fit their unique contexts."- IDI with SPO

4.4.8 Project Sustainability and Risks

Based on the documents shared by the UNDP Country Office, the sustainability of the project was assessed across four key aspects:

1. **Institutional Framework and Governance Sustainability**
    - The project has been integrated into India's Comprehensive Multi-Year Plan (cMYP) 2018-22 under the Universal Immunization Program. The Government of India (GoI) has committed to funding the cost of eVIN in the implementing states post-Gavi transition.
    - All recurring costs for eVIN, including human resources, hardware, software, and infrastructure, are supported by the GoI and included in state Project Implementation Plans (PIPs).
    - Guidelines for states on incorporating eVIN into their respective PIPs have been developed and are used for all upcoming annual work plans.
    - Despite these measures, it is crucial to ensure that key stakeholders at both national and state levels recognize the value of continuing the project benefits.
2. **Financial Sustainability**
    - The financial risk is moderate as the GoI has committed to funding the eVIN costs post-Gavi transition. This includes support for all recurring costs such as HR, hardware, software, and infrastructure.
    - The inclusion of eVIN costs in state PIPs and the development of guidelines for states to incorporate eVIN into their annual work plans are positive steps towards financial sustainability.
    - Ensuring continued financial commitment from key stakeholders is essential for the long-term sustainability of the project.
3. **Socio-Political Sustainability**
    - There are political risks that could jeopardize the sustainability of project outcomes. These risks include changes in government policies, political instability, and a lack of political will to support the project.
    - It is important to engage with political stakeholders and build broad-based support to mitigate these risks.

4. **Environmental Sustainability**
    - It was observed that there are no environmental risks to the sustainability of the project.

In summary, while the project shows strong integration into institutional frameworks and financial planning, continued efforts are needed to ensure stakeholder commitment and mitigate socio-political risks. The absence of environmental risks is a positive aspect of the project's sustainability.

4.4.9 Rating on Sustainability

Sustainability	Overall Rating	Satisfactory

The project was found to have a reasonably well-defined sustainability plan. Sustainability of the project’s results in a large degree depends on ability to sustain and mobilize additional resources and skills needed for continuation of initiatives. Firstly, the program funding was gradually transferred to the NHM PIP programs, so that the funding for the project continues, post planned exit by UNDP. Secondly, collaboration with local authorities and regular supportive supervision framework, acted towards institutionalization of certain practices and behaviors. Furthermore, documentation and use of innovative measures like Knowledge Management System (KMS) for transmission of the project know how to the ministry, shows that the program was sustainable. An iterative and evidence-based decision system helped in better program implementation. By integrating these systems into routine processes, state and district authorities have institutionalized evidence-based decision-making, ensuring long-term sustainability. The fact that MOHFW has integrated eVIN and Co-WIN to develop U-WIN for a comprehensive vaccination management system highlights the success of the project interventions and sustainability assurance of this project interventions.

4.5 Impact

The Impact of the Project was evaluated based on the positive changes, including tangible and intangible benefits. Impact differs from Effectiveness, in reference to its specific focus on the unintended positive changes i.e., benefits that were not identified as targeted outcomes. Any positive change which was significant, worthwhile, and ensured that the benefits continue into the future were identified. The impact is expected to have benefited the beneficiaries (target groups) and the various stakeholders groups including the implementing agencies (local administration, health workers), knowledge partners (UNDP) or principal agency (Central and State government). This information was collated through primary and secondary sources. The critical questions under this section have been comprehensively addressed below.

4.5.1 To what extent the project initiatives indicate that intended impact will be achieved in the future.

Some of the key impact areas of the program, identified and worth mention were:

a) Improved program awareness and reduced instances of misinformation

The program was designed to focus on equity and scalability by ensuring that the immunization program reached even marginalized communities, through mass media and localized community outreach. This focused approach help increase awareness about immunization schedules, their benefits, and availability has increased substantially. The interviews with state immunization officers, district immunization officers, and grassroots level vaccinators (ANMs) reported that the use of local and culturally contextualized messages was very impactful. For instance, vaccinators said that the challenges they faced in reaching women, children, and vulnerable populations (e.g., tribal communities, the elderly, people with disabilities) are significantly reduced due to the real-time data and efficient route planning provided by eVIN and Co-WIN, which ensured timely and accurate delivery of vaccines. Furthermore, ANMs stated that there were mechanisms in place (VHND and UHNDs) to gather feedback from beneficiaries about their vaccination experience. Their problems were heard and solved in such forums.

"A certain community was not taking vaccination in my area, so we started motivating the elder members of that particular community and giving examples of other families of the same community about the benefits of the vaccination for their children " – IDI with ANM

The interviews conducted with the state, district and UNDP officials also provided valuable insights into the current state of public perception regarding immunizations and the strategies implemented to combat misinformation at grass route level. The vaccinators accompanied by the ASHA worker and MOIC visits areas where the misinformation has been identified. Together they engage with community, providing clear and accurate information about the benefits of vaccination during pregnancy and the importance of ensuring timely vaccination for children.

"Once a misinformation started spreading among the pregnant beneficiaries that if you get a tetanus injection you will give birth to a girl child so the pregnant beneficiaries stopped telling the ASHA's that they are pregnant but we overcame this situation when MOIC accompanied by other staff visited the area and explained all the benefits and also vaccinated few pregnant beneficiaries from other areas." - IDI with ANM

b) Enhanced digital literacy.

The implementation of eVIN has significantly enhanced the digital literacy among cold chain handlers and also supported improved understanding for ANMs. A notable percentage of **90.9%** (n= 636 stakeholders like VCCMs, CCH and ANMs agreed that the eVIN has been instrumental in improving their digital awareness and capabilities. Furthermore, **79.7% (n= 143)** of stakeholders agreed that the eVIN application is user friendly. By introducing a platform for tracking vaccine stocks, monitoring cold chain equipment, and generating real time reports, eVIN has not only streamlined operations but also familiarized stakeholders with essential digital tools**. 97.2% (n= 143)** respondents highlighted that their increased comfort with eVIN' s functionalities has bolstered their confidence in using technology.

c) Recognition and appreciation by community/beneficiaries.

The eVIN application has enabled the healthcare workers, including the vaccinators and CCH to gain greater recognition, trust and respect from the communities. With greater visibility of vaccine availability, ability to raise indents and requisition, HCWs were able to better manage availability of vaccines, as per immunization schedule. This in turn reduced instances of delayed or "unvaccinated visits" to Vaccine sites, which in turn lead to greater reliance and appreciation by the community members. A significant percentage of **93% n= 143)** stated that they feel more seen and valued by the community/beneficiaries, as well as their organization. The CCH as well as vaccinators noted that community now views them as more reliable and better equipped. **84%** (n= 614)of the respondents stated that trust between HCWs and beneficiaries has increased post the introduction of eVIN.

"As vaccinators, we've noticed a significant increase in trust from the beneficiaries since the eVIN portal was introduced. The digitization has brought more transparency and accountability, which has made them trust us more. They now hold us in high regard. Our follow-ups have also played a crucial role in this, as beneficiaries see that we genuinely care about their well-being and view us as their well-wishers." - IDI with ANM

d) Assisted supervision and support on various issues.

The implementation of project has fostered a supportive environment through assisted supervision, enabling healthcare workers to seek guidance on complex issues with confidence. Approx **97% (n= 143)**of respondents reported reaching out to UNDP officials like VCCM and SPO for work related support, citing their responsiveness and expertise as key factors. This further helped in reducing stress levels and minimize errors and bolster confidence among the field staff.

Enhanced Campaign Planning and Organization Skills (Co-WIN)

The feedback from vaccinators highlighted critical challenges such as limited access to vaccination sites, lack of awareness and vaccine resistance among certain groups of society. Respondents emphasized the importance of tailoring strategies and communication skills to meet the specific needs of women as such scheduling special sessions near their work areas, building IEC materials for their awareness.

e) Streamlining Documentation Processes for Healthcare Workers

The implementation of eVIN has significantly enhanced documentation process for healthcare workers by reducing the time and effort required for manual paperwork. When asked whether eVIN has helped streamline their documentation process, a majority of respondents approx**. 87%** (n= 143)agreed that the digital platform has simplifies the record keeping process.

f) Improved understanding of digital solutions and further improvement in the solutions to meet emerging needs.

The development of Co-WIN and eVIN have paved the way for articulation of additional functions and features, which can be noted in advances being made in the U-WIN application. The U-WIN application has added additional features like beneficiary validation, Citizen centric features for scheduling appointments, etc. This progressive understanding of the emerging requirements for Vaccination and Routine immunization programs will eventually be led to better understanding and broadening of digital applications ability to include other national health programs.

“As an additional responsibility of CCH, I handle the pharmacy work as well because of all the digitization and nearly no more paperwork” - IDI with CCH“As an additional responsibility of CCH, I handle the pharmacy work as well because of all the digitalization and nearly no more paperwork” - IDI with CCH

4.6 Gender Equality and Social Inclusivity

4.6.1 Contribution of eVIN and Co-WIN towards inclusiveness of routine immunization and COVID-19 vaccination drive in India

In the UNDP Country Programme document for India (2023–2027), health systems strengthening is one of the focus areas. However, the design of initiatives like eVIN and Co-WIN also paid significant attention to gender mainstreaming, with substantial evidence showing that these efforts contributed to gender equality and social inclusion. Women made up nearly 60 percent of the 48,000 government health workers serving as cold chain handlers in the eVIN initiative. Interviews and focus group discussions with these women confirm that UNDP training on efficient smartphone use has greatly improved their work performance and connectivity with colleagues. This training has also enhanced their social status and recognition within the society. Notably, many of these cold chain vaccine handlers are older women from rural areas.

The eVIN and Co-WIN platforms have significantly enhanced the inclusiveness of vaccination services in India by addressing systemic challenges in accessibility and delivery, particularly for vulnerable and marginalized populations. eVIN trained over 56,326 cold chain handlers (predominantly women) in smartphone-based vaccine logistics, improving digital equity and ensuring over 99% vaccine availability through real-time tracking across 29,000 cold chain points[13]. Its data-driven approach targeted low-coverage areas, benefiting children under five and pregnant women. Co-WIN ensured technological inclusiveness with multi-modal registration options, facilitating vaccinations for those without ID documents, LGBTQI+ individuals, and persons with disabilities. Special sessions and pink booths reached 17 million marginalized beneficiaries[14]. Together, these platforms utilized mobile units, empowered women health workers, and leveraged real-time data to transform India’s vaccination landscape, aligning with the nation’s commitment to equitable healthcare access for all.

This aspect of inclusivity was also reiterated from the primary interactions held with the UNDP and government staff. eVIN, through its digitalized vaccine tracking, enabled real-time monitoring of vaccine stocks, robust dashboards, and reduced disparities in vaccine availability in terms of geography, vulnerable and inaccessible populations. It also highlighted that the eVIN generated critical data insights that helped identify vaccination coverage disparities, target interventions in low-coverage regions, track vaccination rates among different demographic groups and these data-driven approaches enabled more precise and equitable vaccine distribution strategies.

[13] eVIN to Co-WIN: Digitizing India’s immunization programme | United Nations Development Programme

[14] Co-WIN

"State undertook various initiatives under the covid vaccination drive that improved access and coverage for vulnerable groups. For example, mobile vaccination units to reach remote or underserved areas ensured that individuals with limited access to healthcare facilities could receive vaccinations. As a part of community outreach programs, collaborations with local organizations and community leaders helped raise awareness, dispel myths about vaccines, and encourage vaccination among hesitant populations. Homebound vaccination services were done for individuals unable to travel due to age or disability, home vaccination services were implemented to ensure they received their shots."- IDI with SPO

Leaning on GOI's key motto of an inclusive national COVID-19 vaccination drive, UNDP made unique provisions in the program design ensuring accessibility to COVID-19 vaccination for the LGBTQI+ community, women, citizens without an identity card like prisoners, patients in mental institutions and other vulnerable and marginalized communities.

4.6.2 Inclusivity and accessibility offered by eVIN and Co-WIN solutions. (Targeted and responsive)

The eVIN improved in transforming vaccination service delivery in India by increased accessibility, availability, reduced cost and enhancing healthcare outcomes. This led to significant benefits to beneficiaries, particularly pregnant women, and children below 5years age by timely availability of vaccines, enhancing fulfillment of vaccine supply, increased successful vaccine sessions and online tracking of vaccine status. The eVIN supported a vaccine availability rate of over 99% at all cold chain points. Achieved over 80% reduction in instances of vaccine stock-outs and ensured improved availability of adequate and potent UIP vaccines to all targeted children and pregnant women. These data-driven approaches enabled more precise and equitable vaccine distribution strategies. The enhanced availability and accessibility of vaccines across health centers helped in reinforcing trust of beneficiaries, healthcare workers and local communities ensuring that no one is left behind.

Most of the vaccinators knew how to use mobile phones to make and receive calls but found it difficult to navigate the applications on smartphones. The young vaccinators were adept at

Imagine the challenge of managing records for COVID-19 vaccinations, including two doses and booster shots, across different vaccine brands like Covax and Covishield, all on paper registers. This would have been an incredibly difficult task, requiring significant human resources just to issue certificates. However, the Co-WIN app streamlined this entire process. It eliminated the need for manual record-keeping and certificate issuance, allowing healthcare workers to focus solely on vaccinating every individual efficiently. In-depth Interview with a Vaccinator
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embracing the mobile Co-WIN app, and they performed their tasks with ease. For others, adaptation to the app in their daily work did not happen so easily. Frontline health workers who had access to smartphones said that it helped to improve their digital skills. One of the vaccinators from Guwahati, explained how digital apps had facilitated her work:

Co-WIN, the digital platform ensured easy and hassle-free vaccination to all sections of society and administered 2.2 billion vaccine doses to 1.19 billion beneficiaries (98% eligible population of the country), with 740 million doses administered in 2022. Nearly 17 million doses were administered through special sessions for people without identity cards, members of the LGBTQI+ community, special sessions for women, vaccination near home/workplace reinforcing the agenda of leaving no one behind etc. UNDP set up a 24x7 COVID-19 technical helpline and ensured the timely resolution of queries related to the Co-WIN application and COVID-19 vaccination. It responded to over 900,000 queries until Dec 2022. The Co-WIN app and web-based access led to improved ease of scheduling, planning, enhancing access to session sites, availability of vaccines across health centers, digital certificates helped and utilizing the helpline ensuring that no one is left behind. The digital platforms helped overcome traditional barriers that might prevent women from accessing healthcare services.

CoWIN app was really helpful for us, it helped in streamlining appointment scheduling, ensuring vaccine slot availability, and providing instant digital certificates. Co-WIN app was really helpful for us, it helped in streamlining appointment scheduling, ensuring vaccine slot availability, and providing instant digital certificates. Through its user-friendly interface, people could easily book vaccination appointments at their convenience, reducing wait times and overcrowding at vaccination centers. The app's real-time updates on vaccine slot availability allowed users to find and secure appointments quickly, ensuring efficient distribution and access. Additionally, the Co-WIN app generated instant digital certificates upon vaccination, which were crucial for facilitating travel and access to various services. These certificates, verifiable through QR codes, provided a secure and reliable way to prove vaccination status, thereby enhancing public confidence and compliance with health measures. Insights from Focus Group Discussion with Vaccinators

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These digital platforms represented a significant leap in India's public health infrastructure, transforming vaccine distribution from a logistically complex process to a more transparent, accessible, and equitable system. The integration of eVIN and Co-WIN showcased how technological innovation could address systemic healthcare inequities, making significant strides in providing more inclusive and efficient vaccination services across diverse Indian communities.

“Real-time Data Tracking: CoWIN allows for real-time tracking of vaccination data, which helps identify areas with low vaccination coverage among vulnerable populations, such as the elderly, pregnant women, and those in remote locations.” “Real-time Data Tracking: Co-WIN allows for real-time tracking of vaccination data, which helps identify areas with low vaccination coverage among vulnerable populations, such as the elderly, pregnant women, and those in remote locations.” – IDI with SPO

During the rollout of the vaccine, the frontline health workers aimed to motivate people in their communities by sharing knowledge about the benefits of vaccines and by encouraging them to register and schedule their vaccination using the Co-WIN platform. The vaccinators noted that a lot of people in the villages found it difficult to use the Co-WIN platform and experienced technical difficulties. Despite this challenge, the vaccinators improvised ways to help people register, especially women, elderly people, people without identity cards who had the lowest levels of digital literacy. One of the vaccinators from Rajasthan, recalled:

Since I received training on the eVIN app for smartphones, using the device and various digital applications has become much easier for me. For instance, I've been relying heavily on text messages and WhatsApp, especially during the COVID-19 pandemic. This has significantly reduced my travel time, as I can monitor families' health through chat and easily schedule visits. Women in the community have also mentioned that it's much more convenient for them to seek my advice and solutions via text message or WhatsApp whenever needed, without having to wait long. Co-WIN app was user-friendly, we could do the entry and vaccinate at the same time. Additionally, I have taught other older and younger women in the community how to use a smartphone. In-depth interview with vaccinator

4.6.3 Positive changes in women and marginalized groups (Gender Transformative)

The eVIN ensured adequate, easy, and safe access of vaccines to 26.7 million children and 29 million pregnant women in India by building upon its electronic vaccine Intelligence network (eVIN) project. A total of 56,326 cold chain handlers (30,000 women) were able to efficiently manage vaccine logistics through smartphone-based training. These trainings helped women to enhance their performance, connect better with other colleagues and empowered them to take an active role in community-level decision-making. The focused group discussion with the vaccinators highlighted that many women embraced technology using android phones to stay connected and access information which has empowered them to enhance their skills and knowledge. This technological upgrade has not only improved their lives but also inspired them to invest education and digital literacy of their daughters.

I found myself in a situation where I had to take my son's support. He helped in scheduling vaccine appointments for our entire village. Unfortunately, many community members faced barriers in accessing the necessary technology for booking, such as smartphones and apps like Co-WIN. Managing dual responsibilities became challenging since I was vaccinating approximately 300 people in a day. Once I was trained on both the systems eVIN and CoWIN, I trained my son to support community members in their registration and digital certificate download. Since I was trained on both the systems eVIN and Co-WIN, I trained my son to support community members in their registration and digital certificate download.

Seeing healthcare workers – leading a transformative healthcare program from their smartphones - changed perceptions and challenged stereotypes amongst communities. The augmentation of human resources across vaccine service delivery resulted in job opportunities and positive socioeconomic effects. Before eVIN, stocks were managed manually through physical record-keeping in registers and charts. Most health workers – especially women – would find it challenging to monitor vaccine temperatures at night or during weekends. This often led to uneven vaccine distribution, unavailability, and wastage. The primary discussion with female healthcare workers revealed that apart from the training, capacity building and job, the eVIN has indirectly enhanced women's reputation and respect amongst communities for handling technology.

4.6.4 Benefits of the project work among local communities, women, and other disadvantaged and marginalized groups

The eVIN and Co-WIN projects under the Universal Immunization Program (UIP) provided free vaccinations to all citizens, overcoming systemic challenges like limited vaccine availability, frequent stock-outs, and canceled sessions. The eVIN helped in transforming vaccination service delivery in India by increased accessibility, availability, reduced cost, and bettering healthcare outcomes.

"We gave priority to the disabled people, we also conducted different sessions for the transgenders and LQBTQ Community for the inclusiveness. We also included the prisoners and old age citizens, conducted session in old age homes." – IDI with SIO

Specific initiatives under the projects addressed these challenges directly:

1. Empowering Women through TEEKA Express

TEEKA Express, a mobile vaccination initiative, specifically targeted women, elderly individuals, and people with disabilities by conducting vaccination drives in residential complexes, old-age homes, and using e-rickshaws for accessibility. For instance, during International Women's Day, special at-home vaccination drives were organized for disabled women, receiving overwhelming participation and appreciation.

2. Enhancing Accessibility for People with Disabilities

Both eVIN and Co-WIN implemented strategies to reduce physical and logistical barriers. Mobile units ensured home-based vaccinations for people with mobility challenges, particularly during the COVID-19 pandemic. Real-time data tracking allowed planners to identify gaps in vaccination for disabled populations and adjust strategies accordingly.

3. Economic and Social Empowerment

eVIN’ s focus on training cold chain handlers, predominantly women, in smartphone-based logistics enhanced their digital literacy and strengthened their role in the community. For instance, many women cold chain handlers reported increased respect within their communities and greater participation in decision-making processes, illustrating the broader socio-economic benefits of the initiative.

“For women and old women in specific, TEEKA express was deployed, and this initiative helped a lot. Each apartment had such sessions and drives, used e-rickshaws appreciation certificates given by DIO's. International Women’s Day was used to vaccinate women at-home vaccination drives through TEEKA express for the disabled” – IDI with SPO

4.6.5 GRES Scale

The GRES Scale on key findings within the REESI framework highlighted the project's significant impact on health indicators and vaccination coverage. It underscored the project's commitment to promoting gender equality and inclusivity through comprehensive outreach, improved vaccine availability, and targeted training programs.

GRES Scale	Key findings
Gender Targeted and Gender Responsive	**Impact on Health Indicators**: The project has led to notable improvements in health indicators. Full immunization coverage increased from 62% in 2015-16 to 93.5% in 2023-24. Additionally, key health indicators such as the Infant Mortality Rate (IMR) and Under-Five Mortality Rate (U5MR) have shown significant declines. The project’s role in ensuring equitable vaccine distribution and supporting the government's efforts in enhancing immunization coverage has been crucial in these improvements.
Gender Targeted	**Comprehensive Coverage and Outreach**: The eVIN program achieved 100% district coverage across India, significantly reducing stock-out events and ensuring vaccine availability at all times. During the COVID-19 pandemic, the program adapted to support the Co-WIN platform, registering nearly 109 crore eligible individuals and administering 197 crore vaccine doses by June 2022. Special outreach campaigns, including home visits for women, elderly, disabled, and marginalized populations, were conducted to

	improve coverage. This comprehensive approach ensured that even those without identity cards, the homeless, and prisoners were vaccinated, demonstrating the program's commitment to leaving no one behind.
Gender Responsive	**Improvement in Vaccine Availability and Confidence**: Cold chain handlers reported significant improvements in vaccine availability and visibility over the years, which increased confidence and receptivity among the target groups. The program's focus on digital adoption and better information management, along with modifications to respond to emerging community needs, ensured high relevance to the needs and priorities of the target groups. The project's success in reducing vaccine wastage and increasing immunization coverage further highlights its effectiveness in addressing the needs of the beneficiaries.
Gender Targeted	**Promotion of Gender Equality**: The project was marked with the UNDP gender marker GEN2, indicating that promoting gender equality was a significant objective. The project focused on increasing healthcare accessibility and availability for women beneficiaries, ensuring that gender considerations were integrated into the design and implementation of the project.
Gender Targeted	**Improvement in Vaccination Coverage**: The project contributed to a notable improvement in the country's vaccination coverage, with national data showing an increase from 62% in NFHS-4 to 76.4% in NFHS-5, representing a 14.4 percentage point growth. This demonstrates the project's effectiveness in achieving its intended objectives and improving public health outcomes.
Gender Responsive	**Regular Trainings**: Continuous and regular training sessions were crucial in equipping participants with the necessary skills and knowledge to manage and operate the eVIN system effectively. These trainings fostered a sense of inclusiveness and ownership, ensuring consistency and standardization, facilitating smooth roll-out and adaptation, and enhancing problem-solving and support networks.
Gender Responsive	**Reduction in Manual Efforts and Enhanced Efficiency**: The eVIN and Co-WIN systems have enabled vaccinators to plan sessions more effectively, reducing their trips to facilities for vaccine collection. This digital enablement has saved time and effort from manual data entry, allowing vaccinators to focus more on other duties. This efficiency gain has been particularly beneficial for women vaccinators, enhancing their overall productivity and effectiveness in their roles.

Gender Targeted	**Institutional Capacity Building and Training:** The project focused on empowering frontline workers in vaccine logistics, training around 54,000 cold chain handlers to manage vaccine stocks using digital technology. Regular trainings and supportive supervision have embedded the eVIN application into the supply chain management functions of routine immunization programs, contributing significantly to the project's sustainability.
Gender Targeted, Gender Responsive and Gender Transformative	**Improved Program Awareness and Reduced Misinformation:** The program's focus on equity and scalability, using mass media and localized community outreach, significantly increased awareness about immunization schedules and benefits. Real-time data and efficient route planning provided by eVIN, and Co-WIN helped vaccinators reach marginalized communities more effectively, reducing misinformation and ensuring timely vaccine delivery**.**

4.6.6 Rating on Gender equality and social inclusivity

Gender equality and social inclusivity	Overall Rating	Satisfactory

The analysis during this evaluation study indicates that the project was able to improve the inclusivity for marginalized communities through its technological interface and increasing availability of vaccines across last miles. Marginalized communities that are prone to inadequate coverage, were specifically focused on and assimilated in the project. The project was designed and implemented with a special focus on the vulnerable groups – mainly women, youth, marginalized communities, and on mainstreaming of human rights, gender equality and social inclusion. The project also contributed to positive change in the women workforce and marginalized community by creating employment opportunities for them. While the project has made strides in promoting gender equality and social inclusivity, there is an opportunity to incorporate these indicators into periodic reviews and analyses to better track their impact on vulnerable groups.

Chapter 5: Conclusion, Lessons Learnt and Recommendations

5.1 Conclusion

The conclusion section of the evaluation study comprehends analysis across evaluation criteria of relevance, coherence, effectiveness, efficiency, and sustainability. The conclusion and rating for each criteria highlights evaluation findings and key takeaways developed based on the analysis of the project documents, project reports (APR/ QPRs, and others), primary discussions with key stakeholders, secondary sources, and field visits.

Relevance	Overall Rating	Highly Satisfactory

The project has a strong alignment with India’s one of the national health development priorities and Universal Immunization Program (UIP). This alignment is designed to further bolster the long-term commitments towards achieving Universal Health coverage, health equity and achievement of relevant Sustainable Development Goals (SDG-3 and SDG-10). The project is also aligned to UNDP’s Country strategy and focused on making services available till the last mile and ensure that no one is left behind. The project was also planned with much needed agility, which allowed it to respond, to any emerging requirement like Covid 19 pandemic. The CoWIN component of the project provided necessary support in development of scalable technology solutions and implementation assistance for roll out. The evaluation study was highly satisfactory with respect to the objectives of the project design (inputs, activities, outputs and their indicators) and its theory of change being logical and coherent to the local development context and needs of the targeted beneficiaries.

Effectiveness	Overall Rating	Satisfactory

The project demonstrated progress and achievement of the targets for the desired performance indicators. The initiative has achieved full-scale implementation of the technology and successful digitizing (100%) of the 29,000 vaccine cold chain points, by 2021 (i.e., within 4 years of HSSII). Furthermore, the program was able to provide training to more than 125% of the target cold chain handlers by 2020. The project however was able to provide digital temperature loggers to approximately 90% of the target cold chain points by the end of project in 2024. The strong support and collaboration with the government and implementation partners, regular training for the field staff including cold chain handlers and supportive supervision by the UNDP team, were some of the identified factors that contributed to the achievement of the stated objectives. The embedding innovative technology like eVin helped in institutionalizing processes and transform vaccine delivery service in India effectively. The program's ability to pivot and implement necessary changes swiftly has been a key factor in its success.

