Data Collection Survey on Digitalization of Public Services

in African Countries

Final Report
(Proposed Programs)

March 2022

Japan International Cooperation Agency (JICA)

International Development Center of Japan
Koei Research and Consulting
Japan Telecommunications Engineering and Consulting Service
Kobe Institute of Computing,
Nippon Koei

For currency conversion where necessary, the following exchange rates in February 2022 are applied:

EUR 1 = JPY 128.511000
USD 1 = JPY 115.262000
AOA1 = JPY 0.219900
ETB 1 = JPY 2.322890
GHS 1 = JPY 18.519300
KES 1 = JPY 1.018670
MGA 1 = JPY 0.029150
MWK 1 =JPY 0.144030
MZN 1 = JPY 1.823670
NGN 1 = JPY 0.277620
RWF 1 = JPY 0.115080
ZAR 1 = JPY 7.400860
UGX 1 = JPY 0.033040
XAF 1 = JPY 0.195910
XOF 1 = JPY 0.195910
ZMW 1 = JPY 6.405900

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ACS	African Centre for Statistics, ECA
AFD	Agence française de développement
AfDB	African Development Bank
APAI-CRVS	African Programme for Accelerated Improvement of Civil Registration and Vital Statistics
AU	African Union
BOT	Build-Operate-Transfer
CEDEAO	Communauté économique des états de l'Afrique de l'ouest
COMESA	Common Market for Eastern and Southern Africa
CRVS	Civil Registration and Vital Statistics
CSIRT	Computer Security Incident Response Team
DFID	Department for International Development of the UK
EAC	East African Community
ECA	United Nations Economic Commission for Africa
ECOWAS	Economic Community of West African States
Enabel	Agence belge de développement
EU	European Union
FDI	Foreign Direct Investment
FinTech	Financial Technology
FISP	Farmer Input Support Programme
GDP	Gross Domestic Product
GFF	Global Financing Facility (World Bank Group)
GNI	Gross National Income
GSM	Global System for Mobile Communication
GSMA	GSM Association
ICAO	International Civil Aviation Organization
ICD	International Classification of Diseases
ICT	Information and Communication Technology
ID	Identification (Document)
ID4D	Identification for Development
IDI	ICT Development Index
ILO	International Labour Organization
ISO	International Organization for Standardization
ISP	Internet Service Provider
ITU	International Telecommunication Union
IXP	Internet eXchange Point
JICA	Japan International Cooperation Agency
JETRO	Japan External Trade Organization
KYC	Know Your Customer
MDGs	Millennium Development Goals
MDTF	Multi-Donor Trust Fund
MOSIP	Modular Open-Source Identity Platform
NEPAD	New Partnership for Africa's Development
NFC	Near-Field Communication
ODA	Official Development Assistance
PIN	Personal Identification Number
PPP	Public-Private Partnership
SADC	Southern Africa Development Community
SDGs	Sustainable Development Goals
SIM	Subscriber Identification Module
SME	Small and Medium Enterprises
UHC	Universal Health Coverage
UIN	Unique Identity Number
UNDP	United Nations Development Programme
UNFPA	United Nations Population Fund

UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
USO	Universal Service Obligation
WBG	World Bank Group
WHO	World Health Organization

(Kenya)
CRS	Civil Registration Services
ICTA	ICT Authority
MICT	Ministry of Information and Communications Technology, Innovation, and Youth Affairs
MLSP	Ministry of Labour and Social Protection
MoE	Ministry of Education
MoH	Ministry of Health
NRB	National Registration Bureau

(Rwanda)
MICTI	Ministry of ICT and Innovations
MINAGRI	Ministry of Agriculture and Animal Resources
MINEDUC	Ministry of Education
NIDA	National Identification Agency
MoH	Ministry of Health
RISA	Rwanda Information Society Authority
RRA	Rwanda Revenue Authority
RSSB	Rwanda Social Security Board
RURA	Rwanda Utility Regulatory Agency

(Ethiopia)
ESSTI	Ethiopian Space Science and Technology Institute
MINT	Ministry of Innovation and Technology
MLSA	Ministry of Labour and Social Affairs
MoE	Ministry of Education
MoH	Ministry of Health
VERA	Vital Events Registration Agency

