

Inclusion of Geospatial Investments in Gavi COVID-19 Delivery Support (CDS) Fund Proposals (3rd window)

An Information Note

Compiled by the joint WHO-UNICEF GIS Working Group



Background – GAVI CDS

- Countries can use Gavi CDS Needs-Based funding support for planning, vaccine delivery and monitoring activities aligned to the WHO Guidance on Developing a [National Deployment and Vaccination Plan \(NDVP\) for COVID-19 Vaccines](#)
- **3rd window focus on 3 key objectives:**
 - i) Acceleration of vaccination of high & high-risk populations
 - ii) Rapid delivery scale-up to reach country targets for adult vaccination
 - iii) Integration of C19 and routine immunisation to achieve sustainable benefits
- For AMC-57 countries application managed by GAVI: For AMC-31 countries 3rd funding window managed by UNICEF HQ
- Minister of Health to lead application development with the support of UNICEF CO and WHO CO, and informing Gavi SCM
- Application deadline: 30 September 2022
- Funds to be spent by: December 2023
- Guidance, application form, country envelopes, activities eligibilities and overall process available on [Gavi portal](#)

Purpose and Intended Audience of this Document

- **Objectives:** supporting the inclusion of GIS investment in funding requests of the Gavi CDS funding mechanism by
 - Indicating recommended GIS activities that are relevant to the CDS objectives
 - Supporting in the identification of the main cost drivers and activities to be costed
 - Clarifying and streamlining technical support available by the joint WHO-UNICEF GIS Working Group in the application process
- **Intended audience:** Immunisation Programme Managers, Alliance partners, Gavi Secretariat country teams, and other stakeholders including Civil Society Organisations (CSOs) supporting the delivery of COVAX supported doses in all 92 AMC countries and involved in the Gavi CDS
- This document is meant as a complement to the [CDS Third Funding Window Guidelines](#)

Information Included in this Information Note

[Section 1.](#) How to use this information note for inclusion of GIS investment for the Gavi CDS funding application and how to seek Support from the COVAX GIS Working Group

[Section 2.](#) Identification of GIS investments relevant to programmatic gaps in each eligible NDVP programmatic areas

[Section 3.](#) Application narrative on how GIS investments will address the identified programmatic gaps in each eligible NDVP programmatic areas

[Section 4.](#) Budgeting considerations for GIS investment by CDS cost grouping

Section 1. How to use this information note

Need	Actions	How to seek further support
<p>▶ To Obtain General information about Gavi CDS eligibility, guidelines</p>	<ul style="list-style-type: none"> ❑ Refer to Gavi guidelines , Gavi Senior Country manager or UNICEF and Country office focal points 	
<p>▶ To identify priority GIS investments to be included in the application</p>	<ul style="list-style-type: none"> ❑ Identify Country stakeholders involved in the CDS application process ❑ Identify the challenges/bottlenecks and NDVP programmatic areas to be addressed by the CDS application ❑ Identify relevant personnel from UNICEF, WHO and Ministry of health with knowledge of the country GIS capacity and context ❑ Review section 2 * and section 3 * of this document to match GIS investments relevant to identified programmatic gaps 	<ol style="list-style-type: none"> 1. Contact the GIS Working Group to organize a prioritization meeting to review and adjust GIS priorities (contact information at the bottom of the document) 2. If possible, ensure the identified stakeholders are included in the prioritization meeting 3. In preparation for the meeting with the GIS WG, fill the online GIS country needs assessment to provide information on the country GIS context
<p>▶ For budgeting of GIS investments</p>	<ul style="list-style-type: none"> ❑ Review section 4 * for budgeting consideration for each GIS investment listed in section 	<ol style="list-style-type: none"> 1. Contact the GIS Working Group for support with budget review 2. In preparation for the meeting, provide to the GIS WG the country-specific information listed in the budgeting information gathering sheet
<p>▶ To initiate implementation once funding is awarded</p>	<ul style="list-style-type: none"> ❑ Review the Rapid guidance for investment planning to establish a detailed workplan ❑ Consult the library of sample ToRs and RFPs compiled by the GIS WG for drafting relevant documentation ❑ Review available WHO and UNICEF long term agreements (LTAs) related to geospatial services for suitable vendors 	<ol style="list-style-type: none"> 1. Contact the GIS Working Group for assistance in reviewing the workplan, TORs and RFPs for technical content, and identification of suitable vendors and contractors

* Additional reference information: [Rapid guidance for investment planning](#)

Section 2. Identification of GIS investments relevant to programmatic gaps in each eligible NDVP programmatic areas