Efficiency	Overall Rating	Satisfactory

The project was efficient in terms of achieving the stated goals of the program. The key performance indicators of roll out and digitization and training of the cold chain handlers were achieved within the first 4 years of the program. However, the targets with regards to deployment of temperature loggers remained underachieved throughout the period. The funds assigned to the project ($ 8,36,42,657), were used in a staggered and efficient manner. The funds were utilized in line with the implementation plan and no additional funding demands were made. Efficient data security measures were used to prevent any form of data breach and maintain compliance with confidentiality protocols.

Sustainability	Overall Rating	Satisfactory

The project was found to have a reasonably well-defined sustainability plan. Sustainability of the project’s results in a large degree depends on ability to sustain and mobilize additional resources and skills needed for continuation of initiatives. Firstly, the program funding was gradually transferred to the NHM PIP programs, so that the funding for the project continues, post planned exit by UNDP. Secondly, collaboration with local authorities and regular supportive supervision framework, acted towards institutionalization of certain practices and behaviors. Furthermore, documentation and use of innovative measures like Knowledge Management System (KMS) for transmission of the project know how to the ministry, shows that the program was sustainable. An iterative and evidence-based decision system helped in better program implementation. By integrating these systems into routine processes, state and district authorities have institutionalized evidence-based decision-making, ensuring long-term sustainability. The fact that MOHFW has integrated eVIN and CoWIN to develop U-WIN for a comprehensive vaccination management system highlights the success of the project interventions and sustainability assurance of this project interventions.

Impact	Overall Rating	Highly Satisfactory

The analysis during this evaluation study indicates that the project had contribute to the healthcare priorities, UNDP outcomes, and the target SDGs through the improved processes, including technology innovation, capacity building, last miles reforms and governance mechanism. The project had a positive impact on multiple areas, that in turn will entail future sustainability and continuity of the project and its interventions. Primarily, the project had helped in improving IEC leading to increased awareness and engagement of the beneficiaries. Secondly, it helped enhance digital literacy of the healthcare workforce and made them more amenable to change. Thirdly close collaboration and improved coordination between government and developmental partners coupled with streamlining of monitoring and governance practices. The project provided job opportunities and skilling to the vaccine healthcare workers, and inclusion of the women, and vulnerable groups into indirect economic and social enhancements.

Gender Equality and Social Inclusivity	Overall Rating	Satisfactory

The analysis during this evaluation study indicates that the project was able to improve the inclusivity for marginalized communities through its technological interface and increasing availability of vaccines across last miles. Marginalized communities that are prone to inadequate coverage, were specifically focused on and assimilated in the project. The project was designed and implemented with a special focus on the vulnerable groups – mainly women, youth, marginalized communities, and on mainstreaming of human rights, gender equality and social inclusion. The project also contributed to positive change in the women workforce and marginalized community by creating employment opportunities for them. While the project made gender equality and social inclusivity however, there is an opportunity to add these indicators as a part of the periodic review and analysis to better track its implication on vulnerable groups.

5.2 Lessons Learned

Lessons learned presented in this section are related mainly to the eVIN and CoWIN project implementation management and interventions enabling the delivery of results; some of them are reflected further in the recommendations made by the evaluators as a result of this assignment to augment the sustainability of this project and learning for other similar public health projects.

1. Comprehensive Project Design with Holistic Interventions

The success of this project results could be attributed to the project design that was based on clearly identified key development challenges and coherent with needs of the beneficiaries. eVIN has been able to use the comprehensive approach for HSS covering all the three important pillars: process, product, and people for an overall enhancement in vaccine coverage. This project presents significant learnings for digital transformation journey in a public health system wherein holistically identified interventions and processes were addressed with robust innovative technology, system strengthening, partnerships, and robust sustainable framework. This project design could be a good template for future large public health transformation projects.

2. System Strengthening with Sustainable Training and Capacity Building

eVIN has demonstrated that low-cost innovative technology combined with an extensive training and capacity building could create a transformative public health service which truly ensures no one is left behind. The extensive and sustained training and capacity building across cadre with mixed staffing approach of public health and partners helped in bridging the gaps of human resources and retention.

3. Technology Driven Empowerment of Women Healthcare Workers

eVIN has empowered the female healthcare workers involved in vaccine service delivery by enabling digital literacy, technical capacities and equipping with robust decision-making tools for vaccine management. eVIN has introduced female healthcare workforce to digital gadgets and digital record keeping use of such technology and electronic gadgets has helped to build confidence and ownership amongst the female healthcare workers. This project highlights the potential of innovative and user-friendly technology, well-structured capacity building and continuous handholding to address developmental challenges like HR capability and digital literacy.

4. All-inclusive and sustainable Innovation to ensure equitable access to vaccination services for all.

This project is great learning for a comprehensive innovation design and how UNDPs innovation principle has been rightly covered through eVIN developed to address last mile systemic challenges like internet network availability, electricity, digital literacy, user experience, secured, scalable, sustainable, open source and cost effective.

5. Use of IOT

Installation of temperature loggers with IOT technology used for this project has led to 24X7 temperature monitoring of cold chain equipment in hassle free manner and real time basis. The features such as hot and cold alarms triggered by temperature loggers have prevented frequent fluctuations, this has helped the CCHs in planning corrective measures and further planning. This IOT intervention eventually has improved the uptime of cold storage equipment and vaccine storage efficiency.

6. Data Driven Decision Making

eVIN equipped with intelligent system for traceability of inventory and robust reporting system equipped stakeholders across vaccine service delivery with end-to-end visibility and data driven response in vaccine planning, management, and usage. Such platforms like eVIN have helped in enhancing the capacity of key govt functionaries at state and district level in ensuring max vaccination coverage. This project is a learning for an end-to-end technology intervention and data driven decision making in the public health program.

7. All Together Approach

UN agencies (UNDP, UNICEF and WHO) and other development partners, worked in close coordination with the Ministry of Health and Family Welfare and the National Health Mission to strengthen India’s national immunization programme. This project was successful to leverage the UNDP’s UN network and bring together many of the UN Agencies (UNICEF, WHO, Others). This all-together approach enabled this project to leverage technical, tactical and HR capacity of many of the UN Agencies.

8. Contingency for Scope creep

The Ministry of Health has added new requirements of U-WIN to be integrated with Poshan Tracker, ABDM, RCH and other flagship Health intervention. This will be agile development and includes substantial efforts and cost. In future, UNDP has to make plans during program planning cycle to accommodate ad-hoc requirements from Government to be budgeted, in case of additional development efforts. Such large-scale, multi-stakeholders, and multi-geography innovative technology project must provision for ad-hoc technology scope expansion, user requirements, localized customization, and other scope creep.

5.3 Recommendations

Recommendations have been devised based on the analysis of the findings through primary and secondary data sources. The recommendations are broadly categorized into suggestions around

workforce, capacity development, Digital and IT systems and future sustainability and scalability. Separate sets of recommendations have been provided with, Part A focuses on recommendations for eVIN, while Part B presents recommendations for CoWIN.

The recommendations are prioritized from high to medium to low. The matrices for prioritization include ready availability of capabilities and resources for execution (high for easy availability and low for non-availability), time for implementation (high for immediate and low for beyond 36 months) and criticality of the recommendation for smooth functioning (high for absolutely vital and low for desirable) Responsibilities were assigned based on the expertise and resources required, leveraging both internal and external capabilities.

A. Recommendations for eVIN

1. Complete transition to a paperless immunization supply chain, leveraging the existing eVIN platform.

While eVIN has significantly digitalization immunization supply chain processes, certain aspects, such as stock registers, immunization session registers, temperature logbooks, and other reporting formats, remain paper based. UNDP to advocate for the full utilization of eVIN to eliminate these remaining paper-based processes. This will reduce workload for health workers by streamlining reporting and eliminating manual data entry. Optimize reporting by minimizing duplicate data entry and ensuring accurate, real-time information. Further, reduce environmental impact by minimizing paper usage and contributing to a lower carbon footprint.

This transition will significantly improve the efficiency and effectiveness of the immunization supply chain.

Priority Level	Timeframe	Responsible Entity/ Entities
High	**12-18 months**	**National & State Government/s**

2. Develop Workforce Retention Strategy to retain vaccine service delivery staff by minimizing transfers, aligning remuneration with state cadres, and recognizing them as a designated cadre.

Priority Level	Timeframe	Responsible Entity/ Entities
High	**This should have been already in-place as a sustainability plan for the project before its implementation. However, this strategy to be in place by March 2025**	**National & State Government/s**

The UNDP supported eVIN operated on a Build, Operate, Transfer (BOT) model, and handed over to government authorities. As a part of this project, UNDP had trained and skilled

significant numbers of the healthcare workforce involved in vaccine delivery including VCCM, Divisional POs, SPOs, etc. The attrition of the human resources transferred to the state health departments and alignment of remuneration to the state cadre is an area that most of the states are in process of streamlining. The State health departments must develop strategies for retaining vaccine service delivery staff, minimize transfers, retaining policies, bench cadre trained on vaccine service delivery and systems for better sustainability of this project. State health departments could explore possibilities of recognizing vaccine service delivery staff as designated cadre to standardize skill sets and capabilities for enhancing the project sustainability.

3. Enhance eVIN Features for Improved Vaccine Management and Compliance

Priority Level	Timeframe	Responsible Entity/ Entities
High	**By March 2025**	**UNDP Country Office and National & State Government/s**

eVin to be further upgraded to capture temperature monitoring during transportation as well as alternate vaccine delivery mechanism. Vaccine Vans to be equipped with temperature as well as GIS tracking mechanism. To introduce district/ facility level dashboards for Medical Officer-In-Charge (MoIC) and vaccinators to provide real-time data on vaccination progress, enabling efficient monitoring and decision-making. Compliance and adherence to the Ayushman Bharat Digital Mission (ABDM) in terms of generating health UID, integrating health facility registry (HFR), health professional registry (HPR), personal health records (PHR) interface for medical records and security and data management compliances.

4. Integrating eVIN into India’s Digital Public Infrastructure (DPI) and Digital Public Goods (DPG) Ecosystem to Promote Innovation, Social Impact, Equitable Healthcare and Global Replication.

Priority Level	Timeframe	Responsible Entity/ Entities
High	**For next phase of HSSII**	**National Government**

The eVIN/ UWIN application has potential to become part of the Digital Public Infrastructure (DPI) and Digital Public Goods (DPG) ecosystem of the Government of India. This alignment shall enable that eVIN/UWIN initiative is not only technologically innovation but also socially impactful, promoting equitable access to healthcare, digital resources and help attain the Sustainable Development Goals (SDGs). There is a huge opportunity for replicating eVIN/ UWIN interventions in other countries.

5. Enhancing Project Oversight through regular PSC and IAG meetings

Priority Level	Timeframe	Responsible Entity/ Entities

High	**For next phase of HSSII**	**National Government**

It is recommended that PSC be held more frequently, potentially at the Joint Secretary level, to closely monitor the project's progress. This approach would ensure that significant issues are not overlooked and facilitates the proper recording of learnings, challenges, and mitigation strategies. Such review meetings not only maintain continuity but also provides valuable insights for future initiatives.

6. Leverage Advance Data Analytics and AI/ ML to predict demand patterns, inventory levels and lead times for enhancing project’s effectiveness.

Priority Level	Timeframe	Responsible Entity/ Entities
Medium	**For next phase of HSSII**	**UNDP Country Office**

To predict demand patterns, inventory levels, and lead times. Train models on historical data to forecast future trends, automated procurement, replenishment, and scheduling. Use of Robotic Process Automation (RPA) to automate repetitive tasks like data entry, invoice processing, and shipment scheduling. Natural Language Processing (NLP) for better communication with suppliers and customers through chatbots or virtual assistants. Such module has potential to augment sustainability of the project results and minimize human dependency for key tasks and decision making. Integration of advance data analytics and AI/ ML will augment UWIN/ eVIN efficiency and effectiveness in delivering the desired project results.

B. Recommendations for CoWIN

1. Sustaining CoWIN for Future Vaccination and Public Health needs through continuous Funding, Upgrades, Data Security, and Training

Priority Level	Timeframe	Responsible Entity/ Entities
High	**Next Three Months**	**National Government**

Considering the role of CoWIN application during COVID-19 pandemic in India, the application has fitment for large beneficiary management initiative for any future vaccination drive or public health service that would require beneficiary registration, service scheduling, records management, and demand planning. There is a need to sustain this application with funding, continuous system upgrades, data security, and training programs for healthcare workers to maintain the platform's effectiveness and reliability. This approach will help CoWIN remain a robust tool for managing immunization programs including any such pandemic readiness needs in the future.

2. Customizing CoWIN for Digital Public Service Delivery Across Government Ministries/ Departments

Priority Level	Timeframe	Responsible Entity/ Entities
Medium	**Next Twelve Months**	**National Government**

CoWIN application could be customized and adopted for various public services across the government ministries and departments that requires a beneficiary to register, scheduling of services, service delivery centers, record/ certification documentation linked with UID. The public service delivery has huge potential to digitalized current manual processes with COWIN like technology application to address the challenges and improve service delivery.

Annexures

Annexure 1- Types of evaluation methodology employed for each research question in the REESI framework.

SN	Evaluation Questions	Participatory Evaluation	Contribution Analysis	Outcome Mapping	Most Significant Analysis
1	**Relevance**				
1a	Does the project’s objective fit within the national development priorities and appropriately responsive to political, legal, economic, institutional, etc., changes in the country and communities?				
1b	To what extent are the objectives of the project design (inputs, activities, outputs and their indicators) and its theory of change logical and coherent?				
1c	To what extent is the project in line with the UNDP Strategic Plan, Country Project Document (CPD), and United Nations Sustainable Development Cooperation Framework (UNSDCF)? Does the project contribute to the outcome and output of the CPD?				
1d	To what extent was the intervention designed to address the specific rights, needs, and priorities of diverse rights-holders—including women, girls, and marginalized groups—and how effectively has it managed to accommodate differing needs and priorities? Whose rights, needs, and priorities are being met through the intervention?				
2	**Effectiveness**				
2a	To what extent has progress been made towards the effective achievement of the outputs?				
2b	What factors have contributed to achieving or not achieving the intended outputs?				

2c	What were the lessons and how were feedback/learning incorporated in the subsequent process of planning and implementation?				
2d	To what extent has the intervention supported women’s empowerment and facilitated for women to exercise their rights?				
3	**Efficiency**				
3a	How efficiently were the resources including human, material and financial used to achieve the results in a timely manner?				
3b	To what extent was the existing project management structure appropriate and efficient in generating the expected results?				
3c	To what extent has the project implementation strategy and its execution been efficient and cost-effective?				
3d	How have eVIN and Co-WIN enhanced the efficiency of the vaccination system, contributing to improved accountability, transparency, and data-driven decision-making?				
3e	How efficiently are data security measures implemented to ensure that personal information is safely stored in Co-WIN, in compliance with national standards?				
3f	Value for money: How eVIN and Co-WIN are productive solutions with respect to investments done from GAVI, UNDP and MoHFW for the effective roll-out of both the solutions.				
3g	Return of Investment due to eVIN: Understand expenses and subsequent triangulation with projected savings due to process strengthening like procurement,				

	logistic management, wastage reduction and potential savings.				
3h	How Co-WIN ensure duplicate registration reduction, reducing wastage of vaccination, timely follow-up, QR code-based vaccination certificate and real time coverage data to plan the supply of vaccines contributed to cost savings?				
4	**Sustainability**				
4a	To what extent did the project interventions contribute towards sustaining the results achieved by the project?				
4b	What are the plans or approaches of the local authorities to ensure that the initiatives will be continued after the project ends?				
4c	What could be the potential new areas of work and innovative measures for sustaining the results?				
4d	To what extent have lessons learned been documented by the project on a continual basis to inform the project for needful change?				
4e	What could be done to strengthen exit strategies and sustainability of the project with respect to HR, Hosting, development of new module, technical expertise, and other aspects. Primary and secondary data analysis?				
4f	How sustainable are eVIN and Co-WIN solutions with respect to funds commitment, technical knowledge transfer, open source and overall approach of Government of India?				
4g	How can the project further broaden its contribution to enhancing diversity and inclusion?				

4h	How effective has the project been in enhancing the capacity of local governments?				
4i	To what extent have the project interventions generated unintended opportunities or additional benefits for the target groups? Specifically, how has the project contributed to the empowerment of healthcare workers, including female cold chain handlers, through workload optimization and improved work-life balance?				
4j	To what extent are there identifiable or foreseeable contextual factors or risks that may positively or negatively influence the sustainability and long-term durability of the intervention’s results?				
5	**Impact**				
5a	Has the intervention caused a significant change in the lives of the intended beneficiaries? How did the intervention cause higher-level effects (such as changes in norms or systems)?				
5b	Did all the intended target groups, including the most disadvantaged and vulnerable, benefit equally from the intervention?				
5c	Is the intervention transformative – does it create enduring changes in norms – including gender norms – and systems, whether intended or not?				
5d	Is the intervention leading to other changes, including “scalable” or “replicable” results?				
5e	How will the intervention contribute to changing society for the better?				
6	**Gender Sensitivity and Social Inclusion**				

6a	How have eVIN and Co-WIN contributed to the inclusiveness of routine immunization and the COVID-19 vaccination drive in the country, specifically in terms of ensuring equitable access and quality assurance of vaccines for women and marginalized communities?				
6b	How inclusive and accessible are the eVIN and Co-WIN solutions for officials, frontline workers, and communities in terms of accessing sites, booking appointments, generating digital certificates, and utilizing the helpline, ensuring that no one is left behind (LNOB)?				
6c	To what extent has the project facilitated positive changes for women and marginalized groups? Have there been any unintended effects, either positive or negative?				
6d	To what extent have local communities, women, youth people with disabilities, and other disadvantaged and marginalized groups benefitted from the work of the project and what impact has it had on these groups?				

Annexure 2- List of documents reviewed.

Type of Documents	Name of Documents
Reports	• Improving efficiency of Vaccination System HSS-II_2023 • UNDP Evaluation Guidelines • External Evaluation Report-UNDP-DFATD-GAC-Canada-funded project • IEO Evaluation Quality Assessment Criteria UNDP • UNDP India-CPAP 2013-17 Outcome Evaluation -Final report • Improving vaccination system - eVIN UNDP India • Techno assessment report 2018 • Handbook for Vaccine & Cold Chain Handlers 2016 • Operational Guidelines for Mission Indradhanush 2014
Annual Progress Reports	• Annual Progress Report eVIN Support_2021. • Annual Progress Report eVIN Support_2022. • Annual Progress Report_HSS_2023. • Annual Progress Report_HSS-I_2015. • Annual Progress Report_HSS-II_2018. • Annual Progress Report_HSS-II_2019. • Annual Progress Report_HSS-II_2020. • Annual Progress Report_HSS-II_2021 • Annual Progress Report_HSS-II_2022 • 2018 India HSS2_APR.docx • Annual Progress Report eVIN Support_2020
State Annual Progress Reports - 2019	• APR 2019 Andhra Pradesh • APR 2019 Assam • APR 2019 Bihar • APR 2019 Chhattisgarh • APR 2019 Goa • APR 2019 Gujarat • APR 2019 Himachal Pradesh • APR 2019 Karnataka • APR 2019 Madhya Pradesh • APR 2019 Maharashtra. • APR 2019 Manipur. • APR 2019 Nagaland. • APR 2019 Rajasthan. • APR 2019 Telangana. • APR 2019 Tripura.

	• APR 2019 Uttar Pradesh. • APR 2019 Uttarakhand.
Quarterly Progress Report	• 2019 India HSS2_QPR_UNDP Q1 • 2019 India HSS2_QPR_UNDP Q2 • 2019 India HSS2_QPR_UNDP Q3. • 2019 India HSS2_QPR_UNDP Q4. • India-QPR 2020_HSS2_UNDP Q1. • India-QPR 2020_HSS2_UNDP Q2 • India-QPR 2020_HSS2_UNDP Q3 • India-QPR 2020_HSS2_UNDP Q4. • India-QPR 2021_HSS2_UNDP Q1. • India-QPR 2021_HSS2_UNDP Q2. • India-QPR 2021_HSS2_UNDP Q3. • India-QPR 2021_HSS2_UNDP Q4. • India-QPR 2022_HSS2_UNDP Q1. • India-QPR 2022_HSS2_UNDP Q2. • India-QPR 2022_HSS2_UNDP Q3. • India-QPR 2022_HSS2_UNDP Q4. • India-QPR 2023_HSS2_UNDP Q4 • India-QPR 2023_HSS2_UNDP Q1. • India-QPR 2023_HSS2_UNDP Q2.
Quarterly Progress Reports for joint Partners	• Y2 Q1 GAVI HSS Combined QPR_Jan-Mar 2015 • Y2 Q2 GAVI HSS Combined QPR_Apr-Jun 2015 • Y3 Q3 GAVI HSS Combined QPR_Jul-Sep 2016 • Y1 Q1 GAVI HSS Combined QPR_Jan-Mar 2014 • Y1 Q2 GAVI HSS Combined QPR_Apr-Jun 2014. • Y1 Q3 GAVI HSS Combined QPR_Jul-Sep 2014. • Y1 Q4 GAVI HSS Combined QPR_Oct-Dec 2014.
Project Steering Committee	• Project Steering Committee Meeting_2020_24 Nov • Project Steering Committee Meeting_2021_7 Jul. • Project Steering Committee Meeting_2022_10 May. • Project Steering Committee Meeting_2022_16 Nov. • Project Steering Committee Meeting_2023_20 Apr. • Terms of Reference HSS PSC.
UN Boards of Auditors	• Annual Progress Report_2021 • Consolidated Monitoring Report National eVIN Monitor Dec 2022. • Project Document on Improving efficiency of Vaccination System in multiple states 2018

Result Oriented Analysis Report	• 2018 ROAR - Health & Governance. • 2019 ROAR - Health & Governance. • CPD 2018- 2022. • Day 1 Grp 2 Health & Gov.pptx • Gavi India JA report 2019_pre-pop data. • UNSDF_Print_Oct12_ • Bihar MoA_2018_2019. • Signed MOA NHM UP & UNDP.pdf • To Niti Ayog for UNDP Support • UNDP Letter from NHP. • 2020 ROAR_Output 1.1. • 2020 ROAR_Output 1.2, 1.3, 1.4. • 2020 ROAR_Output 1.5. • 2021 ROAR_CPD Outcome 1. • 2021 ROAR_CPD OUTPUT 1.1. • 2021 ROAR_CPD OUTPUT 1.2. • 2021 ROAR_CPD OUTPUT 1.2 • 2021 ROAR_CPD OUTPUT 1.2 • 2021 ROAR_CPD OUTPUT 1.3 1.4 • 2021 ROAR_CPD OUTPUT 1.3. • 2021 ROAR_CPD OUTPUT 1.3 • 2021 ROAR_CPD OUTPUT 1.4. • Results Oriented Annual Report - IND - 2021. • 2021 ROAR - Section C.1 • 2021 ROAR - Section C.2. • 2021 ROAR - Section D • 2021 ROAR - Section E.1-E.4.xlsx • India ROAR_18 Jan 2022.docx • Old version ROAR 2022_HSS Dec 16.docx • Evidence.docx • India COBP Background Compact.docx • Results Capture India_E1 Digital_eVIN_CO-WIN-revised.docx • ROAR 2023_India CO.docx • ROAR India_2023.docx • ROAR India_2023_16.01.2024.docx • ROAR_Template_India_2023.docx • From Co-WIN to U-WIN How India transiting to a unified digital healthcare ecosystem.pdf • Key Features of Budget 2024-25_01 Feb 2024.pdf

	• Budget Speech 2024-25_01 Feb 2024.pdf
eVin Monitors	• Excel sheets of eVIN monitors.
Project Management Support Unit	• Evaluation Criteria Matrix template • UNDP India COGES

Annexure 3- Travel Itinerary for KPMG Team

Five teams, each comprising of two members from the KPMG core team, conducted IDIs with state officials, district officials, cold chain handlers and FGDs with vaccinators.

State	Districts	Dates																		
Dates		21.11.2024	22.11.2024	23.11.2024	24.11.2024	25.11.2024	26.11.2024	27.11.2024	28.11.2024	29.11.2024	30.11.2024	1.12.2024	2.12.2024	3.12.2024	4.12.2024	5.12.2024	6.12.2024	7.12.2024	8.12.2024	9.12.2024	10.12.2024
Andhra Pradesh	NTR									Team 1	Team 1	Team 1									
	Vishakhapatnam												Team 1	Team 1							
Assam	Dirbugarh																Team 3	Team 3	Team 3		
	Kamrup Metropolitan									Team 3	Team 3	Team 3	Team 3								
Bihar	Patna	Team 4	Team 4																		
	Nalanda	Team 4	Team 4	Team 4																	
Haryana	Panipat		Team 1	Team 1	Team 1																
	Faridabad					Team 1															
Madhya Pradesh	Vidisha													Team 3	Team 3						
	Bhopal															Team 3	Team 3				
Maharashtra	Palghar								Team 5	Team 5	Team 5	Team 5									
	Thane					Team 5	Team 5	Team 5													
Rajasthan	Udaipur						Team 2	Team 2	Team 2												
	Jaipur			Team 2	Team 2	Team 2															
Tamil Nadu (Virtual)	Coimbatore	Virtually Done																			
	Viruthunagar																				
Uttar Pradesh	Lucknow							Team 4	Team 4	Team 4											
	Varanasi																			Team 4	Team 4
Mizoram (Virtual)	Kolasib	Virtually Done																			
	Serchip																				
Uttarakhand	Dehradun												Team 2	Team 2							
	Nainital														Team 2	Team 2					

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Annexure 3- Travel Itinerary for 3rd Party Team

Similarly, 5 teams comprising of 2 members each conducted interviews with Co-WIN and eVIN beneficiaries simultaneously with the KPMG team.