(Uganda)
MES	Ministry of Education and Sports
MGLSD	Ministry of Gender, Labour and Social Development
MICT	Ministry of ICT and National Guidance
MoH	Ministry of Health
NIRA	National Identification and Registration Authority
NITA	National Information Technology Agency
UCC	Uganda Communication Commission
URSB	Uganda Registration Services Bureau

(Mozambique)
DIC	Direcção de Identificação Civil
INAGE	Instituto Nacional de Governo Electrónico
INTIC	Instituto Nacional de Tecnologias de Informação e Comunicação
MEDH	Ministério da Educação e Desenvolvimento Humano
MITESS	Ministério do Trabalho, Emprego e Segurança Social
MS	Ministério da Saúde
MTC	Ministério dos Transportes e Comunicações

(South Africa)
DAFF	Department of Agriculture, Forestry and Fisheries
DBE	Department of Basic Education
DCDT	Department of Communications and Digital Technologies
DHA	Department of Home Affairs

DoH	Department of Health
DSD	Department of Social Development
DTPS	Department of Telecommunications and Postal Services
SITA	State Information Technology Agency

(Ghana)

MCD	Ministry of Communications and Digitalisation
MFA	Ministry of Food and Agriculture
MGCSP	Ministry of Gender, Children and Social Protection
MoH	Ministry of Health
NHIA	National Health Insurance Authority
NIA	National Identification Authority
NITA	National Information Technology Agency

(Nigeria)

MARD	Ministry of Agriculture and Rural Development
MCDE	Ministry of Communications and Digital Economy
MHADMSD	Ministry of Humanitarian Affairs, Disaster Management and Social Development
MoE	Ministry of Education
MoH	Ministry of Health
NCC	Nigerian Communication Commission
NIMC	National Identity Management Commission
NITDA	National Information Technology Development Agency

(Angola)

INACOM	Instituto Angolano das Telecomunicações
ME	Ministério da Educação
MS	Ministério da Saúde
MTTICS	Ministério das Telecomunicações, Tecnologias de Informação e Comunicação Social

(Malawi)

MCRA	Malawi Communications Regulatory Authority
MEST	Ministry of Education, Science and Technology
MHP	Ministry of Health and Population
MITA	Malawi Information Technology Authority
MoI	Ministry of Information
NRB	National Registration Bureau

(Mauritius)

ICTA	Information and Communication Technologies Authority
METST	Ministry of Education, Tertiary education, Science and Technology
MITCI	Ministry of Information Technology, Communications, and Innovations
MoH	Ministry of Health
MSSNA	Ministry of Social Security and National Solidarity

(Zambia)

DNPRC	Department of National Registration, Passports and Citizenship
MGE	Ministry of General Education
MoA	Ministry of Agriculture
MoH	Ministry of Health
MTC	Ministry of Transport and Communications
ZICTA	Zambia Information and Communication Technology Authority

3 Survey Result by Country

3.1 Kenya

3.1.3 Priority Issues and Approach for Potential Needs

Based on the analysis of the current situation and potential issues in the previous section, JICA Study Team evaluated the potential support needs for each sector from the viewpoint of consistency with the Country Assistance Policy, activities of other donors, measures taken by the target country, and possibility for effective use of data.

Table 3.1.6 Examination of Priority Issues (Kenya)

Sector	CAP of Japan	Other Doners	Measures Taken	Data Use	Evaluation
Education	Human resource development	NA	NA	B	Consider use of cooperation assets
Health	Health and medical care	WB, WHO, GF, USAID, etc.	Promotion of UHC, eHealth policy, etc.	A	Consider use of cooperation assets
National ID	NA	NA	Introducing new card, Data protection law	NA	Birth registration must be strengthened
E-Gov.	NA	WB, Singapore, etc..	eCitizen, Hudma centre	A	Key for providing public services
Social Protection	NA	WB, UKaid	Integrated registry	A	Possibility for private insurance
ICT HRD	Economic infrastructure	NA	NA		Need to support the digital divide
ICT Policy	Economic infrastructure	NA	National ICT policy, digital economy M/P		Measures required for decentralization
ICT Infra.	Economic infrastructure	WB, China, etc.	Last-mile connectivity by using USF, etc.		Need to improve last mile connection

Note: A: High potential, B: Potential, NA: Not applicable
Source: JICA Study Team

After all, JICA Study Team examined the roles that JICA can play, solution approaches, and entry points in the high-priority sectors based on the interim discussion with JICA Africa Department and Kenya Office.