NDVP Programmatic Area	Areas of GIS investments relevant to programmatic area	GIS investments for prioritised COVID-19 vaccination and Routine Immunisation integration activities
1. Programme management including planning and coordination	<ul style="list-style-type: none"> • Geo-enabling microplans to enhance local level planning of service delivery • Population Mapping for identification and prioritization of high and highest-risk population • Geographic accessibility mapping for assessment and optimization of geographic coverage of vaccination sites • Establishing georeferenced master lists of vaccination sites hosted in a registry to enhance programme management and coordination 	<ul style="list-style-type: none"> • Geo-enabling the Health Information System (including establishing georeferenced master lists of health facilities hosted in a registry) • Geo-enabling microplans for Joint routine immunisation and COVID-19 planning and coordination
2. Vaccination delivery	<ul style="list-style-type: none"> • Population Mapping for identification and prioritization of high and highest-risk population • Geo-enabling microplans to enhance local level planning of service delivery • Geographic accessibility mapping for assessment and optimization of geographic coverage of vaccination sites 	<ul style="list-style-type: none"> • Geo-enabling microplans for Joint routine immunisation and COVID-19 vaccination delivery
3. Vaccinators	<ul style="list-style-type: none"> • Establishing Georeferenced master lists of Community Health workers hosted in a registry to assess resources and plan for surge capacity • Geographic accessibility mapping for assessment and optimization of geographic coverage of human resources for vaccination 	<ul style="list-style-type: none"> • Establishing Georeferenced master lists of Community Health workers hosted in a registry
4. Cold chain	<ul style="list-style-type: none"> • Establishing Georeferenced master lists of Cold chain infrastructure hosted in a registry • Geographic accessibility mapping for optimization of supply chain routes • Campaign monitoring using geospatial tools for vaccine accountability and reporting • Geo-enabling microplans for improved stock and waste management 	<ul style="list-style-type: none"> • Geo-enabling microplans for Joint routine immunisation and COVID-19 vaccine logistics
4. Data management, monitoring and evaluation and oversight	<ul style="list-style-type: none"> • Geo-enabling microplans for improved program accountability and supportive supervision • Campaign monitoring using geospatial tools & Vaccinators geo-tracking and monitoring for monitoring of COVID-19 programme implementation progress • Mapping of Vaccine coverage and hotspots for reporting and use of national and subnational vaccine data 	<ul style="list-style-type: none"> • Geo-enable the Health Information System for integrating data management, monitoring and evaluation into the health management information systems • Geo-enabling microplans for Joint routine immunisation and COVID-19 management
6. Vaccine safety surveillance and injection safety	<ul style="list-style-type: none"> • Geo-enabling Case Based Surveillance, AEFI management system active AEFI monitoring • Establishing Georeferenced master lists of Community Health workers hosted in a registry to assess resources and plan for surge capacity to facilitate disease surveillance 	<ul style="list-style-type: none"> • Geo-enable the Health Information System for integrated AEFI monitoring
7. Demand generation and communications	<ul style="list-style-type: none"> • Population Mapping of distribution of high and highest-risk population density and characteristics for targeting social listening and RCCE approaches • Leverage Geo-enabling microplans to support Community engagement campaigns planning and coordination 	<ul style="list-style-type: none"> • Geo-enabling microplans for Joint routine immunisation and COVID-19 demand generation and communication
8. Protecting essential health services and health systems Strengthening	<ul style="list-style-type: none"> • Geo-enable the Health Information System to enable use of geospatial analysis for Primary Health Care strengthening 	6

Section 3. Application Narrative For GIS Investments

3.1 NDVP area: Programme management including planning and coordination

GIS investments relevant to programmatic area

Knowing where people are, where health facilities are and how those can be accessed are questions that geospatial technology and data can answer to support coordination, planning and monitoring of National COVID-19 Response Plans

- **Geo-enabling microplans.** Geo-enabled microplanning involves the use of geospatial data and technologies to support the planning and monitoring of service delivery at the local level of health facility and health district. The geo-enabling of microplans has shown considerable impact on immunization programme coverage, reach, accountability and efficiency. At the service delivery level, the use of spatial data on the location of populations, health resources in a GIS environment supports planning and coordination of COVID-19 resources by ensuring all populations, especially high & high-risk populations are accounted for, and that gaps in population access to vaccination sites are identified and targeted through planning for the adequate vaccine delivery strategies. At the health district level, GIS visualization of microplanning resource, performance and outcome indicators aggregated to health facility catchment area and health districts informs district, regional and national level monitoring and planning of resources.
- **Population Mapping:** population mapping using geospatial methods can fill gaps in more traditional sources of population estimates. By triangulating information from satellite images, regular census, microcensus and/or other available population survey, detailed population density maps can be obtained for identification and location of high and highest-risk populations. Such information, when triangulated through GIS software with information on health infrastructure location and human resources serves to inform national planning and coordination for COVID-19 vaccine deployment at national and sub-national level
- **Geographic accessibility mapping:** the use of spatial data on location of vaccine sites alongside GIS-based analysis of the accessibility of vaccination sites in terms of distance (or travel time) is a powerful tool to provide a national level assessment of the geographic coverage provided by the existing delivery infrastructure, to identify geographic areas affected by limited accessibility to vaccination services, and identifying the distribution of delivery sites that will maximize the target population reached with existing resources. Such analysis also informs the planning of number of and geographic location of additional points of delivery that might be required to achieve country targets. When aggregated to subnational areas, this information allows assessment of the variation in the population being covered in different administrative units
- **Establishing georeferenced master vaccination sites hosted in a registry:** A complete, accurate and detailed list of the location and basic characteristics of vaccination delivery sites is a core information element for enhancing national level program management and coordination. It is also a core dataset to enable GIS investments in geo-enabled microplans and geographic accessibility mapping

GIS investments for prioritised COVID-19 vaccination and Routine Immunisation integration activities

- **Geo-enable the Health Information System:** the use of a common geography across the health sector (location of health infrastructure, population distributions and boundaries of health/administrative areas) provides opportunities for integrated planning of COVID-19 and routine immunization. Geo-enabling the Health Information System involves the establishment (or strengthening) of an institutional framework, technical capacity, and standards, that will sustain the collection, curation and maintenance of quality spatial data and their operational use through GIS analysis for improved advocacy, coordination, planning and monitoring. Such institutional capacity will ensure that the GIS investments in COVID-19 will benefit routine immunization and other essential health services in the long run
- **Geo-enabling microplans for Joint routine immunisation and COVID-19 planning and coordination.** Investments in geo-enabled microplanning provides significant opportunities for integration of COVID-19 service delivery with routine immunization and broader Primary Health Care, particularly if in the context of a programs aimed at geo-enabling the HIS. The cross-sectoral nature of the spatial data involved in geo-enabled microplanning (location of health infrastructure, vaccination sites, population distributions and boundaries of health/administrative areas) makes possible the repurposing of core data, technical capacity and GIS platforms between COVID-19 and other programs for integrated planning and coordination