State	Districts	Dates																							
Dates		13.11.2024	14.11.2024	15.11.2024	16.11.2024	18.11.2024	19.11.2024	20.11.2024	21.11.2024	22.11.2024	23.11.2024	24.11.2024	25.11.2024	26.11.2024	27.11.2024	28.11.2024	29.11.2024	30.11.2024	1.12.2024	2.12.2024	3.12.2024	4.12.2024	5.12.2024	6.12.2024
Andhra Pradesh	NTR																Team 1	Team 1	Team 1	Team 1				
	Vishakhapatnam																				Team 1	Team 1		
Assam	Dirbugarh									Team 5	Team 5	Team 5												
	Kamrup Metropolitan												Team 5	Team 5	Team 5									
Bihar	Patna					Team 2	Team 2	Team 2																
	Nalanda								Team 2	Team 2	Team 2	Team 2												
Haryana	Panipat												Team 4	Team 4	Team 4									
	Faridabad															Team 4	Team 4							
Madhya Pradesh	Vidisha									Team 1	Team 1	Team 1												
	Bhopal												Team 1	Team 1										
Maharashtra	Palghar												Team 3	Team 3	Team 3									
	Thane															Team 3	Team 3	Team 3						
Rajasthan	Udaipur	Team 3	Team 3	Team 3	Team 3																			
	Jaipur					Team 3	Team 3	Team 3																
Tamil Nadu (Virtual)	Coimbatore					Virtually Done																		
	Viruthunagar																							
Uttar Pradesh	Lucknow														Team 2	Team 2								
	Varanasi																Team 2	Team 2						
Mizoram (Virtual)	Kolasib					Virtually Done																		
	Serchip																							
Uttarakhand	Dehradun																			Team 4	Team 4	Team 4		
	Nainital																						Team 4	Team 4

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Annexure 4- Study Tools

In-depth Interview (IDI) | National level | MoHFW

Date of interview		**Name of Stakeholder**		**Designation**	
State/ District		**Interviewer Name**		**Interviewer’s Signature**	

SN	Interview Questions
Q1	1.1 Since how long have you been looking after/ working in the immunization programme? 1.2 what are your current roles and responsibilities? (Only for UNDP staff)
Q2	2.1 How has been your overall experience of implementing eVIN and CO-WIN in India/ respective state? 2.2 What are some of the most pressing challenges that you experienced or continue to experience in the programme implementation?
Q3	3.1 In the design of the project, to what extent has the project adapted to the specific needs of different target groups, including women, men, and marginalized communities? 3.2 How effectively has the project addressed gender equality and social inclusion in creating an enabling environment for inclusive, affordable, and people-centric services, ensuring that women and marginalized groups have equitable access to and benefit from these services?
Q4	4.1 Can you share some of experiences that you had during the programme implementation of eVIN and CW? 4.2 What worked or works in your opinion with some case studies/ good practices? 4.3 How were feedback/learning incorporated in the subsequent process of planning and implementation?
Q5	Delving deeper into the programme implementation, in your opinion to what extent the project activities were delivered effectively in terms of quality, quantity and timing?
Q6	6.1 In the entire programme cycle, what has been the response of the local governments? 6.2 How was the capacity building and handholding of local governments undertaken for seamless project implementation?
Q7	7.1 In your opinion, how eVIN and CO-WIN applications have made things easier as compared to the earlier times? 7.2 How eVIN and Co-WIN are productive solutions with respect to investments done from GAVI, UNDP and MoHFW for the effective roll-out of both the solutions? 7.3 Do you think these applications reduced the programme costs and those incurred by the beneficiaries which were earlier not possible when things were manual? (Prompts - process

	strengthening like procurement, logistic management, wastage reduction and potential savings) If yes, how?
Q8	8.1 How efficiently were the resources including human, material and financial resources used to achieve the desired results in a timely manner? 8.2 How eVIN and Co-WIN ensure efficiency in vaccination system contributing to accountability, transparency and data driven decision making? 8.3 To what extent was the existing project management structure appropriate and efficient in generating the expected results? (Prompts – role and responsibilities fulfilled by SPO, PO and VCCMs)
Q9	What are the data security aspects to ensure personal information is safely stored in Co-WIN with adherence to national standards?
Q10	10.1 To what extent did the project interventions contribute towards sustaining the results achieved by the project? (Prompts – HR, review structures, governance, logistics, infrastructure, funding, MOUs, etc.) 10.2 What are the plans or approaches of the local authorities to ensure that the initiatives will be continued after the project ends? 10.3 What could be potential new areas of work and innovative measures for sustaining the results?
Q11	11.1 What could be done to strengthen exit strategies and sustainability of the project with respect to HR, Hosting, development of new module, technical expertise, and other aspects. Primary and secondary data analysis? 11.2 How sustainable eVIN and Co-WIN solutions are with respect to funds commitment, technical knowledge transfer, open source, and overall approach of Government of India.
Q12	12.1 How eVIN and Co-WIN ensured inclusiveness of Routine Immunization and COVID-19 vaccination drive covered/ covers all gender and vulnerable groups with respect to availability and quality assurance of vaccine to enhance service experience? 12.2 What further can be done to promote inclusivity for all?
Q13	To what extent the project initiatives indicate that intended impact will be achieved in the future?

In-depth Interview (IDI) | National level | UNDP

Date of interview		**Name of Stakeholder**		**Designation**	
State/ District		**Interviewer Name**		**Interviewer’s Signature**	

SN	Interview Questions
Q1	1.1 Since how long have you been looking after/ working in the immunization programme? 1.2 what are your current roles and responsibilities? (Only for UNDP staff)
Q2	2.1 How has been your overall experience of implementing eVIN and CO-WIN in India/ respective state? 2.2 What are some of the most pressing challenges that you experienced or continue to experience in the programme implementation?
Q3	3.1 In the design of the project, to what extent has the project adapted to the specific needs of different target groups, including women, men, and marginalized communities? 3.2 How effectively has the project addressed gender equality and social inclusion in creating an enabling environment for inclusive, affordable, and people-centric services, ensuring that women and marginalized groups have equitable access to and benefit from these services?
Q4	4.1 Can you share some of experiences that you had during the programme implementation of eVIN and Co-WIN? 4.2 What worked or works in your opinion with some case studies/ good practices? 4.3 How were feedback/learning incorporated in the subsequent process of planning and implementation?
Q5	Delving deeper into the programme implementation, in your opinion to what extent the project activities were delivered effectively in terms of quality, quantity and timing?
Q6	6.1 In the entire programme cycle, what has been the response of the local governments? 6.2 How was the capacity building and handholding of local governments undertaken for seamless project implementation?
Q7	7.1 In your opinion, how eVIN and CO-WIN applications have made things easier as compared to the earlier times? 7.2 How eVIN and Co-WIN are productive solutions with respect to investments done from GAVI, UNDP and MoHFW for the effective roll-out of both the solutions? 7.3 Do you think these applications reduced the programme costs and those incurred by the beneficiaries which were earlier not possible when things were manual? (Prompts - process

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	strengthening like procurement, logistic management, wastage reduction and potential savings) If yes, how?
Q8	8.1 How efficiently were the resources including human, material and financial resources used to achieve the desired results in a timely manner? 8.2 How eVIN and Co-WIN ensure efficiency in vaccination system contributing to accountability, transparency and data driven decision making? 8.3 To what extent was the existing project management structure appropriate and efficient in generating the expected results? (Prompts – role and responsibilities fulfilled by SPO, PO and VCCMs)
Q9	What are the data security aspects to ensure personal information is safely stored in Co-WIN with adherence to national standards?
Q10	10.1 To what extent did the project interventions contribute towards sustaining the results achieved by the project? (Prompts – HR, review structures, governance, logistics, infrastructure, funding, MOUs, etc.) 10.2 What are the plans or approaches of the local authorities to ensure that the initiatives will be continued after the project ends? 10.3 What could be potential new areas of work and innovative measures for sustaining the results?
Q11	11.1 What could be done to strengthen exit strategies and sustainability of the project with respect to HR, Hosting, development of new module, technical expertise, and other aspects. Primary and secondary data analysis? 11.2 How sustainable eVIN and Co-WIN solutions are with respect to funds commitment, technical knowledge transfer, open source, and overall approach of Government of India.
Q12	12.1 How eVIN and Co-WIN ensured inclusiveness of Routine Immunization and COVID-19 vaccination drive covered/ covers all gender and vulnerable groups with respect to availability and quality assurance of vaccine to enhance service experience? 12.2 What further can be done to promote inclusivity for all?
Q13	To what extent the project initiatives indicate that intended impact will be achieved in the future?

In-depth Interview (IDI) | State level | SIO

1. Name-	**2. Age (in. years)**	**3. Location-**
Sex: □ Male □ Female □ Other □ Prefer Not to Mention	**4. No of years in the role-**	**5. Total no of years of work experience-**
6. Date & Time of interview	**7. Interviewer Name**	**8. Interviewer’s Signature**

SN	Interview Questions- eVIN and Co-WIN
Q.1	How would you rate some of the advantages/ benefits of eVIN and Co-WIN for the State? *(Please rate each option below between 1 to 5, where 1 is lowest and 5 is highest)*

Sr no	Particular	Priority rank
1	Stock Keeping/ Inventory Management	
2	Stock Replenishment and Digital Indenting	
3	Temperature Log & Quality Assurance	
4	MIS and Reports	
5	Traceability of Stock Batch	
6	Reducing manual stock bookkeeping	
7	Scheduling/ Planning of Vaccine Sessions	
8	Route planning	
9	Tracking Adverse Vaccine Reaction	
10	Any Other	

Q.2	Which part of your job role & responsibilities was eVIN and Co-WIN able to address/ support the most? *(Pl rate in order of priority, where 1 is highest and 8 is lowest)*

Sr No.	Job responsibility	Priority Rank
1	Stock Keeping/ Inventory Management	
2	Stock Replenishment and Digital Indenting	
3	Temperature Log & Quality Assurance	
4.	MIS and Reports	
5.	Traceability of Stock Batch	
6	Reducing manual stock bookkeeping	
7	Scheduling/ Planning of Vaccine Sessions	
8	Route planning	
9	Tracking Adverse Vaccine Reaction	
10	Any Other	

Q.3. 3.1 Can you share some of the challenges faced during implementation of the eVIN and Co-WIN?

(Please rate each option below between 1 to 5, where 1 is lowest and 5 is highest)

3.2. How did we overcome them/ how was the feedback incorporated in future planning & implementation? Pl suggest the strategies used to overcome?

Tick	Issues	Rating	Strategies to overcome
1	Resistance to change/ aversion to change at HCWF level		Review meetings were done frequently. Multiple trainings were given.
2	Network connectivity, electricity and non-availability of functional computers at PHC levels		Broadband connections
3	Poor digital literacy among targeted users, resulting in delayed adoption		
4	Non-standardize practices and poor training/ capacity building of field staff		
5	Poor CCE, resulting in challenges in streamlining the process		
6	Any other Pl specify		

Q.4. How have the key program activities of eVIN been delivered effectively?

4.1	Were the key program activities of eVIN delivered effectively on time during the program implementation					
		1	2	3	4	5
	Key program activities	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
	HR & Training					
	Vaccine Utilization					
	Stock Management					
	Vaccine Distribution					
	Vaccine Management Practices					
	Documentation					
	Temperature Monitoring					
	CCE Repair and Maintenance					
	IT System Support					

4.2	Were the key program activities of eVIN delivered effectively w.r.t. quality assurance during the program implementation					
		1	2	3	4	5
	Key program activities	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
	HR & Training					
	Vaccine Utilization					
	Stock Management					
	Vaccine Distribution					
	Vaccine Management Practices					
	Documentation					

	Temperature Monitoring					
	CCE Repair and Maintenance					
	IT System Support					

4.3	Were the key program activities of eVIN delivered effectively w.r.t. adequacy in terms of quantum/ quantity during the program implementation					
		1	2	3	4	5
	Key program activities	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
	HR & Training					
	Vaccine Utilization					
	Stock Management					
	Vaccine Distribution					
	Vaccine Management Practices					
	Documentation					
	Temperature Monitoring					
	CCE Repair and Maintenance					
	IT System Support					

Q.5	5.1 Can you share some of the key learnings that you had during the programme implementation of eVIN and CO-WIN? 5.2 What worked or works in your opinion with some case studies/ good practices? 5.3 How were feedback/learning incorporated in the subsequent process of planning and implementation?
Q.6	How Co-WIN ensure duplicate registration reduction, reducing wastage of vaccination, timely follow-up, QR code-based vaccination certificate and real time coverage data to plan the supply of vaccines contributed to cost savings?
Q.7	How Co-WIN App helped in increasing access to vaccination and ease to beneficiaries with digital certificates?

Q.8	8.1 While this programme was started by MOHFW with the support from UNDP, would you agree that the program has been effectively involve the state authorities)? □ Strongly agree. □ Agree □ Neither agree nor disagree □ Disagree □ Strongly disagree. 8.2. Would you agree that the capacity building and handholding of local governments undertaken for seamless project implementation? □ Strongly agree. □ Agree □ Neither agree nor disagree □ Disagree □ Strongly disagree. 8.3. Could you give us some examples of your experiences/ learnings w.r.t. to the transfer of knowledge and handholding activities for seamless project implementation for other public health programs?
Q.9	9.1 Would you agree that the eVIN applications have made things easier as compared to the earlier times? □ Strongly agree. □ Agree □ Neither agree nor disagree □ Disagree □ Strongly disagree. 9.2 Would you agree that the applications, has helped in improving human resource training and capacity building to organize RI and COVID-19 vaccination drive better? □ Strongly agree. □ Agree □ Neither agree nor disagree □ Disagree

<table>
<tr><td></td><td>
□ Strongly disagree.

9.3 Would you agree that the application have helped in improving cost savings opportunities?

□ Strongly agree.
□ Agree
□ Neither agree nor disagree
□ Disagree
□ Strongly disagree.

9.4. Which of the benefits of the applications may have contributed to improved cost savings/ financial efficiency of the program? Pl rate in order of priority?

<table>
<tr><th>Sr no</th><th>Particular</th><th>Priority rank</th></tr>
<tr><td>1</td><td>Improved visibility of stock / inventory, reducing wastages</td><td></td></tr>
<tr><td>2</td><td>Improved temperature monitoring, reducing wastages</td><td></td></tr>
<tr><td>3</td><td>Better logistics and route planning, optimizing logistics costs</td><td></td></tr>
<tr><td>4</td><td>Improved training and HR management, optimizing capacity building efforts</td><td></td></tr>
<tr><td>5</td><td>Improved documentation, optimizing time availability of staff & improving coverage</td><td></td></tr>
<tr><td>6</td><td>Others pls specify</td><td></td></tr>
</table>
</td></tr>
<tr><td>Q10</td><td>Is there any computation/ estimations/ research conducted by the government or UNDP to estimate the value for money or ROI for the said project? If yes, could you share the brief details?</td></tr>
<tr><td>Q.11</td><td>
11.1 Do you agree that the project interventions/ program design have contributed towards developing a sustainable UIP for the country?

□ Strongly agree.
□ Agree
□ Neither agree nor disagree
□ Disagree
□ Strongly disagree.

11.2 How would you prioritize some of the interventions under the program, in terms of their contribution to improve sustainability of the UIP?
</td></tr>
</table>

Sr. No.	Key program activities	Priority Rank
1	HR & Training	
2	Vaccine Utilization	
3	Stock Management	
4	Vaccine Distribution	
5	Vaccine Management Practices	
6	Documentation	
7	Temperature Monitoring	
8	CCE Repair and Maintenance	
9	IT System Handling	

11.3. What are some additional comments/ suggestions with regards to improving sustainability of the UIP, from a technological upgradation standpoint?

11.4. Do you think that this technical and HR support should be institutionalized for long term sustainability of the applications for the betterment of UIP implementation.

□ Strongly agree.
□ Agree
□ Neither agree nor disagree
□ Disagree
□ Strongly disagree.

11.5. Pl suggest if you have thoughts on how technical and HR support can be institutionalized.

□ Through regular capacity building of HCW
□ Strong monitoring of the prog
□ Digital and remote applications for HCW
□ Organizational restructure
□ Others pls suggest.

11.6 How sustainable eVIN solutions are with respect to,

Fund commitment	H/M/L
Technical Knowledge transfer	H/M/L

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Open-source technology	H/M/L
Gov of India approach and focus	H/M/L
Others pls specify	H/M/L

11.7 How sustainable Co-WIN solutions are with respect to,

Fund commitment	H/M/L
Technical Knowledge transfer	H/M/L
Open-source technology	H/M/L
Gov of India approach and focus	H/M/L
Others pls specify	H/M/L

Q.12

12.1 Did eVIN app ensured inclusiveness (covering all section of the society, all gender and vulnerable groups) in the vaccination drive with respect to providing accessibility, availability and quality of the healthcare service?

- □ Strongly agree.
- □ Agree
- □ Neither agree nor disagree
- □ Disagree
- □ Strongly disagree.

12.2. Could you share some examples of how the program(eVIN and Co-WIN program) has helped improve coverage for vulnerable groups? (

12.3 What are some additional comments/ suggestions to promote inclusivity for all?

Q.13

13.1 Did Co-WIN app ensured inclusiveness (covering all section of the society, all gender and vulnerable groups) in the COVID-19 vaccination drive with respect to providing accessibility, availability and quality of the healthcare service?

- □ Strongly agree.
- □ Agree
- □ Neither agree nor disagree
- □ Disagree
- □ Strongly disagree.

	13.2. According to you which are key initiatives under COVID-19 vaccination drive that helped improve access and coverage for vulnerable groups to vaccination and healthcare service? 13.3 Could you share some examples of how the program (eVIN and Co-WIN) has helped improve coverage for vulnerable groups? 13.4 What are some additional comments/ suggestions to promote inclusivity for all including broaden its contribution to enhance diversity and inclusion?
Q.14	How eVIN ensure efficiency in vaccination system contributing to accountability, transparency and data driven decision making? *(Tick all that is applicable)* □ Digitized records and inventory management □ Users and location information traceability □ Data driven replenishment and indenting. □ Visibility of planned sessions and demand □ MIS/ Reports □ Other Any Additional Comments:
	How Co-WIN ensure efficiency in vaccination system contributing to accountability, transparency and data driven decision making? *(Tick all that is applicable)* □ Digitized records and inventory management □ Users and location information traceability □ Data driven replenishment and indenting. □ Visibility of planned sessions and demand □ MIS/ Reports □ Other Any Additional Comments:
Q.15	What are unintended outputs from eVIN, and Co-WIN witnessed at Community level?
Q.16	How effective has the project been in enhancing the capacity of local governments?
Q.17	17.1 To what extent did the project interventions contribute towards sustaining the results achieved by the project? (Prompts – HR, review structures, governance, logistics, infrastructure, , etc.)

<table>
<tr><td>Q.18</td><td>Do you have any comments on intrastate variations (across districts/ region disparity) in performance of Co-WIN in driving desired immunization program?
<table>
<tr><th>Tick</th><th>Key Areas</th><th>Comment</th></tr>
<tr><td>☐</td><td>Gender Inclusivity</td><td></td></tr>
<tr><td>☐</td><td>Community Participation</td><td></td></tr>
<tr><td>☐</td><td>Reach/ Accessibility</td><td></td></tr>
<tr><td>☐</td><td>Youth</td><td></td></tr>
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<tr><td>Q.20</td><td>Any Other key areas/ points that you would like to mention?</td></tr>
</table>

In-depth Interview (IDI) | District level | DIO

1. Name	2. Age (in. years)	3. Location
Sex: □ Male □ Female □ Other □ Prefer Not to Mention	4. No of years in the role	5. Total no of years of work experience
6. Date & Time of interview	7. Interviewer Name	8. Interviewer's Signature

SN	Interview Questions- eVIN and Co-WIN
Q.1	**How would you rate some of the advantages/ benefits of eVIN and Co-WIN for your district?** *(Please rate each option below between 1 to 5, where 1 is lowest and 5 is highest)*

Sr no	Particular	Priority rank
1	Stock Keeping/ Inventory Management	
2	Stock Replenishment and Digital Indenting	
3	Temperature Log & Quality Assurance	
4	MIS and Reports	
5	Traceability of Stock Batch	
6	Reducing manual stock bookkeeping	
7	Scheduling/ Planning of Vaccine Sessions	
8	Route planning	
9	Tracking Adverse Vaccine Reaction	
10	Any Other	

Q.2 Which part of your job role & responsibilities was eVIN and Co-WIN able to address/ support the most?

(Pl rate in order of priority, where 1 is highest and 8 is lowest)

Sr No.	Job responsibility	Priority Rank
1	Stock Keeping/ Inventory Management	
2	Stock Replenishment and Digital Indenting	
3	Temperature Log & Quality Assurance	
4.	MIS and Reports	
5.	Traceability of Stock Batch	
6	Reducing manual stock bookkeeping	
7	Scheduling/ Planning of Vaccine Sessions	
8	Route planning	
9	Tracking Adverse Vaccine Reaction	
10	Any Other	

Q.3. 3.1 Can you share some of the challenges faced during implementation of the eVIN and Co-WIN?

(Please rate each option below between 1 to 5, where 1 is lowest and 5 is highest)

3.2. How did we overcome them/ how was the feedback incorporated in future planning & implementation? Pl suggest the strategies used to overcome.

Tick	Issues	Rating	Strategies to overcome
1	Resistance to change/ aversion to change at HCWF level		
2	Network connectivity, electricity and non-availability of functional computers at PHC levels		
3	Poor digital literacy among targeted users, resulting in delayed adoption		
4	Non-standardize practices and poor training/ capacity building of field staff		

5	Poor CCE, resulting in challenges in streamlining the process		
6	Any other Pl specify		

Q.4. How have the key program activities of eVIN been delivered effectively?

4.1	Were the key program activities of eVin delivered effectively on time during the program implementation					
		1	2	3	4	5
	Key program activities	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
	HR & Training					
	Vaccine Utilization					
	Stock Management					
	Vaccine Distribution					
	Vaccine Management Practices					
	Documentation					
	Temperature Monitoring					
	CCE Repair and Maintenance					
	IT System Support					

4.2	Were the key program activities of eVIN delivered effectively w.r.t. quality assurance during the program implementation					
		1	2	3	4	5

	Key program activities	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
	HR & Training	-				
	Vaccine Utilization	-				
	Stock Management		-			
	Vaccine Distribution	-				
	Vaccine Management Practices	-				
	Documentation		-			
	Temperature Monitoring	-				
	CCE Repair and Maintenance		-			
	IT System Support		-			

4.3	Were the key program activities of eVIN delivered effectively w.r.t. adequacy in terms of quantum/ quantity during the program implementation					
		1	2	3	4	5
	Key program activities	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
	HR & Training	-				
	Vaccine Utilization	-				
	Stock Management	-				
	Vaccine Distribution	-				
	Vaccine Management Practices	-				
	Documentation		-			
	Temperature Monitoring	-				
	CCE Repair and Maintenance	-				
	IT System Support	-				

Q.5	5.1 Can you share some of the key learnings that you had during the program implementation of eVIN and CO-WIN? 5.2 What worked or works in your opinion with some case studies/ good practices? 5.3 How were feedback/learning incorporated in the subsequent process of planning and implementation?
	Stock management is now properly done, we were earlier not able to figure out the number of vaccines on the field. Second best part is temperature monitoring
Q.6	How Co-WIN ensure duplicate registration reduction, reducing wastage of vaccination, timely follow-up, QR code-based vaccination certificate and real time coverage data to plan the supply of vaccines contributed to cost savings?
Q.7	How Co-WIN App helped in increasing access to vaccination and ease to beneficiaries with digital certificates?
Q.8	8.1. While this program was started by MOHFW with the support from UNDP, would you agree that the program has effectively involve the state authorities)? □ Strongly agree. □ Agree □ Neither agree nor disagree □ Disagree □ Strongly disagree. 8.2 Would you agree that the capacity building and handholding of local governments was undertaken for seamless project implementation? □ Strongly agree. □ Agree □ Neither agree nor disagree □ Disagree □ Strongly disagree. 8.3. Could you give us some examples of your experiences/ learnings w.r.t. to the transfer of knowledge and handholding activities for seamless project implementation for other public health programs?
Q.9	9.1 Would you agree that the eVIN applications have made things easier as compared to the earlier times?

	□ Strongly agree. □ Agree □ Neither agree nor disagree □ Disagree □ Strongly disagree. 9.2 Would you agree that the applications, has helped in improving human resource training and capacity building to organize RI and COVID-19 vaccination drive better? □ Strongly agree. □ Agree □ Neither agree nor disagree □ Disagree □ Strongly disagree. 9.3 Would you agree that the application have helped in improving cost savings opportunities? □ Strongly agree. □ Agree □ Neither agree nor disagree □ Disagree □ Strongly disagree. 9.4. Which of the benefits of the applications may have contributed to improved cost savings/ financial efficiency of the RI program? Pl rate in order of priority?

Sr no	Particular	Priority rank
1	Improved visibility of stock / inventory, reducing wastages	
2	Improved temperature monitoring, reducing wastages	
3	Better logistics and route planning, optimizing logistics costs	
4	Improved training and HR management, optimizing capacity building efforts	
5	Improved documentation, optimizing time availability of staff & improving coverage	
6	Others, please specify	

Q10	Is there any computation/ estimations/ research conducted by the government or UNDP to estimate the value for money or ROI for the said project? If yes, could you share the brief details?

Q.11

11.1 Do you agree that the project interventions/ program design have contributed towards developing a sustainable UIP for the country?

□ Strongly agree.
□ Agree
□ Neither agree nor disagree
□ Disagree
□ Strongly disagree.

11.2 How would you prioritize some of the interventions under the program, in terms of their contribution to improve sustainability of the UIP?

Sr. No.	Key program activities	Priority Rank
1	HR & Training	
2	Vaccine Utilization	
3	Stock Management	
4	Vaccine Distribution	
5	Vaccine Management Practices	
6	Documentation	
7	Temperature Monitoring	
8	CCE Repair and Maintenance	
9	IT System Handling	

11.3. What are some additional comments/ suggestions with regards to improving sustainability of the UIP, from a technological upgradation standpoint?

11.4. Do you think that this technical and HR support should be institutionalized for long term sustainability of the applications for the betterment of UIP implementation.

□ Strongly agree.
□ Agree
□ Neither agree nor disagree
□ Disagree
□ Strongly disagree.

11.5. Pl suggest if you have thoughts on how technical and HR support can be institutionalized.

□ Through regular capacity building of HCW
□ Strong monitoring of the prog

<table>
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<td>
□ Digital and remote applications for HCW
□ Organizational restructure
□ Pl suggest if any others.

11.6 How sustainable eVIN solutions are with respect to,

<table>
<tr><td>Fund commitment</td><td>H/M/L</td></tr>
<tr><td>Technical Knowledge transfer</td><td>H/M/L</td></tr>
<tr><td>Gov of India approach and focus</td><td>H/M/L</td></tr>
<tr><td></td><td>H/M/L</td></tr>
</table>

11.7 How sustainable Co-WIN solutions are with respect to

<table>
<tr><td>Fund commitment</td><td>H/M/L</td></tr>
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</table>
</td>
</tr>
<tr>
<td>Q.12</td>
<td>
12.1 Did eVIN app ensured inclusiveness (covering all section of the society, all gender and vulnerable groups) in the vaccination drive with respect to providing accessibility, availability and quality of the healthcare service?

□ Strongly agree.
□ Agree
□ Neither agree nor disagree
□ Disagree
□ Strongly disagree.

12.2. Could you share some examples of how the eVIN, and Co-WIN program has helped improve coverage for all section of the society?

12.3 What are some additional comments/ suggestions to promote inclusivity for all?
</td>
</tr>
</table>

Q.13	13.1 Did Co-WIN app ensured inclusiveness (covering all section of the society, all gender and vulnerable groups) in the COVID-19 vaccination drive with respect to providing accessibility, availability and quality of the healthcare service? □ Strongly agree. □ Agree □ Neither agree nor disagree □ Disagree □ Strongly disagree. 13.2. According to you which are key initiatives under COVID-19 vaccination drive that helped improve access and coverage for vulnerable groups to vaccination and healthcare service? 13.3 Could you share some examples of how the eVIN, and Co-WIN program has helped improve coverage for vulnerable groups? 13.4 What are some additional comments/ suggestions to promote inclusivity for all including broaden its contribution to enhance diversity and inclusion?