Table 3.1.7   Approaches for Potential Needs (Kenya)

Sector	Roles of ICA	Solution Approaches	Entry Points
E-Gov.	Strengthening the e-government • Priority of the Kenyan government • Align with Japanese CAP • Effectiveness of combined JICA schemes • Application of Japanese technology such as LEO satellite or drones • Collaboration with international organizations or partners	• Technical cooperation for improving the ICT environment • Financing in ICT infrastructure • Backing up the private sector's SDGs business • Collaboration with other development partners	• Huduma Centre • Community facilities such as schools and health • Last mile connection
Health and Social Protection	Strengthening of telemedicine system • The load on NCDs is increasing, and urgent system development is required for COVID-19. • Priority of the Kenyan government • Effective use of Japanese technology Diffusion of EMR • Collaboration with other development partners • Effective use of big data	• Technical cooperation in specific sectors • Backing up the private sector's SDGs business	• Ministry of Health • Regional core hospitals • Health facilities • Last mile connection
Education	Effective use of science and mathematics teacher training assets • JICA's assets accumulated over 20 years in Africa • Effective use of big data	• Technical cooperation in specific sectors • Backing up the private sector's SDGs business	• Ministry of Education • CEMASTEA

Source: JICA Study Team

3.1.4 Proposed Roadmap and Support Programs

The table below summarizes the proposed support programs according to COVID-19 crisis response (short-term), COVID-19 post-pandemic response (medium-term), and future investment (long-term), keeping in mind the solution approach to the potential needs in the previous section.

This section explains the outlines of proposed support programs according to three phases. As for the technical and financial cooperation of JICA, detailed programs will be presented in the next section.

Figure 3.1.3   Roadmap od Support Programs (Kenya)
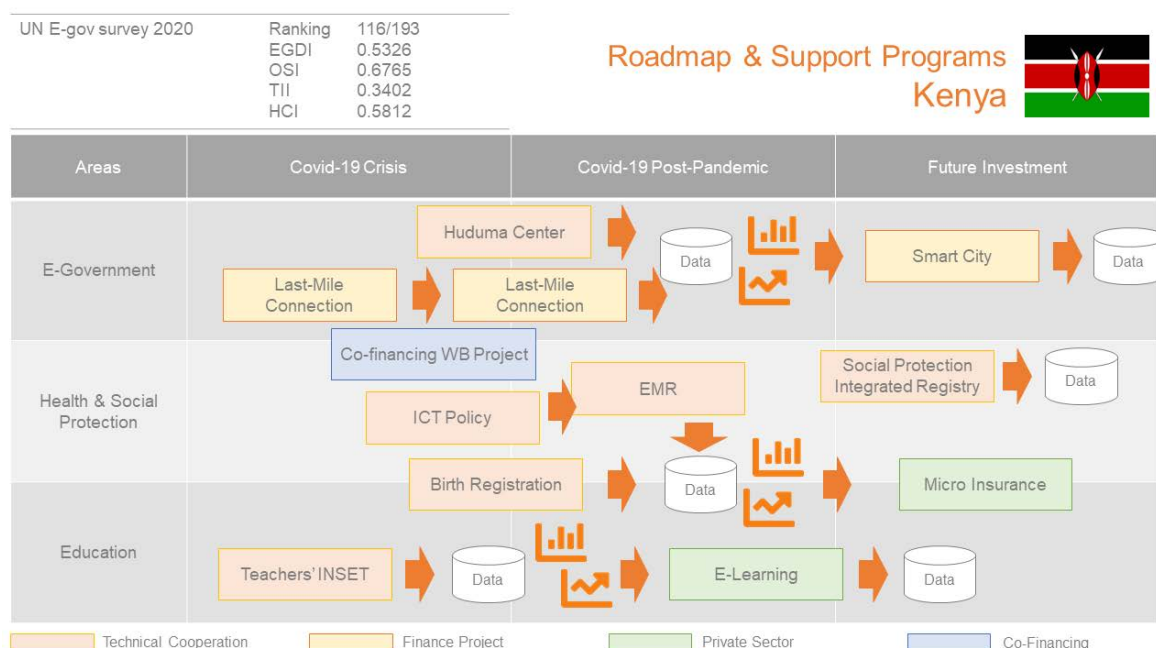
Source: JICA Study Team