Section 3. Application Narrative For GIS Investments

3.2 NDVP area: **Vaccination Delivery**

GIS investments relevant to programmatic area

Knowing where people are, where health facilities are and how those can be accessed are questions that geospatial technology and data can answer to support optimization of COVID-19 vaccination delivery strategies

- **Population Mapping:** population mapping using geospatial methods can fill gaps in more traditional sources of population estimates used for service delivery planning and monitoring. Satellite-derived GIS products containing exact location buildings and human settlements allows for geographic targeting and monitoring of outreach vaccination activities and to ensure no vulnerable population groups are left behind. Furthermore, by triangulating such spatial layers with regular census, microcensus and/or other available population survey detailed population density maps can be obtained for better identification and location of high and highest-risk populations within service delivery areas
- **Geo-enabling microplans** Geo-enabled microplanning involves the use of geospatial data and technologies to support the planning and monitoring of service delivery at the local level of health facility and health district. The geo-enabling of microplans has shown considerable impact on immunization programme coverage, reach, accountability and efficiency. At the vaccination delivery level, the use of spatial data on the location of populations, health infrastructure and resources in a GIS environment enhances service delivery by ensuring all populations in the catchment area are accounted for, especially high & high-risk populations, support establishment of vaccination sites at optimal geographic locations to maximize coverage and minimize barriers to access, and ensure efficient utilization of resources through the planning for vaccine delivery strategies (throughput vaccination sites, fixed, mobile or outreach services) according to local geographic conditions.
- **Geographic accessibility mapping:** the use of spatial data on location of vaccination sites alongside GIS-based analysis of the accessibility of vaccination sites in terms of distance (or travel time) is a powerful tool to optimize vaccination delivery strategies. Such analysis can provide evidence of the geographic coverage provided by the existing delivery infrastructure, identify geographic areas, such as communities, with limited accessibility to vaccination services, and support the optimization of vaccination delivery strategies by identifying the location of additional vaccination sites that will maximize the target population reached with existing resources. Geographic accessibility analysis also provides delineation of realistic catchment areas which account for geographic barriers and local transport means experienced by different population group.

GIS investments for prioritised COVID-19 vaccination and Routine Immunisation integration activities

- **Geo-enabling microplans for Joint routine immunisation and COVID-19 planning and coordination.** Investments in geo-enabled microplanning provides significant opportunities for integration of COVID-19 service delivery with routine immunization and broader Primary Health Care, particularly if in the context of a programs aimed at geo-enabling the HIS. The cross-sectoral nature of the spatial data involved in geo-enabled microplanning (location of health infrastructure, vaccination sites, population distributions and boundaries of health/administrative areas) makes possible the repurposing of core data, technical capacity and GIS platforms between COVID-19 and other programs for integrated planning and coordination

Section 3. Application Narrative For GIS Investments

3. NDVP area: **Vaccinators**

GIS investments relevant to programmatic area

Knowing where human resources for vaccination are, how they are distributed with respect to the target population can support planning for surge capacity to deliver high volumes of COVID-19 vaccines while maintaining routine immunisation.

- **Establishing Georeferenced master lists of Community Health workers hosted in a registry:** Community Health workers are a crucial actor in primary health care delivery, including vaccination. Accurate, up-to-date, reliable data on CHWs that captures their location, as well as qualifications, and activities, is critical for strategic decision-making and to pandemic preparedness and response so that CHW cadres can be rapidly deployed to facilitate vaccine delivery. Georeferenced master lists provide insight into the number, spatial distribution, socio-demographics, and training of CHWs and other HRH across different parts of the country. Such information supports allocation planning for personal protective equipment (PPE) as well as informing vaccination of health workers.
- **Geographic accessibility mapping:** information on the location and distribution of health workforce used alongside GIS-based analysis of the accessibility of health infrastructure in terms of distance (or travel times) supports assessment and optimization of geographic coverage of vaccination human resources to assess and plan for surge capacity to achieve country targets. When aggregated to relevant subnational administrative units, such information can be used to display gaps in human resources versus target population in each sub-national division to inform surge capacity

GIS investments for prioritised COVID-19 vaccination and Routine Immunisation integration activities

- **Establishing Georeferenced master lists of Community Health workers hosted in a registry.** A national georeferenced CHWML that captures their location, qualifications, and activities, is critical when planning for, managing, monitoring and supporting the workforce for broader Primary Health Care support. Such information, if accurate, up-to-date, and reliable will provide opportunities for harmonization and integration of the role of CHW across disease-specific and/or partner-supported CHWs into one or more standardized national cadres.

Section 3. Application Narrative For GIS Investments

3.4 NDVP area: Cold chain

GIS investments relevant to programmatic area

- **Establishing Georeferenced master lists of Cold chain infrastructure hosted in a registry:** A complete, accurate and detailed list of the location and basic characteristics of cold chain sites and characteristics is a core information element for enhancing national level program management and coordination of the cold chain. It is also a core dataset to enable the visualization of the distribution of cold chain sites and characteristics for assessment. When triangulated with other GIS information on population distribution and coverage data it enables national level assessment of gaps in cold chain systems, as well as GIS-based analysis for cold chain optimization
- **Geographic accessibility mapping :** the use of spatial data on location of supply chain sites alongside GIS-based analysis of the physical accessibility between sites in terms of distance (or travel time) is a powerful tool to provide a national level assessment of the existing supply chain infrastructure, to identify geographic areas with inefficient supply chain, and optimize the planning of supply routes based on evidence on transportation network, geographic distances and modes of transport.
- **Campaign monitoring using geospatial tools to for vaccine accountability and reporting :** Monitoring of vaccination campaigns using GIS-enabled mobile devices (tablets, smart phone) can provide near real-time geolocated data to assess daily coverage, doses delivered, vaccine supply & stockout at each vaccination site, allowing granular near real-time monitoring of COVID-19 supply.
- **Geo-enabling microplans for improved stock and waste management:** Geo-enabled microplanning involves the use of geospatial data and technologies to support the planning and monitoring of service delivery at the local level of health facility and health district. The geo-enabling of microplans holds significant benefit for stock out reduction and waste management. The use of spatial data on the location of target population populations, vaccination sites, and human resources alongside stock information at vaccination sites supports more efficient utilization of resources by (i) ensuring optimal delivery strategies (fixed, mobile, outreach) are planned according to communities accessibility, (ii) supporting more accurate estimation of children to be immunized in each session. At the supervision level, GIS visualization of stock outs and wastage informs district, regional and national level of problematic health facilities for more targeted response.