Q.14	14.1 How eVIN ensure efficiency in vaccination system contributing to accountability, transparency and data driven decision making? *(Tick all that is applicable)* □ Digitized records and inventory management □ Users and location information traceability □ Data driven replenishment and indenting. □ Visibility of planned sessions and demand □ MIS/ Reports □ Other 14.2 Any Additional Comments: How Co-WIN ensure efficiency in vaccination system contributing to accountability, transparency and data driven decision making? *(Tick all that is applicable* □ Digitized records and inventory management □ Users and location information traceability □ Data driven replenishment and indenting. □ Visibility of planned sessions and demand □ MIS/ Reports □ Other Any Additional Comments:
Q.15	What are unintended outputs from eVIN, and Co-WIN witnessed at Community level?
Q.16	How effective has the project been in enhancing the capacity of local governments?
Q.17	To what extent did the project interventions contribute towards sustaining the results achieved by the project? (Prompts – HR, review structures, governance, logistics, infrastructure, , etc.)

Q.18 Do you have any comments on intrastate variations (across districts/ region disparity) in performance of Co-WIN in driving desired immunization program?

Tick	Key Areas	Comment
☐	Gender Inclusivity	
☐	Community Participation	
☐	Reach/ Accessibility	
☐	Youth	
☐	People with disabilities	
☐	disadvantaged and marginalized groups	
☐		
☐	Other	

Q.19 What are some of the areas of improvement of eVIN that could be considered to further enhance the programme implementation and overall impact across the state?
Considering intrastate disparity and challenges in the program implementation.

Tick	Key Areas	Recommendation/ Comment
☐	eVIN- IT Features	
☐	Training and Capacity building	
☐	IT support	
☐	Infrastructure and connectivity at local level	
☐	Human Resource Adequacy	
☐	IEC	
☐	Local Government and Stakeholder Coordination	
☐	Sustainability Plan & Continuity	
☐	Financing	
☐	Other	

Q.20 Any Other key areas/ points that you would like to mention?

In-depth interview (IDI) | State level | UNDP SPO/RPA

1. Name –	2. Age (in. years)-	3. Location-
Sex: * Male * Female * Other * Prefer Not to Mention	4. No of years in the role	5. Total no of years of work experience
6. Date & Time of interview-	7. Interviewer Name –	8. Interviewer's Signature

SN	Interview Questions- eVIN and Co-WIN
Q.1	How would you rank some of the advantages/ benefits of eVIN and Co-WIN for the State? *(Please rank each option below between 1 to 9, where 1 is highest and 9 is lowest)*

Sr no	Particular	Priority rank for Co-WIN	Priority rank for eVin
1	Stock Keeping/ Inventory Management		
2	Stock Replenishment and Digital Indenting		
3	Temperature Log & Quality Assurance		
4	MIS and Reports		
5	Traceability of Stock Batch		
6	Reducing manual stock bookkeeping		
7	Scheduling/ Planning of Vaccine Sessions		
8	Route planning		
9	Tracking Adverse Vaccine Reaction		
10	Any Other ( )		

Q.2 Which part of your job role & responsibilities was eVIN and Co-WIN able to address/ support the most?

(PI rank in order of priority, where 1 is highest and 9 is lowest)

Sr No.	Job responsibility	Priority rank for Co-WIN	Priority rank for eVIN
1	Stock Keeping/ Inventory Management		
2	Stock Replenishment and Digital Indenting		
3	Temperature Log & Quality Assurance		
4.	MIS and Reports		
5.	Traceability of Stock Batch		
6	Reducing manual stock bookkeeping		
7	Scheduling/ Planning of Vaccine Sessions		
8	Route planning		
9	Tracking Adverse Vaccine Reaction		
10	Any Other ( )		

Q.3. 3.1 Can you share some of the challenges faced during implementation of the eVIN and Co-WIN?

(Please rank each option below between 1 to 5, 1 is highest and 5 is lowest)

3.2. How did we overcome them/ how was the feedback incorporated in future planning & implementation? PI suggest the strategies used to overcome.

Tick	Issues	Rating for eVIN	Strategies to overcome
1	Resistance to change/ aversion to change at HCWF level		
2	Network connectivity, electricity and non-availability of functional computers at PHC levels		
3	Poor digital literacy among targeted users, resulting in delayed adoption		
4	Non-standardize practices and poor training/ capacity building of field staff		
5	Poor CCE, resulting in challenges in streamlining the process		
6	Any other PI specify		

Tick	Issues	Rating for Co-WIN	Strategies to overcome
1	Resistance to change/ aversion to change at HCWF level		
2	Network connectivity, electricity and non-availability of functional computers at PHC levels		
3	Poor digital literacy among targeted users, resulting in delayed adoption		
4	Non-standardize practices and poor training/ capacity building of field staff		
5	Poor CCE, resulting in challenges in streamlining the process		
6	Any other PI specify		

Q.4. How have the key program activities of eVIN been delivered effectively?

4.1 Were the key program activities of eVin delivered effectively on time during the program implementation

		1	2	3	4	5
	Key program activities	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
	HR & Training					
	Vaccine Utilization					
	Stock Management					
	Vaccine Distribution					
	Vaccine Management Practices					
	Documentation					
	Temperature Monitoring					
	CCE Repair and Maintenance					
	IT System Support					

4.3 Were the key program activities of eVIN delivered effectively w.r.t. quality assurance during the program implementation

		1	2	3	4	5
	Key program activities	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
	HR & Training					
	Vaccine Utilization					
	Stock Management					
	Vaccine Distribution					
	Vaccine Management Practices					
	Documentation					

	Temperature Monitoring					
	CCE Repair and Maintenance					
	IT System Support					

4.5	Were the key program activities of eVIN delivered effectively w.r.t. adequacy in terms of quantum/ quantity during the program implementation					
		1	2	3	4	5
	Key program activities	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
	HR & Training					
	Vaccine Utilization					
	Stock Management					
	Vaccine Distribution					
	Vaccine Management Practices					
	Documentation					
	Temperature Monitoring					
	CCE Repair and Maintenance					
	IT System Support					

Q.5	5.1 Can you share some of the key learnings that you had during the programme implementation of eVIN and CO-WIN? 5.2 What worked or works in your opinion with some case studies/ good practices? 5.3 How were feedback/learning incorporated in the subsequent process of planning and implementation?
Q.6	How Co-WIN ensure duplicate registration reduction, reducing wastage of vaccination, timely follow-up, QR code-based vaccination certificate and real time coverage data to plan the supply of vaccines contributed to cost savings?

Q.7	How Co-WIN App helped in increasing access to vaccination and ease to beneficiaries with digital certificates?
Q.8	8.1 While this programme was started by MOHFW with the support from UNDP, would you agree that the program has been effectively involve the state authorities)? □ Strongly agree. □ Agree □ Neither agree nor disagree □ Disagree □ Strongly disagree. 8.2. Would you agree that the capacity building and handholding of local governments undertaken for seamless project implementation? □ Strongly agree. □ Agree □ Neither agree nor disagree □ Disagree □ Strongly disagree. 8.3. Could you give us some examples of your experiences/ learnings w.r.t. to the transfer of knowledge and handholding activities for seamless project implementation for other public health programs?
Q.9	9.1 Would you agree that the eVIN applications have made things easier as compared to the earlier times? □ Strongly agree. □ Agree □ Neither agree nor disagree □ Disagree □ Strongly disagree. 9.2 Would you agree that the applications, has helped in improving human resource training and capacity building to organize RI and COVID-19 vaccination drive better? □ Strongly agree. □ Agree □ Neither agree nor disagree □ Disagree

<table>
<tr><td></td><td>
□ Strongly disagree.

9.3 Would you agree that the application have helped in improving cost savings opportunities?

1 Strongly agree.
2 Agree
3 Neither agree nor disagree
Disagree
4 Strongly disagree.

9.4. Which of the benefits of the applications may have contributed to improved cost savings/ financial efficiency of the program? Pl rank 1 being the highest and 5 being the lowest.
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<tr><th>Sr no</th><th>Particular</th><th>Priority rank</th></tr>
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<tr><td>2</td><td>Improved temperature monitoring, reducing wastages</td><td></td></tr>
<tr><td>3</td><td>Better logistics and route planning, optimizing logistics costs</td><td></td></tr>
<tr><td>4</td><td>Improved training and HR management, optimizing capacity building efforts</td><td></td></tr>
<tr><td>5</td><td>Improved documentation, optimizing time availability of staff & improving coverage</td><td></td></tr>
<tr><td>6</td><td>Others pl specify</td><td></td></tr>
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<tr><td>Q.10</td><td>Is there any computation/ estimations/ research conducted by the government or UNDP to estimate the value for money or ROI for the said project? If yes, could you share the brief details?</td></tr>
<tr><td>Q.11</td><td>
11.1 Do you agree that the project interventions/ program design have contributed towards developing a sustainable UIP for the country?

□ Strongly agree.
□ Agree
□ Neither agree nor disagree
□ Disagree
□ Strongly disagree.

11.2 How would you prioritize some of the interventions under the program, in terms of their contribution to improve sustainability of the UIP? 1 being the highest and 9 being the lowest.
</td></tr>
</table>

Sr. No.	Key program activities	Priority Rank
1	HR & Training	
2	Vaccine Utilization	
3	Stock Management	
4	Vaccine Distribution	
5	Vaccine Management Practices	
6	Documentation	
7	Temperature Monitoring	
8	CCE Repair and Maintenance	
9	IT System Handling	

11.3. What are some additional comments/ suggestions with regards to improving sustainability of the UIP, from a technological upgradation standpoint?

11.4. Do you think that this technical and HR support should be institutionalized for long term sustainability of the applications for the betterment of UIP implementation.

1 Strongly agree.
2 Agree
3 Neither agree nor disagree
4 Disagree
5 Strongly disagree.

11.5. PI suggest if you have thoughts on how technical and HR support can be institutionalized.

□ Through regular capacity building of HCW
□ Strong monitoring of the program
□ Digital and remote applications for HCW
□ Organizational restructure
□ PI suggest if any others.

11.6 How sustainable eVIN solutions are with respect to,

Fund commitment	H/M/L
Technical Knowledge transfer	H/M/L

	<table><tr><td>Open-source technology</td><td>H/M/L</td></tr><tr><td>Gov of India approach and focus</td><td>H/M/L</td></tr><tr><td>Others pl specify</td><td>H/M/L</td></tr></table> 11.7 How sustainable Co-WIN solutions are with respect to, <table><tr><td>Fund commitment</td><td>H/M/L</td></tr><tr><td>Technical Knowledge transfer</td><td>H/M/L</td></tr><tr><td>Open-source technology</td><td>H/M/L</td></tr><tr><td>Gov of India approach and focus</td><td>H/M/L</td></tr><tr><td>Others pl specify</td><td>H/M/L</td></tr></table>
Q.12	12.1 Did eVIN ensured inclusiveness (covering all section of the society, all gender and vulnerable groups) in the vaccination drive with respect to providing accessibility, availability and quality of the healthcare service? □ Strongly agree. □ Agree □ Neither agree nor disagree □ Disagree □ Strongly disagree. 12.2. Could you share some examples of how the eVIN, and Co-WIN program has helped improve coverage for vulnerable groups? 12.3 What are some additional comments/ suggestions to promote inclusivity for all?

Q.13	13.1 Did Co-WIN app ensure inclusiveness (covering all section of the society, all gender and vulnerable groups) in the COVID-19 vaccination drive with respect to providing accessibility, availability and quality of the healthcare service? □ Strongly agree. □ Agree □ Neither agree nor disagree □ Disagree □ Strongly disagree. 13.2. According to you which are key initiatives under COVID-19 vaccination drive that helped improve access and coverage for vulnerable groups to vaccination and healthcare service? 13.3 Could you share some examples of how the program (eVIN and Co-WIN) has helped improve coverage for vulnerable groups? 13.4 What are some additional comments/ suggestions to promote inclusivity for all including broaden its contribution to enhance diversity and inclusion?
Q.14	How eVIN ensure efficiency in vaccination system contributing to accountability, transparency and data driven decision making? *(Tick all that is applicable)* □ Digitized records and inventory management □ Users and location information traceability □ Data driven replenishment and indenting. □ Visibility of planned sessions and demand □ MIS/ Reports □ Other Any Additional Comments: How Co-WIN ensure efficiency in vaccination system contributing to accountability, transparency and data driven decision making? *(Tick all that is applicable)* □ Digitized records and inventory management □ Users and location information traceability □ Data driven replenishment and indenting. □ Visibility of planned sessions and demand □ MIS/ Reports □ Other

<table>
<tr><td>Q 15</td><td>How Co-WIN ensure efficiency in vaccination system contributing to accountability, transparency and data driven decision making?
(Tick all that is applicable)

□ Digitized records and inventory management
□ Users and location information traceability
□ Data driven replenishment and indenting.
□ Visibility of planned sessions and demand
□ MIS/ Reports
□ Other

Any Additional Comments:</td></tr>
<tr><td>Q.16</td><td>What are unintended outputs from eVIN, and Co-WIN witnessed at Community level?</td></tr>
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<tr><td>Q.18</td><td>To what extent did the project interventions contribute towards sustaining the results achieved by the project? (Prompts – HR, review structures, governance, logistics, infrastructure, , etc.)</td></tr>
<tr><td>Q 19</td><td>Do you have any comments on intrastate variations (across districts/ region disparity) in performance of Co-WIN in driving desired immunization program?

<table>
<tr><th>Tick</th><th>Key Areas</th><th>Comment</th></tr>
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<tr><td>□</td><td>Community Participation</td><td></td></tr>
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<tr><td>□</td><td>Other</td><td></td></tr>
</table></td></tr>
<tr><td>Q.21</td><td>Any Other key areas/ points that you would like to mention?</td></tr>
</table>

In-depth interview (IDI) | VCCM

1. Name	**2. Age (in. years)**	**3. Location (State/ Dist./ Town/ Village)**
4. Sex: 5. □ Male □ Female □ Other □ Prefer Not to Mention	**6. No of years in the role**	**7. Total no of years of work experience**
8. Date & Time of interview	**9. Interviewer Name**	**10. Interviewer's Signature**

SN	Interview Questions- eVIN and Co-WIN
Q.1	How would you rate some of the advantages/ benefits of eVIN and Co-WIN in managing and handling vaccines? *(Please rate each option below between 1 to 9, where 1 is highest and 9 is the lowest)*

Sr no	Particular	Priority rank for eVIN	Priority rank for Co-WIN
1	Stock Keeping/ Inventory Management		
2	Stock Replenishment and Digital Indenting		
3	Temperature Log & Quality Assurance		
4	MIS and Reports		
5	Traceability of Stock Batch		
6	Reducing manual stock bookkeeping		
7	Scheduling/ Planning of Vaccine Sessions		
8	Route planning		
9	Tracking Adverse Vaccine Reaction		
10	Any Other		

Q.2 Which part of your job role & responsibilities was eVIN and Co-WIN able to address/ support the most?

(Pl rate in order of priority, where 1 is highest and 9 is lowest)

Sr no	Particular	Priority rank for eVIN	Priority rank for Co-WIN
1	Stock Keeping/ Inventory Management		
2	Stock Replenishment and Digital Indenting		
3	Temperature Log & Quality Assurance		
4	MIS and Reports		
5	Traceability of Stock Batch		
6	Reducing manual stock bookkeeping		
7	Scheduling/ Planning of Vaccine Sessions		
8	Route planning		
9	Tracking Adverse Vaccine Reaction		
10	Any Other		

Q.3. 3.1 Can you share some of the challenges faced during implementation of the eVIN and Co-WIN?

(Please rate each option below between 1 to 5, where 1 is highest and 5 is lowest)

3.2. How did we overcome them/ how was the feedback incorporated in future planning & implementation? Pl suggest the strategies used to overcome?

Sr no	Issues	Rating for eVIN	Strategies to overcome
1	Resistance to change/ aversion to change at HCWF level		
2	Network connectivity, electricity and non-availability of functional computers at PHC levels		
3	Poor digital literacy among targeted users, resulting in delayed adoption		

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4	Non-standardize practices and poor training/ capacity building of field staff		
5	Poor CCE, resulting in challenges in streamlining the process		
6	Any other PI specify		

Sr no	Issues	Rating for Co-WIN	Strategies to overcome
1	Resistance to change/ aversion to change at HCWF level		
2	Network connectivity, electricity and non-availability of functional computers at PHC levels		
3	Poor digital literacy among targeted users, resulting in delayed adoption		
4	Non-standardize practices and poor training/ capacity building of field staff		
5	Poor CCE, resulting in challenges in streamlining the process		
6	Any other PI specify		

Q.4. How have the key program activities of eVIN and Co-WIN been delivered effectively?

4.1	Were the key program activities of eVIN delivered effectively on time during the program implementation					
		1	2	3	4	5
	Key program activities	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
	HR & Training					
	Vaccine Utilization					
	Stock Management					
	Vaccine Distribution					

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	Vaccine Management Practices					
	Documentation					
	Temperature Monitoring					
	CCE Repair and Maintenance					
	IT System Support					

4.2	Were the key program activities of Co-WIN delivered effectively on time during the program implementation					
		1	2	3	4	5
	Key program activities	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
	HR & Training					
	Vaccine Utilization					
	Stock Management					
	Vaccine Distribution					
	Vaccine Management Practices					
	Documentation					
	Temperature Monitoring					
	CCE Repair and Maintenance					
	IT System Support					

4.3	Were the key program activities of eVIN delivered effectively w.r.t. quality assurance during the program implementation					
		1	2	3	4	5
	Key program activities	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
	HR & Training					
	Vaccine Utilization					

	Stock Management					
	Vaccine Distribution					
	Vaccine Management Practices					
	Documentation					
	Temperature Monitoring					
	CCE Repair and Maintenance					
	IT System Support					

4.4	Were the key program activities of Co-WIN delivered effectively w.r.t. quality assurance during the program implementation					
		1	2	3	4	5
	Key program activities	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
	HR & Training					
	Vaccine Utilization					
	Stock Management					
	Vaccine Distribution					
	Vaccine Management Practices					
	Documentation					
	Temperature Monitoring					
	CCE Repair and Maintenance					
	IT System Support					

4.5	Were the key program activities of eVIN delivered effectively w.r.t. adequacy in terms of quantum/ quantity during the program implementation					
		1	2	3	4	5
	Key program activities	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree

	HR & Training					
	Vaccine Utilization					
	Stock Management					
	Vaccine Distribution					
	Vaccine Management Practices					
	Documentation					
	Temperature Monitoring					
	CCE Repair and Maintenance					
	IT System Support					

4.6	Were the key program activities of Co-WIN delivered effectively w.r.t. adequacy in terms of quantum/ quantity during the program implementation					
		1	2	3	4	5
	Key program activities	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
	HR & Training					
	Vaccine Utilization					
	Stock Management					
	Vaccine Distribution					
	Vaccine Management Practices					
	Documentation					
	Temperature Monitoring					
	CCE Repair and Maintenance					
	IT System Support					

Q.5	How would you rate overall performance of eVIN app? (5 being highest) □ 1 □ 2 □ 3 □ 4 □ 5
Q.6	How would you rate eVIN app in terms of ease of using the app? (5 being highest) □ 1 □ 2 □ 3 □ 4 □ 5

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Q.7	Do you think that real time data availability through eVIN system is helpful in decision making? □ Strongly agree. □ Agree □ Neither agree nor disagree □ Disagree □ Strongly disagree.
Q.8	Can you share some of the key learnings that you had during the programme implementation of eVIN and CO-WIN? Please ask separately for eVIN and Co-WIN
Q.9	How Co-WIN ensure duplicate registration reduction, reducing wastage of vaccination, timely follow-up, QR code-based vaccination certificate and real time coverage data to plan the supply of vaccines contributed to cost savings?
Q.10	How Co-WIN App helped in increasing access to vaccination and ease to beneficiaries with digital certificates?
Q.11	11.1 While this programme was started by MOHFW with the support from UNDP, would you agree that the program has been effectively involve the state authorities)? □ Strongly agree. □ Agree □ Neither agree nor disagree □ Disagree □ Strongly disagree. 11.2 Would you agree that the capacity building and handholding of local governments undertaken for seamless project implementation? □ Strongly agree. □ Agree □ Neither agree nor disagree □ Disagree □ Strongly disagree. 11.3. Could you give us some examples of your experiences/ learnings w.r.t. to the transfer of knowledge and handholding activities for seamless project implementation for other public health programs?

Q.12	12.1 Would you agree that the eVIN applications have made things easier as compared to the earlier times? □ Strongly agree. □ Agree □ Neither agree nor disagree □ Disagree □ Strongly disagree. 12.2 Would you agree that the applications, has helped in improving human resource training and capacity building to organize RI and COVID-19 vaccination drive better? □ Strongly agree. □ Agree □ Neither agree nor disagree □ Disagree □ Strongly disagree. 12.3 Would you agree that the application have helped in improving cost savings opportunities? □ Strongly agree. □ Agree □ Neither agree nor disagree □ Disagree □ Strongly disagree. 12.4 Do you think that vaccine wastage has been reduced? □ Strongly agree. □ Agree □ Neither agree nor disagree □ Disagree □ Strongly disagree. 12.5 Do you think that stock-out event has been reduced? □ Strongly agree. □ Agree □ Neither agree nor disagree □ Disagree

□ Strongly disagree.

12.6. Has the eVIN given you more control over your work and data/ information driven decision-making?

□ Strongly agree.
□ Agree
□ Neither agree nor disagree
□ Disagree
□ Strongly disagree.

12.7 Which of the benefits of the applications may have contributed to improved cost savings/ financial efficiency of the program? Pl rate in order of priority? *1 being the highest and 5 being the lowest.*

Sr no	Particular	Priority rank
1	Improved visibility of stock / inventory, reducing wastages	
2	Improved temperature monitoring, reducing wastages	
3	Better logistics and route planning, optimizing logistics costs	
4	Improved training and HR management, optimizing capacity building efforts	
5	Improved documentation, optimizing time availability of staff & improving coverage	
6	Others pl specify	

Q.13

13.1 Do you agree that the project interventions/ program design have contributed towards developing a sustainable UIP for the country?

□ Strongly agree.
□ Agree
□ Neither agree nor disagree
□ Disagree
□ Strongly disagree.

13.2 How would you prioritize some of the interventions under the program, in terms of their contribution to improve sustainability of the UIP? *1 being the highest and 9 being the lowest.*

Sr. No.	Key program activities	Priority Rank

	1	HR & Training	
	2	Vaccine Utilization	
	3	Stock Management	
	4	Vaccine Distribution	
	5	Vaccine Management Practices	
	6	Documentation	
	7	Temperature Monitoring	
	8	CCE Repair and Maintenance	
	9	IT System Handling	

13.3. What are some additional comments/ suggestions with regards to improving sustainability of the UIP, from a technological upgradation standpoint?

Q.14

14.1 Did eVIN app ensured inclusiveness (covering all section of the society, all gender and vulnerable groups) in the vaccination drive with respect to providing accessibility, availability and quality of the healthcare service?

□ Strongly agree.
□ Agree
□ Neither agree nor disagree
□ Disagree
□ Strongly disagree.

14.2. Could you share some examples of how the program has helped improve coverage for vulnerable groups?

14.3 What are some additional comments/ suggestions to promote inclusivity for all?

Q.15

15.1 Did Co-WIN app ensured inclusiveness (covering all section of the society, all gender and vulnerable groups) in the COVID-19 vaccination drive with respect to providing accessibility, availability and quality of the healthcare service?

□ Strongly agree.
□ Agree
□ Neither agree nor disagree
□ Disagree
□ Strongly disagree.

15.2. What are some of the common issues faced by the vulnerable groups?

□ Hesitance for vaccination

	□ Lack of awareness □ Lack of personal devices, limiting ability to register. □ Unwillingness to participate in program activities. □ Others pl specify (1) 15.3. What are the specific interventions designed to enhance the participation or support the vulnerable groups? □ Special sessions for certain groups □ Flexibility to allow single shared identification registration. □ Greater effort by health workers to provide education/ counselling. □ Others pl specify (1)
Q.16	How eVIN ensure efficiency in vaccination system contributing to accountability, transparency and data driven decision making? *(Tick all that is applicable)*
	□ Digitized records and inventory management □ Users and location information traceability □ Data driven replenishment and indenting. □ Visibility of planned sessions and demand □ MIS/ Reports □ Other Any Additional Comments:
Q 17	How Co-WIN ensure efficiency in vaccination system contributing to accountability, transparency and data driven decision making? *(Tick all that is applicable)* □ Digitized records and inventory management □ Users and location information traceability □ Data driven replenishment and indenting. □ Visibility of planned sessions and demand □ MIS/ Reports □ Other Any Additional Comments:
Q.18	18.1 To what extent did the project interventions contribute towards sustaining the results achieved by the project? (Prompts – HR, review structures, governance, logistics, infrastructure, , etc.)

	18.2 Do you think that this technical and HR support should be institutionalized for long term sustainability of the applications for the betterment of UIP implementation; ease of work for HCW (capacity building of HCW, monitoring of the prog, use of application by HCW). 18.3. Have eVIN helped improve communication and trust between frontline workers and the communities you serve? 1 Strongly agree. 2 Agree 3 Neither agree nor disagree 4 Disagree 5 Strongly disagree. 18.4. Have Co-WIN helped improve communication and trust between frontline workers and the communities you serve? 1 Strongly agree. 2 Agree 3 Neither agree nor disagree 4 Disagree 5 Strongly disagree
Q.19	What are some of the areas of improvement of eVIN that could be considered to further enhance the programme implementation and overall impact across the state? *Considering intrastate disparity and challenges in the program implementation.*

	Key Areas	Recommendation/ Comment
☐	eVIN- IT Features	
☐	Training and Capacity building	
☐	IT support	
☐	Infrastructure and connectivity at local level	
☐	Human Resource Adequacy	
☐	IEC	
☐	Local Government and Stakeholder Coordination	
☐	Sustainability Plan & Continuity	
☐	Financing	
☐	Other	

Q.20	Any Other key areas/ points that you would like to mention?