Table 3.1.8   Proposed Support Programs (Kenya)

COVID-19 Crisis Response

Sector	Programs	Needs, Effect, Conditions, etc.	Approaches
Education	Teachers' INSET in the region by utilizing EdTech	• School teachers must continue to develop their skills to support the learning of children for national education in response to social changes; especially in many countries within Africa, when they were introduced by their former sovereigns. Teaching methods are still practiced in the classroom, and there is a lot of room for improvement in the quality of teaching; in many countries, in-service teacher training systems in the field of science and mathematics have been established with the support of JICA to address these issues. However, due to the influence of COVID-19, it is difficult to hold a group training system in which local teachers are invited to the venue for 1 to 2 weeks during the holiday period from the viewpoint of infection prevention. • The Center for Mathematics, Science and Technology in East Africa (CEMASTEA), established with the support of JICA, has played a central role in teacher training in the region, mainly in East Africa; it also conducts teacher training in Kenya. However, under the spread of	• Technical cooperation in specific sectors

Sector	Programs	Needs, Effect, Conditions, etc.	Approaches
		COVID-19 infection, CEMMASTEA is promoting the practice of remote online training; by applying this experience within Africa to continuously and dynamically improve teacher training using ICT. It is expected to play a role effectively; although it is small, in October 2020, teacher training was conducted including participants from countries other than Kenya, and it is remote by using ICT within Africa as a response to the practice of the training. • Since the activity spans multiple countries, ensuring good access to the participant network of each country is the first issue; and the effectiveness and effectiveness of the training participation certificate, which has been an issue for some time, is unclear. It is expected that the motivational issues of the teachers who are participants will become more prominent in the case of distance training; in the case of group training, there is a certain event element and it is different from the usual daily life. Some participants expect to interact with different people in different places, but in the case of remote implementation, there are few extraordinary elements just by going to the terminal every day.	
ICT Infra.	Last mile connection	• ICT infrastructure development in rural and remote areas by Universal Service Fund (USF), which is funded by 5% of MNO sales, is difficult to reach in rural areas with low commercial returns. • By sharing the experience of developing telecommunication infrastructure in remote areas and remote islands funded by USF in Japan, the proposed program will develop ICT infrastructure for schools in rural and remote areas, and develop rural and remote areas. Improve your child's digital literacy • Sustainability requires the establishment of an organization / system that transparently allocates and manages USF.	• Technical cooperation project (POC) • Financial support (Expansion phase)
Others	Co-financing for World Bank projects	• The World Bank is preparing Phase 2 of the Digital Acceleration Project, which has a total scale of 55 billion JPY, and the Digital Transformation Project, which is the successor project. A lot of input is required to improve connectivity in rural areas • Effective support is possible with donor cooperation in line with the Kenyan government's national development plan. • Needs coordination with World Bank Headquarters and Kenya Country Office	• Collaboration with other development partners

COVID-19 Post-Pandemic Response

Sector	Programs	Needs, Effect, Conditions, etc.	Approaches
ICT policy HRD	Support for strengthening ICT policy creation and enforcement capabilities (Dispatch of expert)	• Since the number of government personnel required to create and implement ICT policies is small, it is left to consultants, and there is a risk that policies that do not match the local context will be created and implemented, and the ability to coordinate policies between central and local governments is also necessary. • The proposed program will make Kenya possible to create effective ICT policies that are in local context, and the consistency between national and local policies	• Technical cooperation for improving the ICT environment