GIS investments for prioritised COVID-19 vaccination and Routine Immunisation integration activities

- **Geo-enabling microplans for Joint routine immunisation and COVID-19 vaccine logistics.** Investments in geo-enabled microplanning provides significant opportunities for integration of COVID-19 and routine immunization vaccine logistics . The cross-sectoral nature of the spatial data involved in geo-enabled microplanning (location of health infrastructure, vaccination sites, cold chain sites, population distributions and boundaries of health/administrative areas) makes possible the repurposing of core data, technical capacity and GIS platforms between COVID-19 and other programs for integrated stock out and waste monitoring. this will benefit significantly if done in the context of investments aimed at geo-enabling the HIS

Section 3. Application Narrative For GIS Investments

3.5 NDVP area: **Data management, monitoring and evaluation and oversight**

GIS investments relevant to programmatic area

- **Geo-enabling microplans:** Geo-enabled microplanning involves the use of geospatial data and technologies to support the planning and monitoring of service delivery at the local level of health facility and health district. thanks to the availability of spatially accurate and verifiable information on the location of populations, health infrastructure, resources and the geographic barriers to access to vaccination services through GIS information products, the geo-enabling of microplans has shown considerable impact for improving accountability of the vaccination program across multiple level of the health sector, as well as providing significant opportunities for more supportive supervision of front line health workforce by managers during the microplanning process.
- **Campaign monitoring using geospatial tools & Vaccinators geo-tracking and monitoring:** Monitoring of vaccination campaigns using GIS-enabled mobile devices (tablets, smart phone) can provide near real-time geolocated data to assess daily coverage, doses delivered, vaccine supply & stockout at each vaccination site, allowing granular near real-time monitoring of COVID-19 programme implementation progress. Furthermore, vaccination team's performance can be monitored through geo-tracking of GIS-enabled mobile devices carried by vaccination teams to provide evidence of the areas visited daily by vaccination team, allowing daily supervision and verification of the actual geographic coverage against the planned one. Geo-enabled microplans can be highly beneficial to campaign monitoring and vaccination tracking, as they will ensure availability of GIS basemaps including names and locations of all cities, settlements and villages, along with key points of interest , administrative and/or health boundaries, and ideally a population distribution layer, so that the optimal number and distribution of campaign enumeration teams can be planned for, and GIS maps can guide enumeration teams and ensure no target populations or structures are missed.
- **Mapping of vaccine coverage and hotspots:** information on covid-19 vaccination coverage can be visualized through GIS dashboards to support reporting and monitoring of COVID-19 programme implementation progress and equity at national and subnational level. Once COVID-19 coverage data are available for administrative subdivision, these are mapped to administrative geographic boundaries. Spatial visualization and analysis is used to highlight inequalities in vaccine coverage as well as hotspot to enhance evaluation and oversight of programme performance and equity

GIS investments for prioritised COVID-19 vaccination and Routine Immunisation integration activities

- **Geo-enable the Health Information System:** the use of a common geography across the health sector (location of health infrastructure, population distributions and boundaries of health/administrative areas) provides opportunities for integrated reporting, monitoring and evaluation of COVID-19 and routine immunization as well as the broader Primary health Care . Geo-enabling the Health Information System involves the establishment (or strengthening) of an institutional framework, technical capacity, and standards that will sustain the collection, curation and maintenance of quality spatial data, their operational use through GIS analysis, and enable the use of the common geography throughout the health management Information Systems.
- **Geo-enabling microplans for Joint routine immunisation and COVID-19 management.** Investments in geo-enabled microplanning provides significant opportunities for integration of COVID-19 service delivery with routine immunization and broader Primary Health Care, particularly if in the context of a programs aimed at geo-enabling the HIS. The cross-sectoral nature of the spatial data involved in geo-enabled microplanning (location of health infrastructure, vaccination sites, population distributions and boundaries of health/administrative areas) makes possible the repurposing of core data, technical capacity and GIS platforms between COVID-19 and other programs for integrated program management, monitoring and evaluation

Section 3. Application Narrative For GIS Investments

3.6 NDVP area: **Vaccine safety surveillance and injection safety**

GIS investments relevant to programmatic area

- **Geo-enabling Case Based Surveillance, AEFI management system and active AEFI monitoring:** Using spatial tools and data enhances surveillance capacity. GIS-enabled mobile data collection application facilitates geolocalization of AEFI, case detection, and contact tracing activities, leading more efficient case verification and active monitoring. Visualization of the data into GIS-enabled platforms informs oversight and better geographic targeting and coordination of response, as well as supporting the production of subnational level risk classification information products, such as GIS maps.
- **Establishing Georeferenced master lists of Community Health workers hosted in a registry:** Community Health workers are a crucial actor in primary health care. Accurate, up-to-date, reliable data on CHWs that captures their location, as well as qualifications, and activities, is critical for strategic decision-making and to pandemic preparedness and response so that CHW cadres can be, amongst other things, rapidly deployed to facilitate disease surveillance. Georeferenced master lists provide insight into the number, spatial distribution, socio-demographics, and training of CHWs and other HRH across different parts of the country. Such information supports assessment of human resources and allocation planning plan for surge capacity to facilitate disease surveillance

GIS investments for prioritised COVID-19 vaccination and Routine Immunisation integration activities

- **Geo-enable the Health Information System:** the use of a common geography across the health sector (location of health infrastructure, population distributions and boundaries of health/administrative areas) provides opportunity for for integrated AEFI identification, monitoring, management, and reporting of COVID-19 and routine immunization as well as other Vaccine Preventable Diseases. Geo-enabling the Health Information System involves the establishment (or strengthening) of an institutional framework, technical capacity, and standards that will sustain the collection, curation and maintenance of quality surveillance data, their operational use through GIS analysis, and enable the use of the common geography throughout the Health Management Information Systems for integrated surveillance.