In-depth interview with CCH and Survey Tool for CCP

1. Name:	**2. Age (in. years)**	**3. Location (CCP)**
4. Sex: Male □ Female □ Other □ Prefer Not to Mention	**5. No of years in the role:** **6. 6 years**	**7. Total no of years of work experience since 2018**
8. Date & Time of interview	**9. Interviewer Name:**	**10. Interviewer's Signature :**
11. Designation:	**12. CCP Type:** DH/ CHC/ PHC/ SC/ Other	**13. CCP Location:**

SN	Interview Questions- eVIN
Q.1	Are you a dedicated CCH or it's an add-on responsibility? □ Dedicated CCH Role primary handler □ Add-on Role of CCH □ Dedicated CCH Role with Add-on Role
Q.2	Do you have back-up cold chain handler at the CCP? □ Yes □ No □ Can't Say/ Not Sure
Q.3	What all trainings have you received for your role as a CCH? *(Tick the ones which are yes)* □ Cold Chain Handler (2016 Module), if yes when …… □ e-VIN Training, if yes when: …… □ Any Other (s) related to eVIN/ CCH: …… □ None
Q.4	How many session sites does the Cold Chain Points caters to?
Q.5	How would you rate some of the advantages/ benefits of eVIN for the State? *(Please rate each option below between 1 to 5, where 1 is lowest and 5 is highest)*

Sr no	Particular	Priority rank
1	Stock keeping/ inventory management	
2	Stock replenishment and digital indenting	
3	Temperature log & quality assurance	
4	Registers and MIS reports	

	5	Traceability of stock batch	
	6	Reducing manual stock bookkeeping	
	7	Scheduling/ planning of vaccine sessions	
	8	Route planning	
	9	Tracking adverse vaccine reaction	
	10	Any Other	

Q.6 Which part of your job role & responsibilities was eVIN able to address/ support the most?

(Please rate in order of priority, where 1 is highest and 10 is lowest)

Sr No.	Job responsibility	Priority Rank
1	Stock Keeping/ Inventory Management	
2	Stock Replenishment and Digital Indenting	
3	Temperature Log & Quality Assurance	
4.	Registers and MIS reports	
5.	Traceability of Stock Batch	
6	Reducing manual stock bookkeeping	
7	Scheduling/ Planning of Vaccine Sessions	
8	Route planning	
9	Tracking Adverse Vaccine Reaction	
10	Any Other	

Q.7 How would you rate overall performance of eVIN app? (5 being highest)

- □ 1
- □ 2
- □ 3
- □ 4
- □ 5 (it can be made more user friendly)

Q.8 How would you rate eVIN app in terms of ease of using the app? (5 being highest)

- □ 1
- □ 2
- □ 3

	□ 4 □ 5
Q.9	Do you think that real time data availability through eVIN system is helpful in decision making? □ Strongly agree. □ Agree □ Neither agree nor disagree □ Disagree □ Strongly disagree
Q.10	Do you think that vaccine wastage has been reduced? □ Strongly agree □ Agree □ Neither agree nor disagree □ Disagree □ Strongly disagree
Q.11	Do you think that stock-out event has been reduced? □ Strongly agree □ Agree □ Neither agree nor disagree □ Disagree □ Strongly disagree
Q.12	Has the eVIN given you more control over your work and data/ information driven decision-making? □ Strongly agree □ Agree □ Neither agree nor disagree □ Disagree □ Strongly disagree
Q.13	In last three months, how many times you have received vaccines from nearby CCP or have you forwarded to other CCPs? □ Received vaccines from other CCPs □ Supplied to other CCPs □ None of the above

Q.14	Were there instances when vaccine (any vaccine) stock-out (nil stock) happened in last three months? If yes, how many times and have been reasons? □ Yes □ No □ Can’t Say
Q.15	Were there instances of vaccine stock recorded less than minimum (any vaccine) stock in last three-months? If yes, how many times and have been reasons? □ Yes □ No □ Can’t Say
Q.16	Were there instances of excess vaccine (any vaccine) stock in last three months? If yes, how many times and reasons? □ Yes □ No □ Can’t Say
Q.17	How do you maintain the vaccine stock information? (Availability of stock records) **SN** / **Register** / **No of Register** 1 / GoI Register / 2 / Other than GoI register / 3 / MIS/application / 4 / Loose papers/Personal Diary / 5 / Others / Any Comment:

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Q.18 How frequently do you enter vaccine stock information? (After receipt and disbursal of each vaccine)

mention the number of register/ data updated.

Sno	Frequency	Physical Register	eVIN Data Entry
1	With in few hours		
2	With in a day		
3	With in a week		
4	Monthly		
5	Not fixed		
6	Any Other. Please specify		

Q.19 Please provide details on Frequency and time taken for data entry. (Last 3 months)
Frequency in no. of times per week or month
Time in mins (*to be verified from UNDP's provided data)*

Particulars	Registers	eVIN	Comment (if any)
Vaccine Order Qty. Planning			
Indent Generation			
Vaccine Receiving			
Vaccine Distribution			
Vaccine Returned			
Vaccine Stock Management/ Reconciliation			
MIS/ Reports			

Q.20 How do you maintain Temperature logbook of CCE?

□ Physical Register

□ Digital Record (please specify)

□ Any Other (Please specify)

Q.21 How temperature logger has been helpful in reducing vaccine wastage

(Probe: accuracy of data, real time data, helpful in maintain temperature in cold chain, reducing wastage)

□ Yes

□ No

	□ Can't Say
Q.22	Does eVIN system help you monitor the overall health of CCE (uptime & downtime)? If yes, then how? □ Yes □ No □ Can't Say
Q.23	Does eVIN system help in reducing the downtime of CCE? If yes, then how? □ Yes □ No □ Can't Say
Q.24	How frequently do you update temperature document? (To be asked for pre-eVIN and post eVIN as per reference period) □ Twice in a day (Morning and Evening) (for both pre eVIN and post eVIN. During holidays, we needed to ask other people about temperature. Better in post eVIN coz temp can be checked from home) □ Whenever get time? □ Not maintained (please see) □ Any Other (please specify)
Q.25	What is the mechanism for recording temperature during Sundays/holidays? (To be asked for pre-eVIN and post eVIN as per reference period) (for registers) □ Recorded the same day □ Someone else records on my behalf on same day □ Recorded the next day (Not recorded) □ Other (please specify)
Q.26	What are some of the areas of improvement of eVIN that could be considered to further enhance the programme implementation and overall impact?

Tick	Key Areas	Recommendation/ Comment
□	eVIN- IT Features	
□	Training and Capacity building	
□	IT support	

	□	Infrastructure and connectivity at local level	
	□	Human Resource Adequacy	
	□	IEC	
	□	Local Government and Stakeholder Coordination	
	□	Other	

Q.27	Has the eVIN given you more control over your work and decision making? □ Yes □ No □ NA
Q.28	Do you feel more seen and valued by your organization since implementing the eVIN □ Yes □ No □ NA
Q.29	Has the eVIN improved your communication with beneficiaries, Senior officials □ Yes □ No □ NA
Q.30	Has the eVIN helped to streamline the paperwork you have to do? □ Yes □ No □ NA
Q.31	Has your efficiency in managing any digital tool improved after use of eVIN □ Yes □ No □ NA
Q.32	How confident you feel to ask help from UNDP team members w.r.t your work □ Yes □ No □ NA
Q.33	Any Other key areas/ points that you would like to mention?

Verification of eVIN Records and Physical Stock/ Records

Q.1 Stock Reconciliation between eVIN Record, Stock Register (Physical) and Physical Count

	Between eVIN Record and Stock Register (Physical)			Between eVIN record and Physical Count		
Name of Vaccine/ diluent/ syringes	**eVIN Record Quantity**	**Stock Register (Physical)**	**Difference**	**eVIN Record Quantity**	**Physical Count**	**Difference**

Q.2 Vaccine Stock Out Frequency and Days (*to be provided by UNDP)*

Name of Vaccine/ diluent/ syringes	No. of Stock Outs	Stock Out Days	Comment

Stock out is when stock reached to zero.

Stock out is number of days, stock was not available.

Q.3 Vaccine Stock Out Frequency and Days (*to be provided by UNDP)*

Name of Vaccine/ diluent/ syringes	Instances stock exceeding maximum quantity level	Instances stock dropped below

		minimum quantity level

Instances/ frequency- number of times stock exceed/ dropped below

Q4. Please provide vaccine wise details of wasted doses/vials (*to be provided by UNDP)*

(Data Source- Post e-VIN: Stock registers, Indent registers/vouchers)

Name of Vaccine	Non-usable VVM	Freezing instances	Broken vials	Expiry	Total
Pentavalent					
BCG					

Q.5 Session Stock Reconciliation (*to be provided by UNDP)*

Name of Vaccine/ diluent/ syringes	Expire of Stock in Hand	Expiry of Last Stock Issued	Comment

Q.6 Accuracy of Temperature - Where eVIN Logger Reading Matched with Stem Thermometer ((*to be provided by UNDP)*

CCE	eVIN Logger Reading	Stem Thermometer	Comment

Q.7 Defrosting events in Cold Chain Equipment (*to be provided by UNDP)*

CCE	Defrosting events	Comments

Beneficiary (above 18 years) | Survey Tool | Co-WIN

1. Name -	**2. Age (in comp. years)**	**3. Village/ District/ State -**
4. Sex: □ Male □ Female □ Other □ Prefer Not to Mention	**5. Religion:** □ Majority □ Minority	**6. Caste:** □ SC □ ST □ OBC □ General
7. Beneficiary □eVIN □ Co-WIN □ None	**8. Vaccination Availed** □ Self □ Children (above 18_ years) □ Not Availed	9. **Any form of disability**: □ Yes □ No
10. Mobile number-		

SN	Questions	Response
1	How many doses of COVID-19 vaccination have you received?	□ 2+booster dose □ 2 doses □ 1 dose □ None
2	According to you, how effective were the efforts for creating awareness and communication regarding COVID-19 vaccination and Co-WIN app?	□ Very Good (5) □ Good (4) □ Average (3) □ Poor (2) □ Very Poor (1) □ Can't Say (0)
3	How was your experience of registration process for COVD vaccination using Co-WIN app?	□ Very Good (5) □ Good (4) □ Average (3) □ Poor (2) □ Very Poor (1) □ Can't Say (0)
4	Do you think Co-WIN app helped in increasing the access for COVID-19 vaccination?	□ Yes (2) □ No (1) □ Can't Say (0)
5	How was your experience of scheduling appointment for COVD vaccination using Co-WIN app?	□ Very Good (5) □ Good (4) □ Average (3) □ Poor (2) □ Very Poor (1) □ Can't Say (0)
6	Do you think Digital COVID-19 vaccination Certificate using Co-	□ Strongly Agree (5) □ Agree (4)

	WIN app helped you/ your family with digital vaccine passport for mobility?	□ Neutral (3) □ Disagree (2) □ Strongly Disagree (1) □ Can't Say (0)
7	Do you think Co-WIN App played key role in the success of COVID-19 vaccination?	□ Strongly Agree (5) □ Agree (4) □ Neutral (3) □ Disagree (2) □ Strongly Disagree (1)
8	What are the common difficulties that you face when accessing immunization services at public facilities?	□ Non availability of vaccines/ related supplies □ Non availability of qualified/ trained healthcare workers □ Odd timings of the facility (availability) □ Poor road network/ transportation/ access to facility □ Limited access to marginalized community □ Charges/ fees for immunization/ cost □ Any other, please specify.
9	Have you faced any unique issues of access, when trying to get immunized?	□ No, unique issues □ Yes, access to girl/ women is limited. □ Cannot say
10	If yes, can you pl specify the issue	□ Denied □ Unable to attend due to odd timings. □ Unable to travel with girl child □ Lack of facilities for girls at the centre □ If other, please specify.
11	What is the need to get immunized/ Are you aware of the advantage of vaccination? (Select all that apply)	□ Vaccines prevent disease □ Vaccines are good for your health □ Vaccines have benefits □ Cannot say
12	What type of information was shared with them about vaccines? (Select all that apply)	□ Health benefits of vaccines □ Importance of timely vaccination □ How vaccine prevents vaccines □ Which type of COVID-19 vaccination was administered □ None
13	Were there any specific outreach initiatives/camps arranged in your community to make sure that the women,	□ Yes, there were special programs for women and marginalized group. □ There were some efforts but not for everyone □ No, I have not noticed any special

	lower income families, vulnerable group received vaccines	
14	How has the digitalization of COVID-19 vaccination (in Hindi) benefited your community overall?	□ Improved access to vaccination and health services. □ Increased awareness about the importance of vaccination. □ More opportunities for women and youth in community health activities. □ No noticeable benefits.
15	In what ways has the project contributed towards increased involvement of youths?	□ As health workers or volunteers. □ Assisting in vaccination drives or awareness campaigns. □ Spreading information on social media or through local groups □ No specific involvement of youth. □ Cannot say
16	What specific benefits have women in your community received from the digitalization of COVID-19 vaccination	□ Free or easier access to vaccination services. □ Health education and awareness sessions. □ Opportunities to work as health volunteers or community workers. □ Improved decision-making power regarding family health. □ No specific benefits for women.
17	Did the women and vulnerable groups in your community receive vaccination	□ Yes □ No □ Not sure
18	How has the COVID-19 vaccination impacted the health of children (above 18_ years) and families in your community in general?	□ Significantly □ Marginally □ No noticeable impact on health.
19	Have you/ your children (above 18_ years) experienced any side effects/ health complications post immunization?	□ Significant side effects/ complications, that required to seek medical attention/ hospitalization □ Marginal effects like mild fever and body ache □ No side effects/ complication □ Cannot say
20	Does the immunization officer/ ANM brief you about the side effects and guide you on basic	□ Always □ Sometimes □ Never

	precautions, every time prior to immunization?	□ Cannot say
21	Has the immunization officer/ ANM provided you with any medical assistance, if required in case of complications/ side effects?	□ Never had any complications □ Always, when help is required □ Sometimes, when help is required □ Never, when help is required
22	Has your COVID-19 vaccination been rescheduled to the next date/next slot?	□ Frequently, more than two episodes □ Rarely, maybe one episode □ Never □ Cannot say
23	What was the most common reason provided for the rescheduling, if rescheduled to next date/next slot?	□ Non availability of the vaccine/ other supplies □ Break in the cold chain/ damaged supplies. □ Others, pl specify
24	Do the health workers/ ASHA/ ANM, remind you to visit the centre for immunization around your scheduled dates or do you manage your own visits?	□ Remind me every time before the visit □ Remind me if I would miss a visit □ Never remind me, I manage my schedule □ Cannot say
25	Based on your experience, would you say that services have improved in terms of availability and quality over the last five years?	□ Yes □ No □ Cannot say
26	What are the advantages/ benefits because of recent interventions and technological improvements in immunization services in recent years**?**	□ Easy availability of vaccines/ related supplies □ Qualified/ trained healthcare workers □ Improved availability of services □ Improvement in coverage of services □ Digital certifications/ easy record management □ Any other, please specify.

Beneficiary (Pregnant women and mothers with children age 0-5 years) | Survey Tool | eVIN

1. Name-	**2. Age (in comp. years)**	**3. Village/ District/ State -**
4. Sex: □ Male □ Female □ Other □ Prefer Not to Mention	**5. Religion:** □ Majority □ Minority	**6. Caste:** □ SC □ ST □ OBC □ General
7. Beneficiary □eVIN □ Co-WIN □ None	**8. Vaccination Availed** □ Self □ Children □ Not Availed	**9. Any form of disability**: □ Yes □ No
10. Mobile number-		

SN	Questions	Response
1.	How many children do you have in the age group of 0-5 years? *If mention number of children skip question 2*	□ None □ 1 □ 2 □ More than 2
2.	If none, how far along are you in your pregnancy. *(Skip question 3)*	□ Specify month_____
3.	Are your children immunized as per the schedule, up to date?	□ Immunized completely as per schedule. □ Have missed only one dose in the schedule. □ Have missed multiple doses as per the schedule
4.	Are you immunized as per the schedule, during the ANC period? *(In case the woman is pregnant)*	□ Yes, immunized completely as per schedule. □ No, have missed only one dose in the schedule. □ No, have missed multiple doses as per the schedule
5.	Which facility do you visit for self/ your children's immunization activities	□ HFWC/SC/PHC □ FRU/ CHC/ DH/ Government hospital □ Private clinic/ hospital □ Others, pl specify
6.	What are the common difficulties that you face when	□ Non availability of vaccines/ related supplies

	accessing immunization services for self and/ or child **at public facilities?**	□ Non availability of qualified/ trained healthcare workers □ Odd timings of the facility (availability) □ Poor road network/ transportation/ access to facility □ Limited access to certain community □ Charges/ fees for immunization/ costs □ Any other, please specify.
7.	How much time did it take for you and your child to receive the vaccination process?	□ Immediately □ Less than 30 mins □ 30 mins-1 hour □ More than an hour □ Cant’ say
8.	Do all eligible women from your village attend vaccination sessions or awareness sessions regularly?	□ Yes, all eligible women attend regularly. □ No, some eligible women from the community do not attend regularly. □ Cannot say
9.	Do you think, vaccination is accessible to all eligible beneficiaries?	□ Yes □ No □ Any other please specify
10.	How has the vaccination impacted the health of children and families in your community in general?	□ Significantly □ Marginally □ No noticeable impact on health.
11.	Has you/ your child’s vaccination been rescheduled to the next date in the last six months?	□ Frequently, more than two episodes □ Rarely, maybe one episode □ Never □ Cannot say
12.	What was the most common reason provided for the rescheduling, if rescheduled?	□ Non availability of the vaccine/ other supplies □ Break in the cold chain/ damaged supplies. □ Others, pl specify
13.	Based on your experience, would you say that services have improved in terms of availability and quality over the last five years?	□ Yes □ No □ Cannot say
14.	How have recent improvements in vaccination services benefited you?	□ Easy availability of vaccines/ related supplies □ Qualified/ trained healthcare workers □ Improved availability of services □ Improvement in coverage of services □ Digital certifications/ easy record management

		□ Any other, please specify.

FGD guide for front-line workers Vaccinator – only for CO-WIN

1. Location-	2. Number of participants for FGDs-	3. Interviewers’ details-

SN	Questions	Response
1	1.1 Since how long have you been working as an ANM? 1.2 What are your current roles and responsibilities as an ANM in the immunization programme?	
2	2.1 Now that you use and Co-WIN for immunization. How were you earlier doing immunization in your area? (Prompts – indenting, reserve stocks, microplanning, data reporting, etc.) 2.2 What were some of the key challenges which you experienced back in the day?	
3	3.1 How user-friendly do you find the Co-WIN platforms for tracking and reporting vaccine inventory? 3.2 Have you received adequate training on using Co-WIN? What additional support or training do you need?	
4	Has there been any improvement with respect to work-life balance?	
5	5.1 How do you ensure that the vaccination services you deliver are gender-inclusive? Are there any specific approaches or practices you use to ensure that women, particularly pregnant women and mothers, are adequately informed and vaccinated? 5.2 What challenges do you face in reaching women, children, and vulnerable populations (e.g., tribal communities, the elderly, people with disabilities) with vaccination services? 5.3 How have Co-WIN helped (or not helped) in ensuring that marginalized or underserved	

	groups, including women and those from low-income backgrounds, have access to vaccines?	
6	What has been your and your team’s experience on working with and Co-WIN applications?	
7	7.1 What barriers have you observed among vulnerable populations, such as access to vaccination sites, lack of awareness, or resistance to vaccines? 7.2 How do you address the specific needs of women and other marginalized groups when delivering vaccination services? 7.3 In your opinion, what could be improved in the vaccination delivery process to better serve women and other vulnerable groups	
8	8.1 How do you engage with the community, particularly women, to create awareness about vaccinations and dispel myths or fears related to them? 8.2 Have Co-WIN helped improve communication and trust between frontline workers and the communities you serve? Can you provide examples?	
9	What mechanisms do you use to gather feedback from beneficiaries about their vaccination experience?	
10	Tell us about what special arrangements that were made to help persons with disabilities and marginalized populations get their vaccines easily	
11	How has Co-WIN influenced employment opportunities for women in the community? If yes, please describe any new roles that emerged and how these positions have affected women's participation in healthcare delivery.	
12	Tell us how the vaccination program has helped include marginalized groups in community healthcare in your community, give examples	

Annexure 5 - Evaluation Matrix

Criteria	Evaluation Questions	Data Source	Stakeholders	Proposed Methodology of Data Collection
Relevance	How relevant were the overall design and approaches of the project?	APR	UNDP	Desk review of APR
	To what extent are the objectives of the project design (inputs, activities, outputs and their indicators) and its theory of change logical and coherent? Does the project contribute to the outcome and output of the CPD?	CPD Documents	UNDP	Desk review of CPD doc of UNDP
	To what extent has the project been able to adapt to the needs of the different target groups (including tackling the gender equality and social inclusion aspects) in terms of creating enable environment for inclusive, affordable, and people-centric services?	APR, ROAR, QPR	UNDP, CCH, Women Beneficiaries - with children aged 0-5 years	Primary Data collection - FGD with woman, CCH; Quantitative survey in community
Effectiveness	To what extent the project activities were delivered effectively in terms of quality, quantity, and timing?	IDI with stakeholders- UNDP, DIO, SIO, CCH	IDI with stakeholders- UNDP, SIO, DIO, CCH	Primary Data collection - FGD with vaccinators, Quantitative survey with – SIO, DIO, and Quantitative survey with CCH
	What factors have contributed to achieving or not achieving the intended outputs?	IDI with stakeholders- UNDP, DIO, SIO, CCH	IDI with stakeholders- UNDP, SIO, DIO, CCH	Primary Data collection - FGD with vaccinators, Quantitative survey with – SIO, DIO, and Quantitative survey with CCH
	What were the lessons and how were feedback/learning incorporated in the subsequent process of planning and implementation?	IDI with stakeholders- UNDP, DIO, SIO, CCH	IDI with stakeholders- UNDP, SIO, DIO, CCH	Primary Data collection - FGD with vaccinators, Quantitative survey with – SIO, DIO, and Quantitative survey with CCH

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	How effective has the project been in enhancing the capacity of local governments?	IDI with stakeholders- UNDP, DIO, SIO, CCH	IDI with stakeholders-UNDP, SIO, DIO, CCH	Primary Data collection - FGD with vaccinators, Quantitative survey with – SIO, DIO, and Quantitative survey with CCH
	How Co-WIN ensure duplicate registration reduction, reducing wastage of vaccination, timely follow-up, QR code-based vaccination certificate and real time coverage data to plan the supply of vaccines contributed to cost savings.	IDI with stakeholders- UNDP, SIO, DIO; FGD with Vaccinators	IDI with stakeholders-UNDP, SIO, DIO, CCH; FGD with Vaccinators	Primary Data Collection with- UNDP, SIO, DIO, CCH; FGD with Vaccinators
Efficiency	How efficiently were the resources including human, material and financial resources used to achieve the above results in a timely manner?	IDI with stakeholders- UNDP, DIO, SIO, CCH	IDI with stakeholders- UNDP, DIO, SIO, CCH	Primary Data collection - FGD with stakeholders; Quantitative survey with - DIO, CCH
	Empowering Healthcare workers including female cold chain handlers / workload optimization and value add with respect to work-life balance.	IDI with stakeholders- CCH	IDI with stakeholders- CCH & ANMs	Primary Data collection - FGD & Quantitative survey with stakeholders - CCH & ANMs
	To what extent was the existing project management structure appropriate and efficient in generating the expected results?	CPD Documents	UNDP team	Desk review CPD doc of UNDP
	To what extent has the project implementation strategy and its execution been efficient and cost-effective?	CPD Documents	IDI with SIO, DIO, CCH, and UNDP team	Primary Data collection- IDI with SIO, DIO, CCH, and UNDP team
	How eVIN and Co-WIN ensure efficiency in vaccination system contributing to accountability, transparency and data driven decision making.	IDI with stakeholders- UNDP, SIO	IDI with stakeholders- UNDP and SIO	Primary Data collection - Qualitative survey with – SIO, DIO and UNDP Team

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	Understand data security aspects to ensure personal information is safely stored in Co-WIN with adherence to national standards.	IDI with stakeholders- UNDP team	IDI with stakeholders- UNDP team	Desk work , IDI with UNDP Team
	Value of money: How eVIN and Co-WIN are productive solutions with respect to investments done from GAVI, UNDP and MoHFW for the effective roll-out of both the solutions.	Discussion with UNDP staff	Discussion with stakeholders- UNDP	Review of secondary documents- eVIN cost saving reports(April 2022-March 2023);Data on Routine Immunization Vaccine transverse (April 2022- March 2023) ; RI Target vs supply(April 2022- March 2023)
	Return of Investment due to eVIN: Understand expenses and subsequent triangulation with projected savings due to process strengthening like procurement, logistic management, wastage reduction and potential savings.	Discussion with UNDP staff	Discussion with stakeholders- UNDP	Review of secondary documents- eVIN cost saving reports(April 2022-March 2023);Data on Routine Immunization Vaccine transverse (April 2022- March 2023) ; RI Target vs supply(April 2022- March 2023)
Sustainability	To what extent did the project interventions contribute towards sustaining the results achieved by the project?	APR, ROAR, QPR and IDI with stakeholders- UNDP, SIO, DIO	IDI with UNDP team, SIO, and DIO	Desk Review on APR, ROAR, QPR and Primary Data collection - Qualitative survey with – SIO, DIO and UNDP Team
	What are the plans or approaches of the local authorities to ensure that the initiatives will be continued after the project ends?	Desk review of MOA, IDI with stakeholders	UNDP and state officials	Desk review of MOA, IDI with stakeholders
	What could be potential new areas of work and innovative measures for sustaining the results?	Desk review of MOA, IDI with stakeholders	UNDP and state officials	Desk review of MOA, IDI with stakeholders
	To what extent have lessons learned been documented by the project on a continual basis to inform the project for needful change?	APR, ROAR, QPR	UNDP team, CCH, Women Beneficiaries - with children aged 0-5 years	Desk review of UNDP team, Primary Data collection -Quantitative Survey with beneficiaries and CCH

	What could be done to strengthen exit strategies and sustainability of the project with respect to HR, Hosting, development of new module, technical expertise and other aspects. Primary and secondary data analysis?	Desk review of MOA, IDI with stakeholders	UNDP and state officials	Desk review of MOA, IDI with stakeholders
	How sustainable eVIN and Co-WIN solutions are with respect to funds commitment, technical knowledge transfer, open source and overall approach of Government of India.	Desk review of MOA, IDI with stakeholder (Technical team of UNDP)	Technical team of UNDP	Desk review of MOA, IDI with stakeholders
	How can the project further broaden its contribution to enhancing diversity and inclusion?	Desk review of MOA, IDI with stakeholders	UNDP and state officials	Desk review of MOA, IDI with stakeholders
Impact	To what extent the project initiatives indicate that intended impact will be achieved in the future?	Desk review of MOA, IDI with stakeholders	UNDP and state officials	Desk review of MOA, IDI with stakeholders
Gender equality and social inclusion	How eVIN and Co-WIN ensured inclusiveness of Routine Immunization and COVID-19 vaccination drive in the country covering all gender and vulnerable groups with respect to availability and quality assurance of vaccine to enhance service experience.	Primary Data collection - SIO, DIO, CCH, Vaccinators and UNDP Staff	UNDP team, state officials and Vaccinators	FGD with vaccinators; Quantitative survey with SIO, DIO, CCH and UNDP Staff
	Understand inclusiveness and accessibility of eVIN and Co-WIN solution for officials, front line workers and communities in accessing sites, booking appointment, generating digital certificates, and approaching helpline ensuring LNOB.	Desk review of Pro-Doc and IDI with stakeholders, UNDP Team and beneficiaries	UNDP team, state officials and Vaccinators and beneficiaries with children aged 0-5 years	Desk Review of Pro-Doc and FGD with vaccinators; Quantitative survey with SIO, DIO, CCH and UNDP Staff

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	To what extent has the project promoted positive changes of women and marginalized group? Were there any unintended effects?	Primary Data collection - SIO, DIO, CCH, Vaccinators and UNDP Staff	UNDP team, state officials and Vaccinators and beneficiaries with children aged 0-5 years	FGD with vaccinators; Quantitative survey with SIO, DIO, CCH and UNDP Staff
	To what extent have local communities, women, youth people with disabilities, and other disadvantaged and marginalized groups benefitted from the work of the project and with what impact?	Primary Data collection - SIO, DIO, CCH, Vaccinators and UNDP Staff	UNDP team, state officials and Vaccinators and beneficiaries with children aged 0-5 years	FGD with vaccinators; Quantitative survey with SIO, DIO, CCH and UNDP Staff

Annexure 6- UNEG Pledge of Ethical Conduct

ETHICAL GUIDELINES FOR EVALUATION

PLEDGE OF ETHICAL CONDUCT IN EVALUATION

UNEG United Nations Evaluation Group

By signing this pledge, I hereby commit to discussing and applying the UNEG Ethical Guidelines for Evaluation and to adopting the associated ethical behaviours.