		- will be improved. - It is necessary to guarantee the contribution of human resources from government agencies, the promotion of trained human resources within government agencies, the promotion of policies made within government agencies, etc.	
Health	Support for promoting the introduction of integrated electronic medical records for counties (Utilization of JICA's asst OCCADEP)	- Improving the interoperability of health information systems is one of the priorities, but it is difficult to share data because each medical facility has introduced a different electronic medical record system. - In addition to supporting the introduction of WHO-supported integrated electronic medical records into counties, establishing a data sharing system between medical facilities within the county, effectively sharing patient data, and conducting appropriate referrals and patient follow-ups. Effective use of resources can be expected, such as reducing unnecessary duplication of inspections. - It is necessary to confirm the effectiveness of the electronic medical record developed by WHO, the intention and leadership of the Ministry of Health and the county government to integrate the system, confirmation of the resources and technologies necessary for the construction and operation of the electronic medical record platform, compliance with the Personal Information Protection Law, the Internet environment of the target medical facility and the possibility of using Huduma Namba.	- Technical cooperation in health sector - Collaboration with WHO, etc.
Social protection	Promotion of birth registration (digitization of birth registration and utilization of digital technology)	- Birth registration rate is still less than 70%: Births at medical facilities are reported from the facility to the registration office, but home births are far from the nearest registration office. - Birth certificates are important for vaccinations and admissions of children, taking graduation exams, obtaining national IDs, etc., and will enable them to receive appropriate social security and public services. - Awareness-raising activities for pregnant women, training of medical staff, and awareness-raising activities in the community are necessary.	- Technical cooperation in social protection - Collaboration with other partners
Social protection	Micro-insurance	- It is necessary to prepare for various risks that are not covered by public social security. - Micro insurance products using national ID and mobile money will be provided. - As a complement to the social security system, it is necessary to understand the current situation and demand.	Backing up the private sector's SDGs business
Education	Self-study materials	- There is few learning materials according to the progress and interests of individual children and students. - Providing self-study materials online by utilizing contents such as SMASSE. - Needs coordination and approval with the Ministry of Education.	Backing up the private sector's SDGs business
E-Gov	Strengthening the Huduma Center through public-private partnership	- The eCitizen platform has been in place for several years, but many are out of service and the government is working to expand its Huduma and mobile centers. - The Huduma Center will also be used for youth ICT	- Financial support - Backing up the private

| | | literacy programs and can work on the e-Citizen platform.
• As the last mile infrastructure development below the County level is not profitable, the government is reluctant. As local residents are poor and development is not always profitable, empower people and make it commercially feasible are needed. It is also needed to create a business model that can be commercialized by social enterprises. | sector's SDGs business
• Collaboration with other partners |

Future Investment

Sector	Programs	Needs, Effect, Conditions, etc.	Approaches
ICT Infra.	Strengthen last mile access	• Rural digital divide and digital literacy issues are hampering access to digitized services. • A wide range of citizens, including rural and poor, can have access to digitized public services. • Commitment of government support after the pilot (granting incentives for business continuity after the end of the pilot project by licensed excellent companies, telecenters, information intermediaries, etc. are needed)	• Financial support • Technical cooperation for improving the ICT environment
Social protection	Social Protection Integrated Registry	• Social protection program service delivery system needs to be improved. • The integrated social protection registry promotes the establishment of a social protection program system and enhances interoperability with systems such as national ID, resident registration, and tax affairs to grasp the household situation and family composition of each program. By facilitating the identification of beneficiaries, it is possible to quickly deliver fair social security services to the people in need; by collaborating with private companies, the efficiency of delivery of social protection services and the beneficiaries can be improved. There is a possibility of designing and implementing an effective program according to the actual situation of the person or region. • Integrated Social Protection Registry may accelerate improved access to required social protection and public services.	• Technical cooperation in social protection • Collaboration with other partners
Others	Support for smart cities in big cities such as Nairobi	• There is a need to solve urban problems such as transportation, urban environment, waste disposal, and disaster prevention. • By linking related administrative data distributed in various departments and data collected in real time using cameras and sensors via the city OS, policy decisions based on the data can be made and urban problems can be more reasonably improved. • It is necessary to prioritize what is available from various urban problems and determine what kind of data can be collected.	• Financial support • Technical cooperation