Section 3. Application Narrative For GIS Investments

3.7 NDVP area: Demand generation and communication

GIS investments relevant to programmatic area

Geographic information systems have long proven their value in risk and vulnerability analysis and are also a powerful tool for risk communication.

- **Population Mapping of distribution of high and highest-risk** population density and characteristics for targeting social listening and Risk Communication and Community Engagement (RCCE) approaches. population mapping using geospatial methods can fill gaps in more traditional sources of population estimates. By triangulating information from satellite images, regular census, microcensus and/or other available population survey, detailed population density maps can be obtained for identification and location of high and highest-risk populations. Additionally, Such GIS products can illustrate in detail the spatial distribution of population or build-up environment characteristics beneficial to inform RCCE approaches, such as demographic characteristics or easiness of social distancing based on population density. Such information, when triangulated through GIS software with information on health infrastructure location and human resources serves to inform targeted community engagement and social mobilization activities
- **Leverage Geo-enabling microplans to support Community engagement campaigns planning and coordination:** Geo-enabled microplanning involves the use of geospatial data and technologies to support the planning and monitoring of service delivery at the local level of health facility and health district. Community engagement and social mobilization campaigns can benefit from the geo-enabling of microplans by leveraging the same spatial data (location of health infrastructure, vaccination sites, population distributions and boundaries of health/administrative areas) , technical capacity and GIS platforms for optimization of community engagement campaigns. Additionally, the geo-enabling of microplans has demonstrated positive impact in the inclusion of missed or marginalized communities in the planning process. This can inform the targeting of demand generation and communication activities to accelerate vaccination in underserved areas at risk of being missed by the health systems

GIS investments for prioritised COVID-19 vaccination and Routine Immunisation integration activities

- **Geo-enabling microplans for Joint routine immunisation and COVID-19 demand generation and communication:** Investments in geo-enabled microplanning provides significant opportunities for joint demand generation and communication activities between COVID-19 and routine immunization. The cross-sectoral nature of the spatial data involved in geo-enabled microplanning (location of health infrastructure, vaccination sites, population distributions and boundaries of health/administrative areas) makes possible the repurposing of core data, technical capacity and GIS platforms between COVID-19 and other programs for integrated microplanning and service delivery. In this context leveraging the benefits of geo-enabled microplanning for community engagement campaigns in under-served areas provides significant opportunities to improve uptake of routine immunization

Section 3. Application Narrative For GIS Investments

3.8 NDVP area: **Protecting essential health services and health systems Strengthening**

GIS investments relevant to programmatic area

- **Geo-enable the Health Information System to enable use of geospatial data, technologies and methods for Primary Health Care strengthening:** the use of Geospatial data and technology support maintaining essential health services. the use of a spatial information on the location of health infrastructure and resources, population distributions and their surrounding environment support the assessment and monitoring of the health of communities and populations at risk, highlights gaps in population access to services and informs action to assure that all populations have access to care. Furthermore, GIS visualization is a powerful tool to aid the advocacy and formulation of public policies designed to solve identified local and national health problems and priorities. Geo-enabling the Health Information System involves the establishment (or strengthening) of the institutional framework, technical capacity, and standards that will sustain the collection, curation and maintenance of quality spatial data and their operational use through GIS analysis in a manner embedded in the Health information System, a crucial step to realize the full benefit of geospatial data and technologies for the health sector. Geo-enabling the health information system will therefore provide opportunities for long term integration of COVID-19 vaccination with routine immunization and other health interventions such as Primary Health Care by facilitating integrated health programming and management through the use of common geography (health facilities, communities, health reporting area) and centralized GIS technical capacity, and by stimulating a cross-sectoral vision, strategy and capacity for GIS.

Section 4. Budgeting considerations for GIS investment by CDS cost grouping

In this section a table of cost inputs is provided for each of the main GIS investments using the Gavi CDS cost group infrastructure

- Geo-enabling the Health Information System ([Costing table](#))
- Geo-enabling microplans ([Costing Table](#))
- Population Mapping ([Costing Table](#))
- Geographic accessibility mapping ([Costing Table](#))
- Establishing georeferenced master lists ([Costing Table](#))
- Campaign monitoring using geospatial tools & Vaccinators geo-tracking and monitoring ([Costing Table](#))
- Geo-enabling Case Based Surveillance ([Costing Table](#))

Note: the cost inputs provided are meant to be indicative and will be dependent on the country context. Detailed budgets cannot therefore be provided in this information note for general use. In order to fine tune the budget, it is recommended consult the [Rapid guidance for investment planning](#) and seek further support with the GIS WG

Section 4. Budgeting considerations for GIS investment by CDS cost grouping

Activity 1: Geo-enabling the Health Information Systems

Additional resources: [Rapid guidance for investment planning\(Section5\)](#)

The cost inputs included in this table are related to the establishment of the institutional capacity for the governance, management and use of geospatial data and technologies across the health sector. As such these costs should be considered in complementarity to the costs associated to the application of the other specific GIS investments described in the other sections (Activities 2-7)