INTEGRITY

I will actively adhere to the moral values and professional standards of evaluation practice as outlined in the UNEG Ethical Guidelines for Evaluation and following the values of the United Nations. Specifically, I will be:

- Honest and truthful in my communication and actions.
- Professional, engaging in credible and trustworthy behaviour, alongside competence, commitment and ongoing reflective practice.
- Independent, impartial and incorruptible.

ACCOUNTABILITY

I will be answerable for all decisions made and actions taken and responsible for honouring commitments, without qualification or exception; I will report potential or actual harms observed. Specifically, I will be:

- Transparent regarding evaluation purpose and actions taken, establishing trust and increasing accountability for performance to the public, particularly those populations affected by the evaluation.
- Responsive as questions or events arise, adapting plans as required and referring to appropriate channels where corruption, fraud, sexual exploitation or abuse or other misconduct or waste of resources is identified.
- Responsible for meeting the evaluation purpose and for actions taken and for ensuring redress and recognition as needed.

RESPECT

I will engage with all stakeholders of an evaluation in a way that honours their dignity, well-being, personal agency and characteristics. Specifically, I will ensure:

- Access to the evaluation process and products by all relevant stakeholders – whether powerless or powerful – with due attention to factors that could impede access such as sex, gender, race, language, country of origin, LGBTQ status, age, background, religion, ethnicity and ability.
- Meaningful participation and equitable treatment of all relevant stakeholders in the evaluation processes, from design to dissemination. This includes engaging various stakeholders, particularly affected people, so they can actively inform the evaluation approach and products rather than being solely a subject of data collection.
- Fair representation of different voices and perspectives in evaluation products (reports, webinars, etc.).

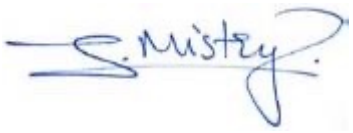
BENEFICENCE

I will strive to do good for people and planet while minimizing harm arising from evaluation as an intervention. Specifically, I will ensure:

- Explicit and ongoing consideration of risks and benefits from evaluation processes.
- Maximum benefits at systemic (including environmental), organizational and programmatic levels.
- No harm. I will not proceed where harm cannot be mitigated.
- Evaluation makes an overall positive contribution to human and natural systems and the mission of the United Nations.

I commit to playing my part in ensuring that evaluations are conducted according to the Charter of the United Nations and the ethical requirements laid down above and contained within the UNEG Ethical Guidelines for Evaluation. When this is not possible, I will report the situation to my supervisor, designated focal points or channels and will actively seek an appropriate response.

_____ _____ (Signature and Date)



Lalit Mistry
Partner and Co-head, Healthcare sector
T: +91 9819683809 E: lalitmistry@kpmg.com

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Annexure 7- List of persons interviewed

S. N.	Name	Location
National Level		
1.	Pankaj Somani	Delhi
2.	Abhimanyu Saxena	Delhi
State Immunization Officer (SIO)		
1.	Dr Virendra Ahlawat	Haryana
2.	Dr Yogya Naraya Pathak	Bihar
3.	Dr. Santosh Shukla	Madhya Pradesh
4.	Dr.Praveen Vedpathak	Maharashtra
5.	Dr. Manoj Kumar Shukla	Uttar Pradesh
6.	Dr Sabita Das	Assam
7.	Kuldeep Singh Martolia	Uttarakhand
8.	Dr LBSH Devi	Andhra Pradesh
State Program Officer (SPO)		
1.	Dr. Ashish Verma	Haryana
2.	Dr Kunal	Bihar
3.	Dr. Kapil Jadaun	Madhya Pradesh
4.	Dr. Amit Lokhande	Maharashtra
5.	Mudit Mathur	Rajasthan
6.	Dr. Ajai Verma	
7.	Neeraj Nagar	Uttar Pradesh
8.	Dr Supratim Biswas	Assam
9.	Dr Sukamal Basumatry	
10.	Dr. Vishal E Kumar	Uttarakhand
11.	Joshua Abhishek	Andhra Pradesh
12.	Dr R Satiskumar	Tamil Nadu
13.	Zohlupuii	Aizwal
District Immunization Officer (DIO)		
1.	Dr Shashi Garg	Panipat, Haryana
2.	Rachna Mishra	Faridabad, Haryana

3.	Dr. S.P Vinayak	Patna, Bihar
4.	Dr. Rajendra Chaudhary	Nalanda, Bihar
5.	Dr. Santosh Shukla	Bhopal, Madhya Pradesh
6.	Dr. D.K. Sharma	Vidisha, Madhya Pradesh
7.	Dr. Sagar Patil	Palghar, Maharashtra
8.	Dr. Anjali	Thane, Maharashtra
9.	Dharmendra Karadiya	Jaipur, Rajasthan
10.	Dr Ashok Aditya Yadav	Udaipur, Rajasthan
11.	A P Mishra	Lucknow, Uttar Pradesh
12.	Dr Ashok Kumar Maurya	Varanasi, Uttar Pradesh
13.	Dr. Bhavendra Kumar Das	Kamrup, Assam
14.	Dr. Biswajit Barua	Dibrugarh, Assam
15.	Dr Dinesh Chauhan	Dehradun, Uttarakhand
16.	Ajay Sharma	Nainital, Uttarakhand
17.	Dr J P J Amrutham	Vijayawada, Andhra Pradesh
18.	Dr S Jeevan rani	Visakhapatnam, Andhra Pradesh
Vaccine Cold Chain Handlers		
1.	Vikram Singh	Panipat, Haryana
2.	Naveen Kumar	Faridabad, Haryana
3.	Mr. Ashutosh Ranjan	Patna, Bihar
4.	Mr. Santosh Kumar	Nalanda, Bihar
5.	Neeraj Sharma	Vidisha, Madhya Pradesh
6.	Anil Tanwar	Bhopal, Madhya Pradesh
7.	Gautam Kamble	Thane, Maharashtra
8.	Shifali Gadpayle	Nashik, Maharashtra
9.	Fateh Singh	Jaipur, Rajasthan
10.	Dr. Nirmala Peter	Ajmer, Rajasthan
11.	Mahesh Sharma	Lucknow, Uttar Pradesh
12.	Reena Verma	Varanasi, Uttar Pradesh
13.	Mr. Neeladri Bora	Kamrup, Assam
14.	Arshad Hussain	Dibrugarh, Assam
15.	Ranjana Martolia	Dehradun, Uttarakhand

16.	Irfan Husain	Nainital, Uttarakhand
17.	Sowmith	NTR, Andhra Pradesh
18.	Naresh	Vizak, Andhra Pradesh
Cold Chain Handlers		
1.	Nidhi Gahalain	Pattikalyana, Panipat, Haryana
2.	Rakesh Sharma	Hari Singh Colony, Panipat, Haryana
3.	Rakesh Saroya	Israna, Panipat, Haryana
4.	Chhavi Goel	Samlkha, Panipat, Haryana
5.	Neha Sihag	Ugarkhera, Panipat, Haryana
6.	Kamlesh	ESI 4 Dispensary, Faridabad, Haryana
7.	Maya	Faridabad, Haryana
8.	Kamlesh	FRU 2, Faridabad, Haryana
9.	Balraj	SGM Nagar, Faridabad, Haryana
10.	Poonam	AC Nagar, Faridabad, Haryana
11.	Monika Kumari	Barh, Patna, Bihar
12.	Anjani Kumar	Dulhinbazar, Patna, Bihar
13.	Surender Kumar	Bakhtiyarpur, Patna, Bihar
14.	Brig Kishore Kumar Verma	Naubatpur, Patna, Bihar
15.	Sangeeta Kumari	Punpun, Patna, Bihar
16.	Ruby Kumari	Ekagarsarai, Nalanda, Bihar
17.	Pushpalatha Kumari	Rahui, Nalanda, Bihar
18.	Geeta Kumari	Silao, Nalanda, Bihar
19.	Reena Kumari	Chandi, Nalanda, Bihar
20.	Kumari Binita	Rajgir, Nalanda, Bihar
21.	Baby Rajan	Barkheda Pathani, Bhopal, Madhya Pradesh
22.	Sita Saran Patel	Misrod, Bhopal, Madhya Pradesh
23.	Joby Wargis	Anand Nagar, Bhopal, Madhya Pradesh
24.	Niket Shrivastava	Ratibad, Bhopal, Madhya Pradesh
25.	Seema Tiwari	JP Hospital, Bhopal, Madhya Pradesh
26.	Anuradha M.	Govindpura, Bhopal, Madhya Pradesh
27.	Veena Yadav	Bairagarh, Bhopal, Madhya Pradesh
28.	Uma Shankar	Gandhinagar, Bhopal, Madhya Pradesh

29.	Chandrabhan Singh	Atarikhejra, Vidisha, Madhya Pradesh
30.	Shabnam Bano Siddiqui	Shrimant Madhavrao Scindia District Hospital, Vidisha, Madhya Pradesh
31.	Ganesh Ram Vishvkarma	Gyaraspaur, Vidisha, Madhya Pradesh
32.	Sukhlal Sehriya	Kurwai, Vidisha, Madhya Pradesh
33.	Santosh Kumar Jain	Lateri, Vidisha, Madhya Pradesh
34.	Rajesh Kumar Atal	Nateran, Vidisha, Madhya Pradesh
35.	Ramswaroop Sahu	Shamshabad, Vidisha, Madhya Pradesh
36.	Vijay Singh Kurmi	Tyonda, Vidisha, Madhya Pradesh
37.	Vaishali Bhavar	Maswan PHC, Palghar, Maharashtra
38.	Deepali Dante, Nikita Jadhav	Manor RH, Palghar, Maharashtra
39.	Dhanashri Rawat	Kelwa Mahim PHC, Palghar, Maharashtra
40.	Jashnu Vartak	Satepate PHC, Palghar, Maharashtra
41.	Gitanjali Bhaye	Palghar RH, Palghar, Maharashtra
42.	Deepika Warade	Khanivali PHC, Palghar, Maharashtra
43.	Swati	Somta PHC, Palghar, Maharashtra
44.	Sweety Sankhel	Boisar RH, Palghar, Maharashtra
45.	Vandana	Dandi PHC, Palghar, Maharashtra
46.	Ashwini Patel	Gorha, Palghar, Maharashtra
47.	Geeta Patil	Murba, Palghar, Maharashtra
48.	R.N.Pandit	PHC Durvesh, Palghar, Maharashtra
49.	Neeta Pawar	PHC Tarapur, Palghar, Maharashtra
50.	Pratiksha Thakur	PHC Saphale, Palghar, Maharashtra
51.	Madhuri	Kudas, Palghar, Maharashtra
52.	Geeta	Bhayandar West UHC, Thane, Maharashtra
53.	Snehal Dabri	Vinayaknagar UHC, Thane, Maharashtra
54.	Jyoti Patmas	Kashigaon UHC, Thane, Maharashtra
55.	Jagruti Vetave	Navghar HP, Thane, Maharashtra
56.	Kiran Pakhre	Penkarpada UHC, Thane, Maharashtra
57.	Jayashree Vanmore	Indira Gandhi Hostel - BPBJ, Thane, Maharashtra
58.	Martha Vasave	KDMC Dattanagar, Thane, Maharashtra
59.	Geeta Patel	BIG Hospital, Thane, Maharashtra

60.	Reshma , Madhvi Hirve	KDMC Patkar, Thane, Maharashtra
61.	Seema Gawde	UHC Ganesh Deva, Thane, Maharashtra
62.	Archna Patel	Ideal park, Thane, Maharashtra
63.	Ashwini	UHC Meera Road, Thane, Maharashtra
64.	Neha Patil	KDMC Madhavi, Thane, Maharashtra
65.	Priyanka Palagde	UHC Banderwadi, Thane, Maharashtra
66.	Sunarel Sawant	UHC Uttan, Thane, Maharashtra
67.	Tissy George	Jagatpura UPHC, Jaipur, Rajasthan
68.	Mohini	Malviya Nagar Sector 3 UPHC, Jaipur, Rajasthan
69.	Mamta Tiwari	Malviya Nagar Sector 6 UPHC, Jaipur, Rajasthan
70.	Rajesh Kumar Verma	Gandhinagar, Jaipur, Rajasthan
71.	Shilpa Chaudhary	Jawahar Nagar, Jaipur, Rajasthan
72.	Saroj	Bani Park, Jaipur, Rajasthan
73.	Chandrakala Tiwari	Jalsau, Jaipur, Rajasthan
74.	Meera Devi	Devi Nagar, Jaipur, Rajasthan
75.	Kaushalya Pawar	JK Lawn Hospital, Jaipur, Rajasthan
76.	Kiroshita Yadav	Jhotwara, Jaipur, Rajasthan
77.	Hardeep Kaur	Vaishali Nagar, Jaipur, Rajasthan
78.	Sita	Gudhasarjan, Jaipur, Rajasthan
79.	Umaid Devi	Jahota, Jaipur, Rajasthan
80.	Sanju Devi	Ayad, Udaipur, Rajasthan
81.	Mohan Kumari Mali	Housing Board, Udaipur, Rajasthan
82.	Chanda Kumari	Machla Magra, Udaipur, Rajasthan
83.	Sheetal	RNT Medical College, Udaipur, Rajasthan
84.	Sharmila Jain	Tidi, Udaipur, Rajasthan
85.	Manjula Bhatnagar	Chandpole , Udaipur, Rajasthan
86.	Leena Meena	Barapal, Udaipur, Rajasthan
87.	Sushila Devi	Badhgaon, Udaipur, Rajasthan
88.	Kusum Lata	Bhuwana, Udaipur, Rajasthan
89.	Ansama George	Chawand , Udaipur, Rajasthan
90.	Manju Sharma	Pratap Nagar, Udaipur, Rajasthan
91.	Girija Trivedi	Salumbar, Udaipur, Rajasthan

92.	Manjula Yadav	Nai, Udaipur, Rajasthan
93.	Rita Gowri	Avantibai, Lucknow Uttar Pradesh
94.	Mamta Kureeti	Indira Nagar, Lucknow Uttar Pradesh
95.	Ankit Verma	NK Road, Lucknow Uttar Pradesh
96.	Vinod Kumar Srivastava	Bakshi ka Talab, Lucknow Uttar Pradesh
97.	Anju Tiwari	Aishbag, Lucknow Uttar Pradesh
98.	D S Bhogat	Chenhat, Lucknow Uttar Pradesh
99.	Preeti Singh	Naka, Lucknow Uttar Pradesh
100.	Vikas Dubey	Mishripur, Varanasi, Uttar Pradesh
101.	Suraj Prasad	Harhua, Varanasi, Uttar Pradesh
102.	Satyam Shivam Sundaram	Sewapuri, Varanasi, Uttar Pradesh
103.	Shubham Mishra	Sarnath, Varanasi, Uttar Pradesh
104.	Puneet K Gupta	Bhelpur, Varanasi, Uttar Pradesh
105.	Shwet Kumar	Ramnagar, Varanasi, Uttar Pradesh
106.	Veerendra K Jaiswal	Kabir Chaura, Varanasi, Uttar Pradesh
107.	Bishnuram Keleng	Sonapur, Kamrup, Assam
108.	Anju Mani Das	Dhirenpara FRU , Kamrup, Assam
109.	Himakshi Kalita	Pandu FRU, Kamrup, Assam
110.	Bhawani Nath	Ulubari PHC, Kamrup, Assam
111.	Babita Harita	Khanpara PHC, Kamrup, Assam
112.	Dipika Bari	Kharguli, Kamrup, Assam
113.	Gulap Deka	Naharani, Dibrugarh, Assam
114.	Dilip Kumar Mile	Lahowal, Dibrugarh, Assam
115.	Shashadhar Kalita	Panitola, Dibrugarh, Assam
116.	Anika Deka	Tengakhat, Dibrugarh, Assam
117.	Rashmirekha Bhunia	Kacharipathar, Dibrugarh, Assam
118.	Rupam Kalita	Rajgarh, Dibrugarh, Assam
119.	Anjali Linkwala	Raiwala, Dehradun, Uttarakhand
120.	Alaknanda Bahuguna	Coronantion SDH, Dehradun, Uttarakhand
121.	Nisha	Raipur, Dehradun, Uttarakhand
122.	Shalu Jayara	Naya Gaon Dehradun, Uttarakhand
123.	Kamla Rawat	Chorgalliya, Nainital, Uttarakhand

124.	Dipa Khuliya	Haldwani Medical College, Nainital, Uttarakhand
125.	Bharti Murari	Mota Haldu, Nainital, Uttarakhand
126.	Khastoi Rawt	PPC, Haldwani, Nainital, Uttarakhand1
127.	Roopa Nagasri	Ajit Singh Nagar, NTR, Andhra Pradesh
128.	S Chalclath	Kandrika, NTR, Andhra Pradesh
129.	S Padmaja	Kondapalli, NTR, Andhra Pradesh
130.	Phanindra bannaravuri	Konduru, NTR, Andhra Pradesh
131.	P Yedukondalu	Velagarelu, NTR, Andhra Pradesh
132.	Kavitha	Karakatta South, NTR, Andhra Pradesh
133.	N Leveraju	labbipeta UPHC, NTR, Andhra Pradesh
134.	Vineth nayak	Lambadipeta UPHC, NTR, Andhra Pradesh
135.	T Jayakumar	Anadapuram PHC, Vishakhapatnam, Andhra Pradesh
136.	S Leaveraju	Bheemli UPHC, Vishakhapatnam, Andhra Pradesh
137.	Puttasalakshmi	Chainawalthair, Vishakhapatnam, Andhra Pradesh
138.	P Surappatu	Gajukawa PHC, Vishakhapatnam, Andhra Pradesh
139.	N Shyamlal	Gnanapuram UPHC, Vishakhapatnam, Andhra Pradesh
140.	B Nilima	Narava, Vishakhapatnam, Andhra Pradesh UPHC
141.	V Rameadevi	Onetown, Vishakhapatnam, Andhra Pradesh
142.	Venkata Lakshmi	UPHC Prasad Garden, Vishakhapatnam, Andhra Pradesh
143.	R Sailaja	Swarnabhrata, Vishakhapatnam, Andhra Pradesh

Annexure 8 - Quality assessment rating scale

Code	Rubric for assigning rating		Value
HS	Highly Satisfactory	All parameters were fully met and there were no shortcomings in the evaluation report	6
S	Satisfactory	All parameters were fully met with minor shortcomings in the evaluation report	5
MS	Mostly Satisfactory	The parameters were partially met with some shortcoming in the evaluation report	4
MU	Mostly Unsatisfactory	More than one parameter was unmet with significant shortcomings in the evaluation report	3
U	Unsatisfactory	Most parameters were not met and there were major shortcomings in the evaluation report	2
HU	Highly Unsatisfactory	None of the parameters were met and there were severe shortcomings in the evaluation report	1
N/A	Not Applicable	Not applicable	unscored

Annexure 9 - Terms of Reference

1. Background and Context

The Ministry of Health and Family Welfare (MoHFW) and UNDP, with funding support from Gavi, introduced the Health System Strengthening (HSS) initiative in India to strengthen the Universal Immunization Programme of India, and to achieve full immunization coverage for all eligible children and pregnant women. The initiative has been implemented in two phases, HSS-I (2013-18) and HSS-II (2018-24). During this period, UNDP digitalized the vaccine supply chain through Electronic Vaccine Intelligence Network (eVIN) and vaccination beneficiary management through Co-WIN (Winning Over COVID-19).

During HSS-I, under the guidance of the MoHFW, UNDP introduced the **Electronic Vaccine Intelligence Network** (**eVIN**), with the aim of improving the efficiency of immunization supply chain in India. The platform is supporting the management and delivery of vaccines in the right quantity, right quality, at the right time and right temperature, across India. eVIN has digitalised the entire vaccine stock management system and strengthened the Universal Immunization Programme of the Government of India by providing real-time information on vaccine stocks and flows, and storage temperatures.

In HSS-I (2013-18), eVIN was implemented in 12 states. The platform was scaled up during HSS-II (2018-24), covering the remaining 24 states and union territories (UTs). At present, eVIN is fully operational across India, covering 100% of districts and all 30 thousand vaccine cold chain points. This integrated solution addressed the inequities in vaccine supply by managing constraints of infrastructure, management information systems, and human resources; and addressing the issues of overstocking and stockouts of vaccines. Post-Gavi financial support, eVIN has transitioned to state funding, reflecting upon the **sustainability of the eVIN** application.

During the COVID-19 pandemic, the MoHFW mandated UNDP to expand the immunization technical assistance to support the world’s largest COVID-19 vaccination drive in India. Under the guidance of the MoHFW, as part of HSS-II, UNDP developed the **Co-WIN** (Winning Over COVID-19) digital platform to facilitate the planning, implementation, monitoring, and evaluation of the COVID-19 vaccination programme in India.

Co-WIN has both citizen and administrator interfaces, offering a user-friendly platform to the citizens to register for vaccination, and provided real-time dashboards for the administrators to visualise and disaggregate demographic data on vaccine coverage, consumption, and wastage. Co-WIN registered.

The key outputs envisaged under the project are:

- Systems strengthened through institutionalization of real-time digital tracking of vaccines and beneficiary coverage.
- Strengthened supply chain for routine immunization and COVID-19 vaccines and health commodities through the eVIN and Co-WIN platforms

Overall, the project outputs aimed to improve efficiency and effectiveness in public health systems for service delivery benefitting women and the poor across the country.

Project implementation approach

The MoHFW, in partnership with the National Health Mission, Gavi, WHO, UNICEF and UNDP, has been working towards immunization Health System Strengthening in India. UNDP is responsible for promoting innovative and scalable solutions on digitalization in the health sector in an inclusive manner, to ensure universal vaccination of all pregnant women and children. Towards this objective, UNDP digitalized the vaccine supply chain through eVIN and vaccination beneficiary management through Co-WIN.

Governance Arrangements:

1 *Immunization Advisory Group (IAG):* The Immunization Advisory Group is chaired by the Joint Secretary (RMNCH+A), Ministry of Health and Family Welfare, Government of India. It comprises of officers of the MoHFW, National Institute of Health and Family Welfare (NIHFW), Indian Council of Medical Research (ICMR), Gavi, and other development partners as its members. The advisory group meets quarterly to review and monitor the programmatic and financial progress, policy decision, and implementation of the Gavi Health Systems Strengthening fund.

2 *Project Steering Committee (PSC):* UNDP has set up the Gavi Project Steering Committee for providing overall governance oversight to the HSS-II project. The PSC meets bi-annually to carry out an internal overall review of the project.

Management Arrangements:

The project is directly implemented by UNDP. The project has a dedicated national project management unit (PMU) based in the UNDP Country Office in India. The PMU is supported by a country-wide field presence at state, regional, and district levels. These resources have been placed in the government health departments, working closely with the government counterparts.

The PMU benefits from the support of the UNDP common services such as procurement, financing, security, office space, communication, Monitoring and Evaluation (M&E) and quality assurance. UNDP Senior Management oversees the programme implementation and ensure robust risk management and mitigation procedures are in place.

UNDP systems and procedures are designed to guarantee transparency, accountability, cost effectiveness and value-for-money. UNDP strives to maintain high cost-efficiency, striking balance between sufficient and skilled human resources and reasonable costs, with the overall goal of optimizing the achievement of Project goals and objectives. UNDP builds on the good practices and experience provided by the HSS-I Project

Key beneficiaries:

The key beneficiaries of the project are the vaccine managers at the health centers, last mile health workers at block level vaccinators, and community mobilisers. They have been engaged and empowered to deliver efficient and effective healthcare services at their workplace. A majority of these are women staff.

For eVIN, there are 50,000 direct beneficiaries (of which more than 90% are women). These include the last mile vaccine managers and cold chain handlers at health centers. Since eVIN aims to ensure equitable access to vaccines for children and pregnant women, they are the

indirect beneficiaries. The key stakeholders include the Immunisation Division of MoHFW and state health departments.

Through the Co-WIN platform, more than 300,000 vaccinators (of which more than 90% are women) including Auxiliary Nursing Midwifery (ANMs) utilized the application to make 1.1 billion registrations (540 million females, 569 million males, 0.531 million others). In total, as of December 2023, 2.2 billion doses (960 million females, 1 billion males, and 0.5 million others) were administered through Co-WIN. Both the vaccinators and the citizens are, thus, the direct beneficiaries of the platform. The key stakeholders include the MoHFW, National Technical Advisory Group on Immunisation in India (NTAGI), NITI Aayog, WHO and other partner agencies.

PROJECT/OUTCOME INFORMATION		
Project Title	Improving Efficiency of the Vaccination System in India	
Quantum ID	00101970	
CPD outcome and output	CPD (2023-27) CPD Outcome 1 (b): By 2027, communities, especially the most disadvantaged, demand for and benefit from an inclusive, universal, affordable, accessible, accountable and quality health care services, while adopting positive health practices. CPD Output 1.2: Improved service delivery of health care and development programmes to the last mile to ensure that no one is left behind	
Country	India	
Region	RBAP	
Date project document signed	22 May 2019	
Project dates	**Start**	**Planned end**
	1 Jan 2018	31 Dec 2024
Project budget	$ 83,642,657	
Project expenditure at the time of evaluation	$ 78,763,419	
Funding source	Gavi, State Health Departments	
Implementing party[1]	**UNDP**	

[1] This is the entity that has overall responsibility for implementation of the project (award), effective use of resources and delivery of outputs in the signed project document and workplan

Evaluation, Purpose , Scope, and Objectives

The overall purpose of evaluation is to review the achievements made to deliver the specified objectives and outputs of the project titled ‘Improving efficiency of vaccination systems in multiple states’, also known as the HSS-II Project.

In 2018, the MoHFW had commissioned a programmatic and economic assessment of eVIN to identify its achievements and gaps. After this assessment, under HSS-II (2018-24), eVIN was scaled up to cover the entire country. Further, the scope of HSS-II was expanded for the COVID-19 vaccination drive to develop and implement the Co-WIN platform. Considering the scale and expected impact of the project, there is a need to conduct the evaluation of HSS-II, covering eVIN and Co-WIN.