Source: JICA Study Team

3.1.5 Details of Proposed Support Programs

COVID-19 Crisis Response

Proposed project name	Support for strengthening ICT policy making and implementation capacity
Align with SDGs goal and target	16.6, 17.7, 17.8, 17.9
Expected Counterpart and Related Organizations	Ministry of Information and Communications Technology, Innovation, and Youth Affairs (MINICT) and ICT Agency (ICTA)
Background of the Proposal	Kenya is considered to be more advanced nation in the use of ICT, as compare to other African countries. Kenya is also the birthplace of mobile money and its penetration rate consistently ranks second or third in the world. The startup scene is also vibrant with unique services are being developed and delivered. The use of open data by CSOs are very active which resulted in successfully monitoring Government corruption and monitor elections through using spatial information and open data. In terms of e-Government services, the Government service portal (e-Citizens Portal) was established in 2015 which makes Kenya as an early adaptor for the public service digitization. This trend has also extended to local Governments which also provide digitized local services to its citizens. The Kenyan Government is now issuing a unified Government ID called Huduma ID, and is starting to provide integrated services based on the new ID. The Kenya National ICT Policy (2019) is a comprehensive strategy to promote development activities using ICT. Taking the spirits of the Constitution, the policy calls for the provision of universal services and open access, stimulation of competition and innovation, adherence to international standards, national harmony, protection of privacy and security, and achievement of the SDGs. While Kenya is advanced in many areas, there is considerable lack of capacities in the ICT Ministry and associated agencies to create and implement ICT policies, leaving many of these tasks to be implemented by consultants. If the capacity of government personnel is not strengthened, there is a risk that external consultants may create and implement policies that do not match the local context. In addition, institutional capacity building is also critical to allow the ICT ministry and agencies to effectively coordinate between central and local Governments to promote effective and harmonized digitization in the country.
Purpose of the Proposal Project	Strengthening the Capacity of the Kenyan Ministry of ICT to Create and Implement Policies to • Develop and implement effective ICT policies that are relevant to the Kenyan context to enhance digitization in Kenya • Improve alignment of national and local policies for public service digitization
Beneficiaries	• Ministry of ICT, ICTA • Kenyan Government, Local Governments, Kenyan citizens
Related Projects	• World Bank - Kenya Digital Economy Acceleration Project (pipeline)
Contents of the Proposal Project	Institutions and human capacity development support for MINICT and associated agencies. The knowledge required for the experts to be dispatched include the following: • Familiarity with various different national ICT policies and regulations in the world (especially best practices) • Knowledge of digitalization promotion in other countries (especially by the Government agencies) • Knowledge of organizational business process reengineering, strengthening, etc.
Alignment with Country Assistance Policy for Respective Countries by GoJ / Priority of JICA	• While ICT policy/strategy is not the area where Country Assistance Policy by GoJ / Priority of JICA stipulates in Kenya, it is one of the components within the research. The proposal is made on the grounds that ICT-related policy/strategy formulation/implementation capacity strengthening among the Government

	institutions is needed in order to mainstream digital technologies in diverse fields.
Condition	• Need to ensure that the Government agencies contribute human resources, assurance that trained personnel are promoted within Government agencies, and that policies created within the Ministry and agencies are adopted.
Digitalization / Utilized data	When the policy to promote Government digitization is implemented, data held by ministries, agencies, and statistical bureaus will be appropriately provided as open data and effectively used by the public, private, and academic sectors.
Proposed methodology of JICA support	Expert Dispatch
Term	24 MM
Estimated Cost	JPY 100,000,000

Proposed project name	Implementation of communication network (last mile) in rural areas
Aline with SDGs goal and target	Goal: 9 Build resilient infrastructure, promote sustainable industrialization and foster innovation, Target: 9c
Expected counterpart or related organizations	ICT Authority, Ministry of ICT
Background of the proposal	Kenya is in a situation where ICT infrastructure is being developed due to the construction of National Broadband, datacenters, and the state of the mobile telecommunications market. However, the construction of the last mile of the telecommunication network to the rural and regional areas is a challenge.
Purpose of the proposal Project	Survey the areas and sectors where the last mile of the communication network needs to be constructed. Based on the results of the survey, the last mile development project will be implemented. This project will provide rural and regional areas with the same opportunities to use information and communication as urban areas. This project aims to contribute to an inclusive information infrastructure system through the expansion of ICT infrastructure and to correct the digital divide between rural and urban areas.
Beneficiaries	Residents of rural areas
Related projects	N/A
Contents of the proposed project	• Conduct a survey area where broadband networks are not yet in place. • Conduct a survey of priority sectors for telecommunications infrastructure development and support the establishment of development plan for these sectors. • Implementation of communication infrastructure development project based on the development plan.
Alignment with Country Assistance Policy for Respective Countries by GoJ / Priority of JICA	It is not mentioned in the country assistant policy, nor in the Priority of JICA. However, there is a need to support the implementation of communication network in rural areas. The project aims to encourage Japanese companies to enter the market by providing this assistance.
Conditions	It is necessary to confirm relation with scope of this project and scope of telecommunication companies. And it is necessary to establish the plan with consideration of utilizing communication network by telecommunication companies.
Digitalization / Utilized data	NA
Proposed methodology of JICA support	Feasibility Study, ODA Loan
Term	Support of planning is 1 year; the period of implementation will be studied by the planning.
Estimate cost	Support of planning is 30 MM; the cost of implementation will be studied by the planning.