CDS Cost Grouping	CDS sub-group	Cost input description	Cost frequency
1. Human resources	1.2	Ongoing salaries of data managers / GIS technicians to establish a central level geospatial data management units	Recurrent
2. transport costs and travel related costs	2.2, 2.3	Travel for regular meetings of the events and activities to advocate for creation and participation in the governance structure, coordination and dissemination activities to sensitize MOH stakeholders on the requirements for geo-enabling the HIS, Consultation meetings to develop, review and agree upon the vision, strategy and plans, and activities for identification and agreements on data specification, standards and protocols	Recurrent
	2.2, 2.3	Travel for trainings on geospatial data collection, data extraction, management, analysis or visualization for data manager / GIS technicians of the a central level geospatial data management units	Recurrent
	2.5	Per diem/allowances for data managers / GIS technicians to travel to meetings, training and workshop activities related to the National Spatial Data Infrastructure (NSDI (if an NSDI is established or in the process of being established))	Recurrent
3. External professional services.	3.1	Fee of consultant with expertise in implementation of geospatial data and technologies in health systems for development of the geo-enabling vision, strategy and workplan (Including support the creation of Terms of Reference and workplan of the governance structure and organize meeting agendas)	One time cost
	3.4	Partnerships to source technical capacity or training support for the MoH (e.g., technical institutes, Universities, NGOs, Centres of Excellence or other national agencies)	Recurrent
	3.1	Training fee for facilitators/GIS Expert for the organization of initial and refresher trainings for data manager/GIS technicians at central level geospatial data management units (if one is established, or else the personnel with a mandate over geospatial data management belongs to a relevant data management unit)	Recurrent
	3.1	Fee of consultant with expertise on the identification or adaptation of health-related geospatial data and technologies specification, standards and protocols to support the application of geospatial data and technologies	One time cost
4. Health prod. Cons. Etc..			
5. Event related (trainings, meetings, workshops, launches)	5.1-5.2	Convening events and activities related to the creation of the governance structure (e.g. a technical working group, committee or similar) and regular meetings of the body	recurrent
	5.1- 5.2	Organization of advocacy, coordination and dissemination activities (workshops and materials) to sensitize MOH stakeholders on the requirements for geo-enabling the HIS, and consultation meetings to develop, review and agree upon the vision, strategy and plans, and activities for identification and agreements on data specification, standards and protocols	recurrent
	5.1 -5.2	Organization of trainings on geospatial data collection, data extraction, management, analysis or visualization for data manager / GIS technicians of the a central level geospatial data management units	recurrent
6. Cold Chain			
7. Infrastructure (INF) and Non-Health Equipment (NHE)	7.3-7.4	IT infrastructure to support the central level MOH geospatial data management unit for data management and storage	One time cost
	7.3	Purchase and maintenance of GNSS enabled devices for the central level geospatial data management and technologies unit to have access to the necessary geospatial technologies to support its mandate	Recurrent
	7.3	Purchase of Laptops for staff involved in geospatial data management, analysis and visualization of the central level MOH geospatial data management unit	Recurrent
	7.3	purchase of GIS software license (desktop or cloud--based) for data management, analysis and visualization at the central level MOH geospatial data management unit	
	7.3	Purchase and maintenance of printers for map printing of the central level MOH geospatial data management unit (Single cost)	One time cost
8. Communication materials and Publications	8.4	Translation fee of advocacy and workshop materials to local language, as required	One time cost
	8.1	Printing of flyers or documentation necessary for vision, strategy and plans dissemination	One time cost
9. Programme Admin. (PA)	9.1	Office costs and Internet subscription/access to support the central level MOH geospatial data management unit	Recurrent
10. Results based fin.			

Section 4. Budgeting considerations for GIS investment by CDS cost grouping

Activity 2: Geo-enabling microplans

Additional resources: [Rapid guidance for investment planning \(Sections 3 and 4\)](#)

CDS Cost Grouping	CDS sub-group	Cost description	Cost frequency
1. Human resources	1.2	Salaries and wages for data manager/GIS staff involved in the geospatial data management unit. Amount needed depends on the scope and technical needs of the microplan.	Recurrent
	1.1	Salaries and wages for programme manager and team to coordinate the defined microplan scope and activities, and to manage and collaborate with various stakeholders.	Recurrent
2. transport costs and travel related costs	2.5	Associated travel costs for personnel if holding trainings or advocacy workshops on the supporting environment with stakeholders	One time cost
3. External professional services.	3.1	International or domestic consultancy or advisor with expertise in implementation of geospatial data and technologies in health systems to support the geo-enablement of the microplan.	Recurring
4. Health Prod., cons. Etc.	---	---	---
5. Event related (trainings, meetings, workshops, launches)	5.1	Costs for event planning and facilitation if a workshop will be held with stakeholders to determine microplan scope and assess the level of geo-enablement. Depending on the scope and accessibility, cost may be driven by number of events needed, space rental, subsistence for participants, and per diem and/or travel allowances for trainers or facilitators.	One-time cost
	5.2	Cost of materials needed for event facilitation, e.g. print and digital communication.	One-time cost
	5.1	Amount of travel and meetings required for buy-in, coordination and approval, as well as workshops and planning events with stakeholders.	One-time cost
6. Cold Chain	---	---	---
7. Infrastructure (INF) and Non-Health Equipment (NHE)	7.3	Computer hardware and GIS software licenses (if needed) to use, manage, analyze and visualize geospatial data and georeferenced master list data into microplanning maps (such as health facility catchment areas, immunization resources and other relevant geographic features).	Recurrent
	7.3	GNSS enabled devices if needed for collecting and/or updating geospatial data	One time cost
	7.3	Internet access with bandwidth for staff involved in geospatial data gathering management, analysis, visualization and communication.	Recurrent
	7.3	Database storage and management of geospatial data	One time (physical) or Recurring (cloud-based)
	7.4?	Cost of high-resolution satellite imagery or drone to capture high-resolution imagery, if not available publicly or through partnership with an imagery provider.	One-time cost (purchasing specific image) Recurring cost (purchase of membership to access imagery)
8. Communication materials and Publications	8.4	Translation to local language of workshop materials and live workshop translation if required	One-time cost
	8.1, 8.4	Purchase and maintenance of printers, paper, ink and toner for map printing	One time cost
	8.3 , 8.4	Cost of digital promotional materials and distribution of information, if needed	One-time cost (cost of distribution) Recurring (cost of membership)
9. Programme Administration (PA)	9.1-9.4	Internet subscription and office supplies for programme management and activities related to developing and maintaining the geo-enabling environment.	Recurring
10. Results based Financing			