This evaluation will guide the MoHFW, Gavi, UNDP and partners in planning similar innovative and scalable solutions on digitalization in other areas of health and development, to ensure universal access to services. The evaluation will also guide the preparedness for any future health emergencies effectively and efficiently.

Scope of Work:

The evaluation will establish the effectiveness, efficiency, relevance, performance and success of the project, including the sustainability of results. The evaluation should assess the implementation approaches, progress made, and challenges encountered, development impact, identify and document the lessons learnt and good practices, and make specific recommendations for future course of actions.

In general, the evaluation should cover the following areas:

- Relevance of the project: review the progress against its purpose, objectives, outputs and indicators, as per the project documents and its components, such as the Theory of Change, Results and Resources Framework, M&E framework, and ascertain whether assumptions and risks remain valid.
- Effectiveness and efficiency of implementation approaches: review project’s technical as well as operational approaches and deliverables, quality of results and their impact, alignment with national priorities and responding to the needs of the stakeholders.
- Review the project’s approaches, in general and with regards to mainstreaming of gender
- equality and social inclusion, with particular focus on women and marginalized groups.
- Review and assess the risks and opportunities (in terms of resource mobilization, synergy and areas of interventions) related to future interventions.
- Review external factors beyond the control of the project that have affected it negatively or positively.
- Review planning, management and quality assurance mechanisms for the delivery of the project interventions.
- Review coordination and communication processes and mechanisms with the stakeholders.

Objectives:

Particularly, the evaluation should cover the following objectives:

- To assess the contribution of eVIN and Co-WIN in improving the efficiency of the vaccination system, thereby contributing to accountability, transparency and data driven decision making.
- To assess the cost-efficiency of eVIN and Co-WIN with respect to the investments done by GAVI, UNDP, and the Ministry of Health and Family Welfare for the effective roll-out of the two solutions.
- To analyze the effectiveness of eVIN and Co-WIN in ensuring an inclusive Routine Immunization and COVID-19 vaccination drive in the country, thereby leaving no one behind.
- To measure the effect of these digital innovations on gender equality and social inclusion.
- To assess the role of eVIN and Co-WIN in ensuring equitable access to vaccination services with respect to availability and quality assurance of vaccines.
- To assess the sustainability of eVIN and Co-WIN solutions with respect to financial resources, technical knowledge transfer, open source, and overall approach of Government of India with respect to DPI and DPG.

The evaluation will assess the key financial aspects of the project utilization of funds. Project cost and funding data will be required, including annual expenditures, revision of budget, financial reports. The agency will assess the extent to which the project is achieving impacts or progressing towards the achievement of impacts. Key findings that should be brought out in the evaluations include whether the project has successfully implemented the activities within the project time frame.

Ratings must be provided on the following performance criteria:

1. Relevance
2. Effectiveness
3. Efficiency
4. Sustainability
5. Impact
6. Gender equality and social inclusion

The quality of the evaluation would be assessed based on the quality criteria of Evaluation Office (IEO). The criteria include evaluation structure and design; evaluation report and methodology; cross- cutting and gender issues; and Evaluation results, findings, conclusions and recommendations. The details are available in Section 6 of the UNDP Evaluation Guidelines (link provided in Annexure C

3. Evaluation Criteria and Key Guiding Questions

The evaluation will follow the four OECD-DAC evaluation criteria - Relevance, Effectiveness, Efficiency, and Sustainability. Gender equality and social inclusion will be added as cross-cutting criteria. The guiding questions outlined below should be further refined by the agency and agreed with UNDP.

Criteria	Evaluation Questions
Relevance	• How relevant were the overall design and approaches of the project? • To what extent are the objectives of the project design (inputs, activities, outputs and their indicators) and its theory of change logical and coherent? Does the project contribute to the outcome and output of the CPD? • To what extent has the project been able to adapt to the needs of the different target groups (including tackling the gender equality and social inclusion aspects) in terms of creating enable environment for inclusive, affordable and people-centric services?
Effectiveness	• To what extent the project activities were delivered effectively in terms of quality, quantity and timing? • What factors have contributed to achieving or not achieving the intended outputs? • What were the lessons and how were feedback/learning incorporated in the subsequent process of planning and implementation? • How effective has the project been in enhancing the capacity of local governments? • Value of money: How eVIN and Co-WIN are productive solutions with respect to investments done from GAVI, UNDP and MoHFW for the effective roll-out of both the solutions. • Return of Investment due to eVIN: Understand expenses and subsequent triangulation with projected savings due to process strengthening like procurement, logistic management, wastage reduction and potential savings. • How Co-WIN ensure duplicate registration reduction, reducing wastage of vaccination, timely follow-up, QR code-based vaccination certificate and real time coverage data to plan the supply of vaccines contributed to cost savings.
Efficiency	• How efficiently were the resources including human, material and financial resources used to achieve the above results in a timely manner? • Empowering Healthcare workers including female cold chain handlers / workload optimization and value add with respect to work-life balance. • To what extent was the existing project management structure appropriate

	and efficient in generating the expected results? • To what extent has the project implementation strategy and its execution been efficient and cost-effective? • How eVIN and Co-WIN ensure efficiency in vaccination system contributing to accountability, transparency and data driven decision making. • Understand data security aspects to ensure personal information is safely stored in Co-WIN with adherence to national standards.
Sustainability	• To what extent did the project interventions contribute towards sustaining the results achieved by the project? • What are the plans or approaches of the local authorities to ensure that the initiatives will be continued after the project ends? • What could be potential new areas of work and innovative measures for sustaining the results? • To what extent have lessons learned been documented by the project on a continual basis to inform the project for needful change? • What could be done to strengthen exit strategies and sustainability of the project with respect to HR, Hosting, development of new module, technical expertise and other aspects. Primary and secondary data analysis? • How sustainable eVIN and Co-WIN solutions are with respect to funds commitment, technical knowledge transfer, open source and overall approach of Government of India. • How can the project further broaden its contribution to enhancing diversity and inclusion?

Impact	• To what extent the project initiatives indicate that intended impact will be achieved in the future? • What has been developmental impact of the project, e.g., economic modelling to assess years of schooling added, value added to the economy, savings on the public health expenditures?
Gender equality and social inclusion	• How eVIN and Co-WIN ensured inclusiveness of Routine Immunization and COVID-19 vaccination drive in the country covering all gender and vulnerable groups with respect to availability and quality assurance of vaccine to enhance service experience. • Understand inclusiveness and accessibility of eVIN and Co-WIN solution for officials, front line workers and communities in accessing sites, booking appointment, generating digital certificates and approaching helpline ensuring LNOB. • To what extent has the project promoted positive changes of women and marginalized group? Were there any unintended effects? • To what extent have local communities, women, youth people with

	disabilities, and other disadvantaged and marginalized groups benefitted from • the work of the project and with what impact?

4. Methodology

The evaluation methods provided here are indicative only. The evaluation agency should review the methodology and propose the final methods and data collection tools as part of the inception report. The methods and tools should adequately address the issues of gender equality and social inclusion. The evaluation should include a mix of qualitative and quantitative processes and methodologies. Quantitative approach to be implemented to conduct value for money analysis and assess wastage reduction.

The agency must provide evidence-based information that is credible, reliable and useful. The agency is expected to follow a participatory and consultative approach ensuring close engagement with government counterparts, project team, UNDP Country Office and other key stakeholders, including project participants. Therefore, the agency will work closely with the UNDP Country Office team to undertake the evaluation adopting at least the following methods:

1. Preparation:

- Desk review: At the beginning of the assignment, the agency will need to review the key documents namely the project document, project progress reports, work plans, project quality assurance reports, key project outputs/ knowledge products, communication products, stories about the project, and relevant government policies. A complete list of documents to be provided will be shared once the consultant is on board.
- Programmatic Assessment using both primary data collection and secondary data sources.
- Economic Assessment using secondary data from the Immunization Division of MoHFW, UNDP India and Cold Chain Points from selected states/districts.

2. Data Collection:

- Consultations, discussions and interviews with all relevant stakeholders and review of project documents using a participatory and consultative approach to ensure close engagement with all key stakeholders.
- Focus group discussions (FGDs) and key informant interviews with UNDP project team, MoHFW officials, state and district level health officials leading the immunization programme (questionnaires may be applied as relevant).
- Field observations, interactions (structured, semi-structured) and consultations with the cold- chain handlers, front-line workers and beneficiaries.
- For the above interviews and consultations, the agency will need to design a set of questions aimed for the specific interviewee category.
- Gender and human rights lens: All evaluation products need to address gender, disability, and human rights issues. Hence, the agency will need to design the tool allowing the collection of the data to provide the evaluation from those lenses.
- The agency is required to propose other approaches and multiple ways of engaging, including target groups disaggregated by gender, age categories, disability, urban and rural to ensure representation of different stakeholders.

- Photo documentation of various locations and respondents (with due consent) and their systematically compilation.
- Post-data collection debriefing: The agency will have a debriefing with UNDP, project team and other key stakeholders on the preliminary finding after the completion of data collection. The meeting will also serve as an opportunity to identify areas requiring further analysis and any missing information and evidence before the consultant will enter a full synthesis and drafting phase.

3. Data Validation:

- Data and information collected from different sources and through various means will be triangulated to strengthen the validity of findings and conclusions. The agency should highlight his/her approach to address this in the inception report.

4. Data Analysis:

- Utilize high quality infographics and other innovative and creative means in communicating the data and findings in the final report.
- Adopt an evidence-based approach underpinned by observations and especially data collected in findings provided, conclusions drawn, and recommendations made.
- Review of all relevant documentation including UNDP Country Programme Document (CPD); Project Document including theory of change and results framework; Annual Work Plans (AWPs); project progress reports; field monitoring and visit reports; knowledge products and communication material; and other documents produced by the project.

The process/steps mentioned above should ensure that the most appropriate and relevant data are gathered for the above-mentioned objectives. **All conclusions, judgments, and opinions must be qualified by evidence and not be based on opinions**. Based on the analysis and findings, the recommendations should be provided for future direction of the initiatives.

The final methodological approach including interview schedule, field visits, evaluation matrix and data to be used in the evaluation should be clearly outlined in the inception report and fully discussed and agreed with UNDP. The agency should select the respondents using an appropriate sampling technique. While selecting the respondents, the agency should ensure gender balance.

The agency is required to submit the final full report in English. The structure and content of the report should meet the requirements of the UNDP Evaluation Guideline.

5. Key Deliverable

The agency should submit the following deliverables:

1. Inception report (15-20 pages) detailing the reviewer’s understanding of what is being evaluated, why it is being evaluated, and how (methodology) it will be evaluated. The inception report should also include a proposed schedule of tasks, evaluation tools,

activities and deliverables.

2. Evaluation matrix that includes key criteria, indicators and questions to capture and assess them.
3. Evaluation debriefing- immediately after completion of data collection, the agency should provide preliminary debriefing and findings to the UNDP/Project team.
4. Draft Evaluation report for review and comments.
5. Evaluation Audit Trail – The comments on the draft report and changes by the agency in response to them should be retained by the consultant team to show how they have addressed comments.
6. Final report (60-80 pages without annexes) within stipulated timeline with sufficient detail and quality by incorporating feedback from the concerned parties.
7. An exit presentation on findings and recommendations.

6. Team composition and Required Competencies

The evaluation will be carried out through an agency. The agencies involved in any way in the design, management or implementation or advising any aspect of the intervention that is the subject of the evaluation will not be qualified. The agency will be selected by UNDP CO.

Duty Station: New Delhi with required field visits to project implementation sites.

Working days: 82 days spread over 4 months.

Major roles and responsibilities:

The agency will be responsible for conducting the final evaluation of the above-mentioned project. It will be solely responsible to complete all the steps and produce the deliverables as mentioned above.

Specifically, the agency will have the following roles and responsibilities:

- Gathering and review of relevant documents
- Finalizing and designing the methodologies and data collection instruments
- Prepare inception report, evaluation matrix including the evaluation questions, data collection instruments, etc.
- Conduct field visits in selected communities and conduct interviews with the selected target groups.
- Facilitate stakeholders’ discussion to collate and synthesize information.
- Prepare and submit final data in the agreed formats.
- Analyze the data and prepare a draft evaluation report in the prescribed format.
- Incorporate the feedback and finalize the evaluation report with audit trail.

Qualification and Competencies:

The proposed agency should have:

- A minimum of 10 years of experience of operations in India.

- Demonstrated experience of conducting at least 3 similar large-scale evaluations of health or developmental projects

The **proposed team** should comprise of one team leader, one state coordinator, a suitable number of supervisors and field investigators, data analysts, and a gender expert for timely achievement of the expected results.

a. The proposed Team leader should hold:
   - Advanced university degree in social sciences, international development, or any other relevant subjects.
   - At least 8 years of demonstrated work experience in the field of health projects, including technical advice at senior level, capacity building, monitoring and evaluation.
   - Sound knowledge of results-based management (especially results-oriented monitoring and evaluation); and/or project design in development sectors.
   - Adequate knowledge on gender equality and social inclusion issues.
   - Strong analytical and report writing skills.
   - Excellent command in different qualitative and quantitative data collection methods including FGDs and Social Surveys.

b. The proposed State Coordinator should hold the following minimum qualifications:
   - First level university degree (bachelor’s degree) in social sciences, rural development, development management, social work, public policy, or any other relevant subjects.
   - At least 3 years of work experience in the field of health projects

c. The proposed field investigators should hold the following minimum qualifications:
   - First level university degree (bachelor’s degree in social science or any other related subjects)
   - At least two years of work experience in field-based research and documentation work.
   - Excellent command over the local language.

d. The proposed gender expert should hold the following minimum qualifications:
   - Bachelor’s Degree in Gender studies, Development Studies, Political Sciences, Social Sciences, or any other relevant field.
   - Evidence of two years of relevant experience in gender analysis and policy advocacy is highly desirable.
   - Demonstrated experience in conducting/managing large scale projects on gender, empowerment, climate change adaptation and rural development.

e. The proposed data analyst should hold the following minimum qualifications:
   - Bachelor's or master’s degree in Statistics or Applied Mathematics or equivalent experience
   - At least two years of relevant experience

7. Evaluation Ethics

This evaluation will be conducted in accordance with the principles outlined in the UNEG ‘Ethical Guidelines for Evaluation’. The agency must safeguard the rights and confidentiality of information providers, interviewees and stakeholders through measures to ensure compliance with legal and other relevant codes governing collection of data and reporting on data. The agency must also ensure security of collected information before and after the evaluation and protocols to ensure anonymity and confidentiality of sources of information where that is expected. The information knowledge and data gathered in the evaluation process must also be solely used for the evaluation and not for other uses without the express authorization of UNDP and partners.

8. Implementation Arrangements

The principal responsibility for managing the evaluation resides with the Commissioning Unit. The Commissioning Unit for this project’s evaluation is the UNDP India. The UNDP India CO will contract the agency and ensure the timely provision of per diems and travel arrangements within the country for the evaluation team. The Project Team will be responsible for liaising with the evaluation team to provide all relevant documents, set up stakeholder interviews, and arrange field visits. UNDP India CO and Project Team will facilitate and provide all the support that is required to implement remote/ virtual evaluation in the event of travel restriction to the country.

The Evaluation Manager will assure smooth, quality and independent implementation of the evaluation with needful guidance from UNDP’s Senior Management.

The Project team will be responsible for providing required information, furnishing documents for evaluation to the consultant. They will also be responsible for the logistic arrangements of the evaluation, for setting up stakeholder interviews, arranging field visits, coordinating with the Government etc.

Key relevant project documents mentioned in Annex will be provided to the evaluation team after signing the contract. The evaluation team should review the relevant documents and share the draft inception report before the commencement of the field mission. The evaluation team should revise the methodology, data collection tools and evaluation questions. The final methodology and instruments should be proposed in the inception report including the evaluation schedule and evaluation matrix which guides the overall implementation of the evaluation.

The evaluation team will be briefed by UNDP upon arrival on the objectives, purpose and output of the evaluation. An oral debriefing by the consultant on the proposed work plan and methodology will be done and approved prior to the commencement of the evaluation process.

The evaluation will remain fully independent.

The evaluation team directly reports to the Evaluation Manager of UNDP during the implementation of the evaluation. The final report will be signed off by Deputy Resident Representative of UNDP CO.

On **feedback mechanism**, the agency will establish a feedback mechanism to ensure that the perspectives and experiences of all stakeholders, including beneficiaries, government counterparts, and implementing partners, are effectively captured and addressed. This

mechanism will employ various data collection methods, including interviews, surveys, focus groups, and participatory assessments. After the completion of the first draft of the evaluation report, the project team will be responsible for circulating the report to all stakeholders concerned, after which evident-based feedback and comments will be given to the agency for consideration. The UNDP evaluation manager will conduct quality assurance throughout the process.

9. Time Frame

The duration of the evaluation will be maximum 82 days spread over 4 months. The tentative schedule is as follows:

Planned Activities	# of Days Required	Time Frame
Desk review and preparation of inception report	7 days	Within 1st week
Briefing by UNDP India CO	1 day	Within 1st week
Finalizing design, methods & inception report and sharing with reference group for feedback	14 days	Within 3rd week
Stakeholder meetings and interviews	25 days	Within 8th week
Analysis, preparation of draft report, presentation of draft findings. Circulation of the draft report among all stakeholders by the project team and submission of evidence-based feedback and comments to the agency for consideration.	25 days	Within 12th week
Finalize and submit final report with audit trail	10 days	Within 14th week
Total	**82 days**	**Four Months**

10. Conflict of Interest

The agency cannot have participated in the project preparation, formulation, and/or implementation (including the writing of the Project Document) and should not have a conflict of interest with project's related activities.

11. Use of Evaluation Results

The findings of the evaluation will be used to analyze the lessons learned and the way forward for future courses of action. Therefore, the evaluation report should provide critical findings and specific recommendations for future interventions.

12. Payment Schedule

Tranche	Deliverable	% of total contract amount	Timeline from signing of contract
1st	Submission and acceptance of the Inception Report including a methodology note and evaluation matrix (based on meetings with the UNDP, the desk review and preliminary analysis of the information provided by UNDP), a detailed data collection plan with timeline, and a final list of names of trained investigators and supervisors.	30%	Within 4th week
2nd	Submission and acceptance of the following: - Report of secondary data analysis - Progress report on completion of field work in the assessment states	30%	Within 12th week
3rd	Submission and acceptance of the Final Evaluation Report including evaluation brief, data collection tools, PowerPoint presentation slides, questionnaires, labelled final datasets, and photographs and audit trail	40%	Within 14th week
	Total	100%	

Annexure 10.1- Estimated cost saved (FY-2022-2023 All India)