Section 4. Budgeting considerations for GIS investment by CDS cost grouping

Activity 3: Population Mapping

Additional resources: [Rapid guidance for investment planning \(Sections 3 and 4\)](#)

CDS Cost Grouping	CDS sub-group	Cost input description	
1. Human resources	1.1	Salaries & wages of local staff engaged in data collection activities for population of micro-census/surveys	Recurrent
	1.2	Salaries & wages of local technical staff engaged on data management activities (such as QA)	Recurrent
2. transport costs and travel related costs	2.2	Transportation rental for field collection activities	Recurrent
	2.3	Fuel for transport of field collection activities	Recurrent
	2.5	Per diem for travel allowances	Recurrent
3. External professional services.		Consultancy for data modelling to obtain accurate and updated population estimates using available data.	One time cost
	3.1	Consultancy to assess baseline data management and distribution systems as well as mechanisms to ensure integration and operability of new data / scaling and development of long-term plan for the sustained operations (1 or more consultants)	One time cost
	3.4	Fees for field data collection technicians (or Ministry of Health staff) for collection and/or update of population micro-census/surveys in the context of mass campaigns/operations	Recurrent
4. Health Prod., cons. Etc.			
5. Event related (trainings, meetings, workshops, launches)	5.2	Venue for event launch for spreading awareness on collecting spatial population data	One time cost
	5.2	Materials for the event – panels, batches	One time cost
	5.2	Training in relevant technologies, policies and standards, including specific training for field data collection of geospatial data for micro-census/surveys	One time cost
6. Cold Chain			
7. Infrastructure (INF) and Non-Health Equipment (NHE)	7.3	GNSS enabled devices for data collection/update of micro-census/surveys	One time cost
	7.3	Data management system software	One time cost
	7.3	Data storage (cloud services or server/bank equipment)	One time cost
	7.3	IT Infrastructure development (if needed) to support the run of the software and operations of geospatial data updates on population datasets	One time cost
	7.4	IT Infrastructure maintenance (if needed) to support the run of the software and operations of geospatial data updates on population sets	Recurrent
8. Communication materials and Publications	8.1	Printing of maps to support field operations	Recurrent
	8.2	TV/radio time to promote mass campaigns for data collection from the field	One time cost
	8.3	Non-print promotional materials to communicate and promote mass campaigns for data collection	One time cost
9. Programme Administration (PA)	9.1	Internet subscription/access with good bandwidth to store and sync data management, communication across stakeholders and teams.	Recurrent
10. Results based Financing			

Section 4. Budgeting considerations for GIS investment by CDS cost grouping

Activity 4: Geographic Accessibility Mapping

Additional resources: [Rapid guidance for investment planning \(Sections 3 and 4\)](#)

CDS Cost Grouping	CDS sub-group	Cost input description	
1. Human resources	1.2	Salaries and wages for staff with geospatial data expertise and project leadership to manage gathering and quality control of input data	Recurrent
	1.3	Participation of data manager/GIS technician to national and subnational advocacy workshops, and to training event on geographic accessibility modelling	Recurrent
		Per diems for field data collectors, if the quality of existing input data is poor/incomplete	Recurrent
2. transport costs and travel related costs	21.-2.4	Transportation and lodging cost for the advocacy and training events	Recurrent
	2.5	Per diem per travelling distance for the advocacy and training events	Recurrent
3. External professional services.	3.1	Fee of Training facilitator/GIS expert fee for training events	One time cost
	3.4	Partnerships with technical institutes or other national agencies (such as academia)	One time cost
	3.1	Consultant for geographic accessibility modelling	One time cost
4. Health Products, consumables and equipment			
5. Event related (trainings, meetings, workshops, launches)	5.2	Training event and venue for national and subnational advocacy workshops, including costs related to facilitation, office materials and subsistence.	One time cost
	5.2	Training events for data manager/GIS technicians at central level from geospatial data management units for training on geospatial accessibility modelling (both initial and refresher)	One time cost
	5.2	Training event facilitation and materials for field data collection, if the quality of existing input data is poor/incomplete.	One time cost
6. Cold Chain			
7. Infrastructure (INF) and Non-Health Equipment (NHE)	7.3	Equipment used during the training, e.g. tablets or laptops	One time cost
	7.3	GNSS-enabled devices for field data collection/updates, if the quality of existing input data is poor/incomplete	One time cost
	7.3	GIS software, in case a proprietary option is needed.	One time cost
8. Communication materials and Publications	8.4	Publication of mapping with geographic accessibility modelling for different regions	One time cost
	8.1	Printing of manuals for the trained GIS experts to train others on how to apply geographic accessibility modelling	One time cost
9. Programme Administration (PA)	9.1	Internet access (if web-based tools or data are being used)	Recurrent
10. Results based Financing			

Section 4. Budgeting considerations for GIS investment by CDS cost grouping

Activity 5: Establishing geo-referenced master lists

Additional resources: [Rapid guidance for investment planning \(Sections 3 and 4\)](#)