S.No.	State/UT	BCG				bOPV				DPT				IIPV				Hepatitis B				MR 5				PCV				Pentavalent				Rotavac dose				Td				Total Cost Savings
		Target	Supply	Difference	Cost per dose (INR 3.68)	Target	Supply	Difference	Cost per dose (INR 5.64)	Target	Supply	Difference	Cost per dose (INR 5.01)	Target	Supply	Difference	Cost per dose (INR 91.35)	Target	Supply	Difference	Cost per dose (INR 5.30)	Target	Supply	Difference	Cost per dose (INR 45)	Target	Supply	Difference	Cost per dose (INR 198)	Target	Supply	Difference	Cost per dose (INR 51.98)	Target	Supply	Difference	Cost per dose (INR 67.46)	Target	Supply	Difference	Cost per dose (INR 9.72)	
	INDIA	54,172,040	45,229,500	8,942,540	32,908,547	150,327,411	155,618,020	-5,291,209	-29,842,419	60,130,964	39,026,410	21,104,554	105,733,818	67,647,235	73,390,800	-5,743,465	-524,665,532	30,065,482	7,076,850	22,188,632	117,599,751	72,048,813	66,739,685	5,308,928	238,901,769	90,196,447	36,651,090	53,545,357	10,601,980,607	90,196,447	60,431,990	29,764,457	1,547,156,454	100,073,220	73,812,985	26,260,235	2,211,195,440	105,229,188	54,222,980	51,006,208	495,780,339	14,896,748,773
1	Andaman And Nicobar Islands	8,840	12,000	-3,160	-11,629	24,531	16,000	8,531	48,115	9,812	10,000	-188	-940	2,107,790	11,500	2,096,290	191,496,101	4,906	4,000	906	4,803	11,757	13,000	-1,243	-55,935	14,719	9,000	5,719	1,132,283	14,719	12,000	2,719	141,313	17,636	14,000	3,636	245,271	17,172	14,000	3,172	30,829	
2	Andhra Pradesh	1,687,920	1,500,000	187,920	691,546	4,683,978	3,600,000	1,083,978	6,113,636	1,873,591	1,162,000	711,591	3,565,072	1,865,707	3,000,000	-1,134,293	-103,617,627	936,796	500,000	436,796	2,315,017	2,244,934	860,000	1,384,934	62,322,012	2,810,387	1,200,000	1,610,387	318,856,586	2,810,387	1,600,000	1,210,387	62,915,906	3,367,400	1,760,000	1,607,400	108,435,231	3,278,785	730,000	2,548,785	24,774,186	
3	Arunachal Pradesh	54,740	52,000	2,740	10,083	151,904	106,000	45,904	258,886	60,761	25,000	35,761	179,165	8,118,299	70,000	8,048,299	735,212,075	30,381	8,700	21,681	114,936	72,804	48,000	24,804	1,116,189	91,142	50,000	41,142	8,146,136	91,142	61,000	30,142	1,566,786	109,206	71,000	38,206	2,577,387	106,332	55,000	51,332	498,951	
4	Assam	1,494,060	1,695,000	-200,940	-739,459	4,146,017	3,930,000	216,017	1,218,333	1,658,407	1,083,000	575,407	2,882,787	1,665,383	2,425,000	-759,617	-69,391,018	829,203	290,000	539,203	2,857,777	1,987,100	1,225,000	762,100	34,294,491	2,467,610	920,000	1,567,610	310,386,760	2,467,610	2,005,000	462,610	25,086,663	2,980,650	1,520,000	1,460,650	98,535,429	2,902,212	1,230,000	1,672,212	16,253,896	
5	Bihar	6,501,140	5,700,000	801,140	2,948,195	18,040,664	20,910,000	-2,869,337	-16,183,058	7,216,265	5,037,730	2,178,535	10,914,462	2,558,814	10,550,000	-7,991,186	-729,994,875	3,608,133	980,000	2,628,133	13,929,103	8,646,516	8,090,000	556,516	25,043,229	10,824,398	3,905,000	6,919,398	1,370,040,824	10,824,398	7,539,200	3,285,198	170,764,597	12,969,774	11,298,935	1,670,839	112,714,819	12,628,464	5,890,000	6,738,464	65,497,874	
6	Chandigarh	31,680	42,000	-10,320	-37,942	88,467	86,000	2,467	13,914	35,387	30,000	5,387	26,988	1,463,860	40,500	1,423,360	130,023,906	17,693	26,500	-8,807	-46,675	42,400	34,000	8,400	378,018	53,080	49,000	4,080	807,880	53,080	56,000	-2,920	-151,771	63,601	59,000	4,601	310,356	61,927	55,000	6,927	67,329	
7	Chhattisgarh	1,333,640	1,380,000	-46,360	-170,605	3,700,851	3,212,000	488,851	2,757,120	1,480,340	1,010,000	470,340	2,356,405	1,970,802	1,660,000	310,802	28,391,783	740,170	195,000	545,170	2,889,402	1,773,741	1,405,000	368,741	16,593,354	2,220,511	760,000	1,460,511	289,181,089	2,220,511	1,380,000	840,511	43,689,741	2,660,612	1,100,000	1,560,612	105,278,872	2,590,596	620,000	1,970,596	19,154,190	
8	Delhi	610,420	330,000	280,420	1,031,946	1,693,916	1,123,880	570,036	3,215,000	677,566	430,000	247,566	1,240,307	2,849,648	940,000	1,909,648	174,446,299	338,783	135,000	203,783	1,080,050	811,859	1,495,000	-683,141	-30,741,363	1,016,349	700,000	316,349	62,637,161	1,016,349	1,000,000	16,349	849,837	1,217,788	1,050,000	167,788	11,318,972	1,185,741	540,000	645,741	6,276,601	
9	DNH & Daman And Diu	49,580	35,500	14,080	51,814	137,585	73,000	64,585	364,257	55,034	26,000	29,034	145,459	1,204,220	38,000	1,166,220	106,534,158	27,517	13,000	14,517	76,940	65,941	44,000	21,941	987,363	82,551	25,520	57,031	11,292,079	82,551	37,000	45,551	2,367,725	98,912	33,000	65,912	4,446,430	96,309	47,000	49,309	479,285	
10	Goa	38,640	30,000	8,640	31,795	107,226	90,000	17,226	97,155	42,890	20,000	22,890	114,681	5,271,348	48,000	5,223,348	477,152,874	21,445	5,000	16,445	87,160	51,381	35,000	16,381	737,604	64,336	15,000	49,336	9,768,449	64,336	35,000	29,336	1,524,864	77,087	40,000	37,087	2,501,876	75,058	26,000	49,058	476,846	
11	Gujarat	2,049,100	2,130,000	-80,900	-297,712	5,686,253	5,814,000	-127,748	-720,496	2,274,501	1,664,000	610,501	3,058,610	4,813,881	3,925,500	888,381	81,153,632	1,137,251	295,000	842,251	4,463,928	2,725,303	2,828,250	-102,947	-4,632,615	3,411,752	1,865,000	1,546,752	306,256,797	3,411,752	2,500,000	911,752	47,392,843	4,087,955	2,389,000	1,698,955	114,611,471	3,980,377	2,390,000	1,590,377	15,458,462	
12	Haryana	1,172,260	1,200,000	-27,740	-102,083	3,253,022	2,118,000	1,135,022	6,401,521	1,301,209	700,000	601,209	3,012,055	2,074,948	1,675,000	399,948	36,535,248	650,604	90,000	560,604	2,971,203	1,559,106	1,780,000	-220,894	-9,940,230	1,951,813	1,085,000	866,813	169,649,954	1,951,813	1,188,500	763,313	39,677,005	2,338,659	1,325,000	1,013,659	68,381,416	2,277,115	2,340,000	-62,885	-611,242	
13	Himachal Pradesh	229,560	185,000	44,560	163,981	637,029	530,000	107,029	603,644	264,812	295,000	-40,188	-201,344	1,109,914	280,000	829,914	75,812,642	127,406	53,000	74,406	394,351	305,315	230,000	75,315	3,389,166	382,217	290,000	92,217	18,259,045	382,217	300,000	82,217	4,273,660	457,972	360,000	97,972	6,609,205	445,920	525,000	-79,080	-768,855	
14	Jammu And Kashmir	404,140	257,000	147,140	541,475	1,121,489	1,080,000	41,489	233,995	448,595	450,000	-1,405	-7,037	4,774,446	630,000	3,944,446	360,325,122	224,298	145,000	79,298	420,278	537,506	460,000	77,506	3,487,779	672,883	300,000	372,883	73,832,834	672,883	690,000	-17,107	-889,217	806,259	860,000	-53,741	-3,625,348	765,042	475,000	310,042	3,013,608	
15	Jharkhand	1,578,220	1,300,000	278,220	1,023,850	4,379,561	4,972,000	-592,440	-3,341,359	1,751,824	820,000	931,824	4,668,439	2,722,425	2,124,500	597,925	54,620,435	875,912	30,000	845,912	4,483,334	2,099,033	1,500,000	599,033	26,956,467	2,627,736	910,000	1,717,736	340,111,767	2,627,736	1,300,000	1,327,736	69,015,733	3,146,549	2,070,000	1,076,549	72,758,909	3,065,692	220,000	2,845,692	27,660,130	
16	Karnataka	2,282,000	1,780,000	502,000	1,847,360	6,332,550	6,484,460	-151,910	-856,772	2,533,020	1,453,940	1,079,080	5,406,191	1,584,864	2,625,000	-1,040,136	-95,016,465	1,266,510	490,000	776,510	4,115,503	3,035,060	2,349,750	685,310	30,838,950	3,799,530	1,710,000	2,089,530	413,726,940	3,799,530	2,190,000	1,609,530	83,663,369	4,552,590	2,613,650	1,938,740	130,787,400	4,432,785	1,280,000	3,152,785	30,645,070	
17	Kerala	964,340	575,000	389,340	1,432,771	2,676,044	2,219,000	457,044	2,577,725	1,070,417	659,000	211,417	1,059,201	14,888,047	1,200,000	13,688,047	1,250,403,088	535,209	65,000	470,209	2,492,106	1,282,572	850,000	432,572	19,465,749	1,605,626	910,000	695,626	137,733,968	1,605,626	1,080,000	515,626	26,802,245	1,923,858	1,220,000	703,858	47,482,281	1,873,230	280,000	1,593,230	15,486,200	
18	Ladakh	8,940	6,000	2,940	10,819	24,809	27,000	-2,192	-12,360	9,923	15,000	-5,077	-25,434	3,679,742	21,050	3,658,692	334,221,475	4,962	5,100	-138	-733	11,880	15,000	-3,120	-139,941	14,865	10,570	4,315	854,380	14,865	16,000	-1,115	-57,953	17,835	16,000	1,835	123,809	17,366	18,560	-1,194	-11,606	
19	Lakshadweep	2,040	6,000	-3,960	-14,573	5,661	6,000	-339	-1,912	2,264	4,000	-1,736	-8,695	68,357	3,000	65,357	5,970,323	1,132	4,500	-3,368	-17,849	2,713	6,000	-3,287	-147,906	3,397	5,000	-1,603	-317,473	3,397	3,000	397	20,615	4,070	3,000	1,070	72,199	3,963	2,000	1,963	19,077	
20	Madhya Pradesh	4,221,300	2,210,000	2,011,300	7,401,584	11,714,108	13,912,900	-2,198,792	-12,401,190	4,685,643	2,421,480	2,264,163	11,343,457	762,262	4,960,000	-4,197,738	-383,463,369	2,342,822	195,000	2,147,822	11,383,454	5,614,329	3,345,000	2,269,329	102,119,805	7,028,465	2,052,000	4,976,465	985,339,971	7,028,465	3,342,720	3,685,745	191,564,999	8,421,494	5,495,000	2,926,494	197,421,252	8,199,875	2,670,000	5,529,875	53,750,387	
21	Maharashtra	3,854,960	3,400,000	454,960	1,674,253	10,697,514	10,960,000	-262,486	-1,480,421	4,279,006	3,070,810	1,208,196	6,053,060	48,252	5,330,000	-5,281,748	-482,487,707	2,139,503	605,000	1,534,503	8,132,865	5,127,097	4,165,000	962,097	43,294,356	6,418,508	3,425,000	2,993,508	592,714,663	6,418,508	4,770,000	1,648,508	85,689,467	7,690,645	4,832,315	2,858,330	192,822,955	7,488,260	4,469,000	3,019,260	29,347,205	
22	Manipur	87,280	95,000	-7,720	-28,410	242,202	245,000	-2,798	-15,781	96,881	67,000	29,881	149,703	286,663	110,000	176,663	16,138,170	48,440	8,050	40,390	214,069	116,082	75,000	41,082	1,848,708	145,321	102,000	43,321	8,577,598	145,321	111,000	34,321	1,784,016	174,124	140,000	34,124	2,301,978	169,541	80,000	89,541	870,342	
23	Meghalaya	154,660	267,000	-112,340	-413,411	429,182	435,000	-5,819	-32,816	171,673	115,000	56,673	283,930	504,670	245,000	259,670	23,720,839	85,836	30,000	55,836	295,932	205,698	230,000	-24,302	-1,093,590	257,509	175,000	82,509	16,336,762	257,509	230,000	27,509	1,429,913	308,547	305,000	3,547	239,260	300,427	155,000	145,427	1,413,551	
24	Mizoram	35,760	95,000	-59,240	-218,003	99,234	174,000	-74,766	-421,680	39,694	60,000	-20,306	-101,735	11,164	135,000	-123,836	-11,312,435	19,847	19,000	847	4,488	47,561	63,000	-15,439	-694,764	59,540	56,000	3,540	700,999	59,540	75,000	-15,460	-803,590	71,341	69,000	2,341	157,937	69,464	90,000	-20,536	-199,612	
25	Nagaland	56,460	55,000	1,460	5,373	156,677	112,000	44,677	251,975	62,671	37,000	25,671	128,610	108,991	72,000	36,991	3,379,119	31,335	13,500	17,835	94,527	75,092	45,000	30,092	1,354,131	94,006	45,000	49,006	9,703,188	94,006	65,000	29,006	1,507,727	112,638	69,000	43,638	2,943,799	109,674	35,000	74,674	725,827	
26	Odisha	1,661,620	1,315,000	346,620	1,275,562	4,610,996	4,996,000	-385,005	-2,171,425	1,844,398	1,464,000	380,398	1,905,795	193,132	1,930,000	-1,736,868	-158,662,921	922,199	217,000	705,199	3,737,555	2,209,955	1,155,000	1,054,955	47,472,957	2,766,597	1,680,000	1,076,597	213,166,265	2,766,597	1,700,000	1,066,597	55,441,728	3,314,932	1,600,000	1,714,932	115,689,306	3,227,697	1,630,000	1,597,697	15,529,613	
27	Puducherry	43,360	34,000	9,360	34,445	120,324	78,000	42,324	238,707	48,130	28,000	20,130	100,849	44,655	54,000	-9,345	-853,538	24,065	12,000	12,065	63,943	57,669	27,000	30,669	1,380,096	72,194	32,000	40,194	7,958,491	72,194	30,000	42,194	2,193,265	86,503	35,500	51,003	3,440,676	84,227	51,000	33,227	322,964	
28	Punjab	888,820	330,000	558,820	2,056,458	2,466,476	2,300,000	166,476	938,922	986,590	710,000	276,590	1,385,717	70,564	1,210,000	-1,139,436	-104,092,921	493,295	80,000	413,295	2,190,464	1,182,131	1,110,000	72,131	3,245,877	1,479,885	804,000	675,885	133,825,289	1,479,885	1,071,680	408,205	21,218,511	1,773,196	1,300,000	473,196	31,921,795	1,726,533	450,000	1,276,533	12,407,899	
29	Rajasthan	3,823,380	2,270,000	1,553,380	5,716,438	10,609,880	8,149,000	2,460,880	13,879,360	4,243,952	3,684,000	559,952	2,805,359	28,272	4,125,000	-4,096,728	-374,236,130	2,121,976	864,500	1,257,476	6,664,622	5,085,095	3,530,000	1,555,095	69,979,293	6,365,928	1,811,000	4,554,928	901,875,685	6,365,928	3,675,000	2,690,928	139,874,422	7,627,643	5,530,000	2,097,643	141,507,004	7,426,916	3,670,000	3,756,916	36,517,220	
30	Sikkim	22,640	18,000	4,640	17,075	62,826	42,000	20,826	117,459	25,130	14,000	11,130	55,763	131,968	36,000	95,968	8,766,668	12,565	1,000	11,565	61,296	30,111	22,000	8,111	365,004	37,696	20,000	17,696	3,503,729	37,696	15,000	22,696	1,179,717	45,167	0	45,167	3,046,952	43,978	19,000	24,978	242,788	
31	Tamil Nadu	2,180,120	900,000	1,280,120	4,710,842	6,049,833	5,080,000	969,833	5,469,858	2,419,933	2,086,000	333,933	1,673,005	494,855	3,850,000	-3,355,145	-306,492,528	1,209,967	365,000	844,967	4,478,323	2,899,560	1,800,000	1,099,560	49,480,182	3,629,900	2,050,500	1,579,400	312,721,180	3,629,900	2,450,000	1,179,900	61,331,192	4,349,338	2,450,000	1,899,338	128,129,436	4,234,863	8,490,000	-4,255,117	-41,359,736	
32	Telangana	1,269,160	1,080,000	189,160	696,109	3,521,919	3,498,000	23,919	134,903	1,408,768	796,000	612,768	3,069,966	11,039	2,725,000	-2,713,961	-247,920,342	704,384	140,000	564,384	2,981,234	1,667,963	1,599,885	88,098	3,964,401	2,113,151	929,500	1,183,651	234,362,977	2,113,151	1,158,000	955,151	49,648,770	2,531,974	1,610,000	921,974	62,196,380	2,465,343	1,676,760	788,583	7,665,030	
33	Tripura	105,680	120,000	-14,320	-52,698	293,262	375,000	-81,738	-461,002	117,305	105,000	12,305	61,647	39,810	153,000	-113,190	-10,338,883	58,652	45,000	13,652	72,358	140,554	165,000	-24,446	-1,100,052	175,957	130,000	45,957	9,099,526	175,957	197,000	-21,043	-1,093,805	210,832	255,000	-44,168	-2,979,600	205,283	200,000	5,283	51,355	
34	Uttar Pradesh	11,922,360	12,510,000	-587,640	-2,162,515	33,084,549	37,967,000	-4,882,451	-27,537,024	13,233,820	7,483,450	5,750,370	28,809,352	2,547	12,288,750	-12,286,203	-1,122,344,610	6,616,910	1,637,000	4,979,910	26,393,522	15,856,739	11,820,000	4,036,739	181,653,246	19,850,729	6,045,000	13,805,729	2,733,534,421	19,850,729	13,270,000	6,580,729	342,066,314	23,785,108	17,849,385	5,935,723	400,423,887	23,159,184	8,314,500	14,844,684	144,290,331	
35	Uttarakhand	396,280	565,000	-168,720	-620,899	1,099,677	1,429,380	-329,703	-1,859,525	439,871	500,000	-60,129	-301,247	54,146	650,000	-595,854	-54,431,281	219,935	95,000	124,935	662,158	527,052	650,000	-122,948	-5,532,642	659,806	235,000	424,806	84,111,628	659,806	650,000	9,806	509,726	790,579	800,000	-9,421	-635,568	769,774	680,000	89,774	872,602	
36	West Bengal	2,946,740	1,750,000	1,196,740	4,404,003	8,177,204	9,468,000	-1,290,797	-7,280,092	3,270,881	1,290,000	1,980,881	9,924,216	61,913	4,050,000	-3,988,087	-364,311,745	1,635,441	215,000	1,420,441	7,528,336	3,919,164	13,670,000	-9,750,836	-438,787,611	4,906,322	2,320,000	2,586,322	512,091,776	4,906,322	4,618,890	287,432	14,940,721	5,678,746	3,670,000	2,008,746	149,002,025	5,724,042	4,805,160	918,882	8,931,537	

Annexure 10.2 (a)- Cost Saving due to timely transfer of RI vaccines (FY 2022-2023 All India)

State/UT	BCG (dose)	Cost per dose	bOPV (dose)	Cost per dose	DPT (dose)	Cost per dose	fIPV (dose)	Cost per dose	Hepatitis B (dose)	Cost per dose	JEEV (dose)	Cost per dose	JENVAC (dose)	Cost per dose	MR (dose)	Cost per dose	MR 5 (dose)	Cost per dose	PCV (dose)	Cost per dose	PCV 5 (dose)	Cost per dose	Pentavalent (dose)	Cost per dose	RotaSil (dose)	Cost per dose	Rotavac (dose) Cap-VVM	Cost per dose	Rotavac (dose) Label-VVM	Cost per dose	Rotavirus 1 (Dose)	Cost per dose	RVV (dose)	Cost per dose	Td (dose)	Cost per dose
INDIA	**3,075,302**	**11,317,111**	**4,348,980**	**24,528,247**	**2,176,680**	**10,905,167**	**4,757,185**	**434,568,850**	**616,858**	**3,269,347**	**173,310**	**16,778,141**	**378,780**	**36,669,692**	**44,190**	**1,610,726**	**2,595,620**	**116,802,900**	**6,424**	**1,271,952**	**1,916,690**	**432,807,769**	**2,693,990**	**140,033,600**	**22,054**	**1,487,763**	**959,750**	**2,429**	**14,445**	**974,460**	**865,495**	**58,386,293**	**890**	**60,039**	**3,939,655**	**38,293,447**
Andaman And Nicobar Islands		0	200	1,128	100	501		0	590	3,127		0		0		0		0		0		0	20	1,040		0		67		0		0	600	40,476	1,070	10,400
Andhra Pradesh	18,550	68,264	29,680	167,395	8,980	44,990	16,860	1,540,161	4,030	21,359	7,990	773,512		0		0	10,610	477,450		0	13,745	3,103,758	11,970	622,201		0	545	67		0	9,463	638,374		0	21,760	211,507
Arunachal Pradesh	120	442	40	226	40	200	150	13,703	60	318		0		0		0	615	27,675		0	10	2,258	10	520		0	285	67		0		0		0	80	778
Assam	21,670	79,746	42,440	239,362	8,160	40,882	13,075	1,194,401	4,530	24,009		0	6,825	660,728		0	15,785	710,325		0	6,880	1,553,573	6,720	349,306		0	7,860	67		0		0		0	26,740	259,913
Bihar	159,890	588,395	527,560	2,975,438	108,480	543,485	215,875	19,720,181	55,170	292,401		0	159,585	15,449,424		0	184,460	8,300,700	384	76,032	199,515	45,052,482	152,570	7,930,589		0	253,115	67	1,750	118,055		0		0	108,410	1,053,745
Chandigarh	790	2,907	4,380	24,703	840	4,208	1,475	134,741	260	1,378		0		0		0	515	23,175		0	410	92,582	660	34,307		0	705	67	30	2,024		0		0	380	3,694
Chhattisgarh	66,120	243,322	72,640	409,690	16,040	80,360	26,775	2,445,896	7,790	41,287	705	68,251		0	3,640	132,678	26,805	1,206,225		0	18,000	4,064,580	16,260	845,195		0	100	67		0	13,640	920,154		0	49,170	477,932
Dadra And Nagar Haveli	340	1,251		0		0	100	9,135		0		0		0		0	2,200	99,000		0		0		0		0		67		0		0		0	500	4,860
Daman And Diu	30	110	2,000	11,280		0		0	320	1,696		0		0		0	4,310	193,950		0	3,000	677,430		0		0		67		0		0		0	150	1,458
Delhi	3,560	13,101	97,660	550,802	710	3,557	1,300	118,755	2,280	12,084		0		0		0	45,850	2,063,250		0	5,035	1,136,953	500	25,990		0	1,825	67		0		0		0	1,330	12,928
Goa	20,760	76,397	500	2,820	40	200	250	22,838	420	2,226		0	125	12,101	90	3,281	10,170	457,650	1,208	239,184	130	29,355	80	4,158		0		67		0	185	12,480		0	510	4,957
Gujarat	62,900	231,472	111,720	630,101	11,140	55,811	17,975	1,642,016	7,390	39,167		0		0	1,700	61,965	11,905	535,725		0	6,565	1,482,443	9,660	502,127	614	41,420		67		0	9,804	661,378		0	213,740	2,077,553
Haryana	42,170	155,186	102,780	579,679	30,130	150,951	7,950	726,233	3,990	21,147		0	835	80,836	5,220	190,269	22,565	1,015,425	424	83,952	16,170	3,651,348	7,580	394,008		0	8,160	67	10,130	683,370		0		0	11,830	114,988
Himachal Pradesh	3,210	11,813	2,720	15,341	7,900	39,579	975	89,066	320	1,696		0		0		0	1,190	53,550	36	7,128	2,330	526,137	590	30,668		0	665	67		0		0	10	675	16,790	163,199
Jammu And Kashmir	8,730	32,126	2,160	12,182	2,200	11,022	775	70,796	2,520	13,356		0		0		0	1,000	45,000		0	2,215	500,169	1,850	96,163		0	860	67		0		0		0	1,240	12,053
Jharkhand	58,850	216,568	158,400	893,376	54,450	272,795	79,300	7,244,055	15,690	83,157		0	49,470	4,789,191		0	79,225	3,565,125		0	56,685	12,800,040	70,480	3,663,550	17,948	1,210,772		67		0	51,800	3,494,428		0	58,130	565,024
Karnataka	26,950	99,176	32,380	182,623	111,060	556,411	15,475	1,413,641	8,280	43,884	1,870	181,035		0	1,160	42,282	65,185	2,933,325		0	221,455	50,006,754	19,470	1,012,051	992	66,920		67		0	17,954	1,211,177		0	135,480	1,316,866
Kerala	452,292	1,664,435	743,260	4,191,986	544,470	2,727,795	682,675	62,362,361	49,540	262,562	44,590	4,316,758		0	1,850	67,433	652,410	29,358,450		0	428,575	96,776,521	433,490	22,532,810	264	17,809		67		0	505,523	34,102,582		0	278,480	2,706,826
Ladakh	8,060	29,661	18,060	101,858	12,000	60,120	11,100	1,013,985	2,000	10,600		0		0		0	7,000	315,000		0	5,500	1,241,955	9,000	467,820		0	9,000	67		0		0		0	7,000	68,040
Madhya Pradesh	1,166,440	4,292,499	1,186,680	6,692,875	820,180	4,109,102	2,520,950	230,288,783	154,780	820,334		0		0	14,090	513,581	838,715	37,742,175	4,372	865,656	397,355	89,726,733	1,314,400	68,322,512		0	442,570	67		0		0	280	18,889	1,979,440	19,240,157
Maharashtra	58,090	213,771	101,440	572,122	32,870	164,679	39,425	3,601,474	12,770	67,681		0	33,575	3,250,396		0	141,345	6,360,525		0	34,335	7,753,186	33,680	1,750,686	198	13,357		67		0	25,302	1,706,873		0	97,090	943,715
Manipur	390	1,435	840	4,738	180	902	525	47,959	1,020	5,406		0	490	47,437		0	425	19,125		0	280	63,227	320	16,634		0	635	67		0		0		0	890	8,651
Meghalaya	260	957	80	451	30	150	550	50,243	1,540	8,162		0	160	15,490		0	290	13,050		0	1,875	423,394	60	3,119		0	665	67		0		0		0	240	2,333
Mizoram		0		0		0		0		0		0		0		0	12,595	566,775		0		0		0		0		67		0		0		0		0
Nagaland	890	3,275	540	3,046	120	601	350	31,973	110	583		0	85	8,229	200	7,290	10	450		0	165	37,259	160	8,317		0	100	67		0		0		0	30	292
Odisha	50,570	186,098	164,540	928,006	36,560	183,166	60,875	5,560,931	88,570	469,421	29,265	2,833,145	1,605	155,380	2,320	84,564	44,535	2,004,075		0	52,380	11,827,928	55,580	2,889,048		0	6,610	67		0	67,122	4,528,050		0	80,690	784,307
Puducherry	100	368	1,080	6,091	820	4,108	75	6,851	960	5,088		0		0		0	30	1,350		0	650	146,777		0		0		67		0		0		0	510	4,957
Punjab	77,760	286,157	57,880	326,443	36,020	180,460	19,025	1,737,934	7,360	39,008		0		0		0	7,640	343,800		0	13,700	3,093,597	10,690	555,666		0	12,750	67		0		0		0	12,640	122,861
Rajasthan	37,330	137,374	92,380	521,023	27,920	139,879	27,725	2,532,679	6,118	32,425		0		0		0	63,045	2,837,025		0	9,925	2,241,164	19,800	1,029,204		0	13,625	67		0		0		0	38,920	378,302
Sikkim	80	294	40	226	200	1,002		0	20	106		0		0		0		0		0	15	3,387		0		0		67		0		0		0		0
Tamil Nadu	42,540	156,547	83,160	469,022	77,620	388,876	83,850	7,659,698	34,880	184,864	4,500	435,645		0	580	21,141	23,575	1,060,875		0	191,860	43,323,907	117,650	6,115,447		0	84,590	67		0	32,071	2,163,510		0	221,920	2,157,062
Telangana	372,030	1,369,070	61,020	344,153	26,030	130,410	36,425	3,327,424	20,030	106,159	16,345	1,582,359		0	830	30,254	27,135	1,221,075		0	36,495	8,240,936	26,120	1,357,718		0		67		0	27,144	1,831,134		0	107,695	1,046,795
Tripura	940	3,459	840	4,738	190	952	150	13,703	410	2,173		0	55	5,325		0	445	20,025		0	90	20,323	100	5,198		0	95	67		0		0		0	760	7,387
Uttar Pradesh	187,520	690,074	418,360	2,359,550	102,780	514,928	668,725	61,088,029	83,450	442,285	3,405	329,638	74,025	7,166,360	5,600	204,120	192,765	8,674,425		0	104,115	23,510,208	267,760	13,918,165		0	96,495	67	2,535	171,011		0		0	317,560	3,086,683
Uttarakhand	19,660	72,349	35,700	201,348	30,090	150,751	128,425	11,731,624	3,830	20,299		0	51,945	5,028,795	6,760	246,402	22,610	1,017,450		0	18,715	4,226,034	14,630	760,467		0	18,495	67		0		0		0	22,850	222,102
West Bengal	105,710	389,013	195,820	1,104,425	68,330	342,333	78,025	7,127,584	35,830	189,899	64,640	6,257,798		0	150	5,468	78,660	3,539,700		0	68,515	15,471,372	92,130	4,788,917	2,038	137,483		67		0	105,487	7,116,153		0	125,630	1,221,124

Annexure 10.2 (b)- Estimated Cost Saving due to timely distribution of COVID vaccine (FY 2022-2023 India)

State/UT	CorBEvax (Dose)	Cost per dose	COVAXIN (dose)	Cost per dose	COVAXIN 10 (dose)	Cost per dose	Covaxin 5 (dose)	Cost per dose	COVISHIELD (dose)	Cost per dose
INDIA	**19,273,680**	**2,929,599,360**	**9,017,340**	**2,035,664,505**	**11,410,320**	**2,575,879,740**	**1,225**	**276,544**	**56,815,810**	**12,229,603,103**
Andaman And Nicobar Islands	1,880	285,760	17,080	3,855,810	60	13,545		0	72,520	15,609,930
Andhra Pradesh	124,500	18,924,000	100,440	22,674,330	133,720	30,187,290		0	1,006,600	216,670,650
Arunachal Pradesh	8,200	1,246,400	8,160	1,842,120	13,590	3,067,943		0	16,320	3,512,880
Assam	1,071,100	162,807,200	608,300	137,323,725	131,840	29,762,880		0	3,995,800	860,095,950
Bihar	1,015,960	154,425,920	70,440	15,901,830	2,044,260	461,491,695		0	2,412,130	519,210,983
Chandigarh	53,260	8,095,520	9,080	2,049,810	21,390	4,828,793		0	30,130	6,485,483
Chhattisgarh	1,017,540	154,666,080	368,700	83,234,025	589,170	133,005,128		0	3,985,660	857,913,315
Dadra And Nagar Haveli	3,940	598,880	1,040	234,780		0		0	16,560	3,564,540
Daman And Diu		0	520	117,390		0		0	10,100	2,174,025
Delhi	268,660	40,836,320	108,480	24,489,360	79,040	17,843,280		0	923,190	198,716,648
Goa	43,920	6,675,840	39,440	8,903,580		0		0	64,580	13,900,845
Gujarat	485,780	73,838,560	176,320	39,804,240	151,840	34,277,880		0	2,543,070	547,395,818
Haryana	841,860	127,962,720	127,040	28,679,280	123,440	27,866,580	340	76,755	800,100	172,221,525
Himachal Pradesh	27,360	4,158,720	6,860	1,548,645	10,140	2,289,105		0	314,360	67,665,990
Jammu And Kashmir	137,300	20,869,600	13,640	3,079,230	8,370	1,889,528		0	200,020	43,054,305
Jharkhand	898,340	136,547,680	1,094,640	247,114,980	782,480	176,644,860		0	160,750	34,601,438
Karnataka	578,520	87,935,040	645,440	145,708,080	1,021,650	230,637,488	375	84,656	1,570,370	338,022,143
Kerala	844,260	128,327,520	385,140	86,945,355	141,910	32,036,183		0	1,253,580	269,833,095
Ladakh	9,820	1,492,640	980	221,235	30	6,773		0	35,940	7,736,085
Madhya Pradesh	3,310,860	503,250,720	425,060	95,957,295	797,740	180,089,805		0	9,093,800	1,957,440,450
Maharashtra	943,380	143,393,760	94,500	21,333,375	241,380	54,491,535	230	51,923	1,431,260	308,078,715
Manipur	8,500	1,292,000	4,340	979,755	3,200	722,400		0	28,100	6,048,525
Meghalaya	7,920	1,203,840	10,040	2,266,530	25,420	5,738,565		0	49,620	10,680,705
Mizoram	2,520	383,040	560	126,420	39,980	9,025,485		0	12,750	2,744,438
Nagaland	7,560	1,149,120	860	194,145	30,970	6,991,478		0	53,520	11,520,180
Odisha	1,167,060	177,393,120	529,920	119,629,440	535,590	120,909,443		0	2,047,020	440,621,055
Puducherry	5,740	872,480	1,160	261,870	3,890	878,168		0	38,900	8,373,225
Punjab	483,300	73,461,600	9,520	2,149,140	181,600	40,996,200		0	1,293,460	278,417,265
Rajasthan	1,267,380	192,641,760	1,929,200	435,516,900	1,253,600	283,000,200		0	2,289,650	492,847,163
Sikkim	1,560	237,120	1,480	334,110		0		0	7,530	1,620,833
Tamil Nadu	2,007,060	305,073,120	790,500	178,455,375	811,380	183,169,035	270	60,953	10,438,170	2,246,816,093
Telangana	494,900	75,224,800	63,700	14,380,275	109,050	24,618,038	10	2,258	988,490	212,772,473
Tripura	36,640	5,569,280	10,540	2,379,405	810	182,858		0	212,060	45,645,915
Uttar Pradesh	893,420	135,799,840	637,560	143,929,170	640,830	144,667,373		0	2,998,180	645,358,245
Uttarakhand	192,240	29,220,480	18,600	4,198,950	79,590	17,967,443		0	388,370	83,596,643
West Bengal	1,011,440	153,738,880	708,060	159,844,545	1,402,360	316,582,770		0	6,033,150	1,298,635,538