CDS Cost Grouping	CDS sub-group	Cost input description	
1. Human resources	1.1	Salaries & wages of local staff engaged on the activities of field data collection, which may include data such as health resources, vaccination sites and cold storage infrastructure, health area boundaries, settlements, vaccination points, and CHWs.	Recurrent
	1.2	Salaries & wages of local technical staff engaged on data management activities (such as QA, integration into the geo-registry)	Recurrent
2. transport costs and travel related costs	2.2	Transportation rental for field collection activities	Recurrent
	2.3	Fuel for transport during field collection activities	Recurrent
	2.5	Per diem for travel allowances during field collection activities	Recurrent
3. External professional services.	3.1	Consultancy to assess baseline data management and distribution systems as well as mechanisms to ensure integration and operability of new data/scaling and development of long-term plan for the sustained operations (1 or more consultants)	One time cost
	3.1	Fees for field data collection technicians to collect missing master list data as determined in the baseline assessment.	Recurrent
	3.1	Fees for translation services (workshops, data, and communication materials) if required	One time cost
	3.1, 3.4	Cost of partnerships with technical institutes or other national agencies, if required	Recurring
4. Health Prod, cons., etc.	---	---	---
5. Event related (trainings, meetings, workshops, launches)	5.2	Venue for event launch for-advocacy on the value and benefits of establishing a georeferenced master list	One time cost
	5.1	Materials for the event – panels, batches	One time cost
	5.1	Training in relevant technologies for field data collection and geospatial data management and curation	One time cost
6. Cold Chain	---	---	---
7. Infrastructure (INF) and Non-Health Equipment (NHE)	7.3	GNSS-enabled equipment, including mobile phones or tablets, for master list data collection / updates as needed.	One time cost
	7.3	Data management system software and/or data storage to host the geo-registry of master lists. (cloud services or server/bank equipment) if needed to host the geo-registry of master lists.	One time cost
	7.3	IT Infrastructure development and maintenance to support data management and update of geo-referenced master lists.	Recurrent
8. Communication materials and Publications	8.1	Printing of maps to support field operations of data collection to update master lists	Recurrent
	8.2	TV/radio time to promote mass campaigns for data collection from the field	One time
	8.3, 8.4	Translation to local language of training materials and live workshop translation, if required	One time
9. Programme Administration (PA)	9.1	Office-related costs for programme administration, including office supplies, consumables, telephones, internet with good bandwidth to support data storage, synchronization and sharing.	Recurring
10. Results based Financing	---	---	---

Section 4. Budgeting considerations for GIS investment by CDS cost grouping

Activity 6: Campaign monitoring using geospatial tools & Vaccinators geo-tracking and monitoring

CDS Cost Grouping	CDS sub group	Cost input description	
1. Human resources	1.2	Salaries and wages for staff with geospatial data expertise to create workflows. Digital data forms and data monitoring dashboards/reports	Recurrent
2. transport costs and travel related costs	2.1-2.4	Transportation of staff to perform the campaign and ensure the geospatial data collection	Recurrent
	2.5	Per diem for the travel allowance to perform the campaign and perform the geospatial data collection.	Recurrent
3. External professional services.	3.1	Trainer with expertise on geospatial data collection for systematic monitoring.	One time cost
	3.1	International or domestic GIS consultant with geospatial data expertise to create workflows. Digital data forms and data monitoring dashboards and reports.	Recurring
4. Health Products, consumables and equipment			
5. Event related (trainings, meetings, workshops, launches)	5.1	Per diem for the travel to the training venue	One time cost
	5.2	Venue for the training event on using the software and geospatial data workflow collection	One time cost
6. Cold Chain			
7. Infrastructure (INF) and Non-Health Equipment (NHE)	7.3	Smartphone/tablet or other GNSS or GPS enabled data collection devices	One time cost
	7.3	Software for field data collection with automated data uploads and transmission for each vaccine (data should be able to be collected without internet connectivity and synced one available)	One time cost
	7.4	Solar chargers for areas where devices batteries cannot be recharged daily	One time cost
	7.3	BI/Data management solution to monitor the daily activities and take action	One time cost
	7.3	Storage (local server/cloud) to store collected data	One time cost
8. Communication materials and Publications			
9. Programme Administration (PA)	9.1	Internet fees for connection of the devices on data transmission (when available)	Recurrent
10. Results based Financing			

Additional resources: [Rapid guidance for investment planning \(Sections 3 and 4\)](#)

Section 4. Budgeting considerations for GIS investment by CDS cost grouping

Activity 7: Geo-enabling Case based surveillance

CDS Cost Grouping	CDS sub-group	Cost input description	
1. Human resources	1.2	Salaries and wages for staff with geospatial data analysis skills (population estimates and distribution, microcensus data and satellite imagery)	Recurrent
2. transport costs and travel related costs	2.1 -2.4	Travels to shared border country offices and coordination with international reporting bodies	One time cost
	2.5	Per diems for the travel allowance in meetings with other reporting bodies	Recurring
	2.1 -2.4	Travels for individual case investigations to collect patient location to identify and notify new areas of possible spread	Recurring
	2.5	Per diems for the travels associated with individual case investigations	Recurring
3. External professional services.			
4. Health Products, consumables and equipment			
5. Event related (trainings, meetings, workshops, launches)	5.2	Launch event venue for collaboration and sharing across all stakeholder groups with governance structures for advocacy and agreement on collection, management and use of diseases surveillance data	One time cost
	5.1	Per diem for the attendance of the launch event venue on data collaboration and sharing	One time cost
	5.2	Venue for the training event on using the software and geospatial data workflow collection	One time cost
6. Cold Chain			
7. Infrastructure (INF) and Non-Health Equipment (NHE)	7.3	Smartphone/tables or other GNSS or GPS enabled data collection devices	One time cost
	7.3	Platform with data analysis and sharing capabilities for decision-makers to coordinate response, provide supportive supervision and predict hotspots	Recurring
8. Communication materials and Publications	8.1	Awareness / advocacy materials related to geolocation of disease spreading	One time cost
9. Programme Administration (PA)	9.1	Printing of reports and printing of awareness material	One time cost
10. Results based Financing			

Additional resources: [Rapid guidance for investment planning \(Sections 3 and 4\)](#)

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