COVID-19 Post-Pandemic Response

Proposed project name	Strengthening the Huduma Center through public-private partnerships
Aline with SDGs goal and target	SDGs9 9.c Substantially improve access to information and communication technologies in

	least developed countries so that they can provide universal and affordable Internet access by 2020.
Expected counterpart or related organizations	Huduma Centre, ICT Authority, eCitizen
Background of the proposal	• The e-government platform, eCitizen, has operated for a few years now. However, many citizens are not using the digitized public services provided on e-Citizen. The reasons for the low utilization are: (i) Internet connection is not well developed in rural and remote areas; (ii) they do not have devices such as cell phones and smartphones; (iii) even if they do have devices, a lack of ICT literacy prevents them from effective utilization; and (iv) they cannot afford the Internet connection fees. • The government has set up one-stop centers called Huduma centers, as physical locations where people can use the digitalized public services provided by eCitizen. The government is providing physical access support to people, but only 56 centers have been set up in all 47 counties with a total population of 52.75 million people. Therefore, the government is also working to increase the number of physical centers, including the mobile Huduma Mashinani (Swahili for "grassroots service"), but it has not kept pace with demand. • At least until Kenyans are able to own and use smartphones and other devices, the presence of the Huduma Centers, which serves as a human and physical intermediary, is important.
Purpose of the proposed Project	• People will be able to use digitalized public services while saving time and money. • Provided digital literacy education to the youth would create employment opportunities such as at e-Citizen platform.
Beneficiaries	Citizens, youth, Huduma Center staff members
Related projects	• Open Institute/World Bank, "County Data Desk" (started in Elgeyo Marakwet County. Baringo, Makueni, Kilifi and Taita Taveta counties show interests) [1] • KICTANet Community Networks[2] • The Kenyan government to develop last mile infrastructure utilizing Universal Service Fund • Mawingu and Shujaaz, Inc: TV white space, wireless connection, internet connection combined with last mile fiber cable
Contents of the proposed project	• Implementation of digital literacy program for County level government employees at Huduma Centers to help improve service delivery capacity (with request from ICT Authority) • Provide support to improve digital literacy among county youth and employ them as digitized service delivery staff. • Development of last-mile infrastructure in collaboration with the Universal Service Fund (USF) • Support for PoC conducted by start-up companies (Japan and Kenya) providing products and services that contribute to low-cost and sustainable Internet access, hence, resulted in the improvement of the last mile. • In the future, we aim to create a management model of a comprehensive Huduma center providing financial services as well (both immobile and mobile types), which are franchised to the private sector for nationwide expansion.
Alignment with Country Assistance Policy for Respective Countries by GoJ / Priority of JICA	This support proposal is not directly included in the four basic policies that are included in JICA's priority areas. However, supporting the improvement of rural people's access to digitalized public services is consistent with the Country Assistance Policy or Kenya, which states "Contribute to the socio-economic development of the Republic of Kenya by addressing the challenges arising from economic growth and supporting the social strata left behind by economic growth.
Conditions	Last mile infrastructure development in the county levels is not profitable and it is hard for the government to work on it. People are poor and internet access is not always

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[1] https://openinstitute.africa/kenyas-first-county-data-desk-launched/

[2] https://www.kictanet.or.ke/what-we-do/community-networks/

	feasible in rural remote areas, and therefore, last mile infrastructure development is not always profitable. The challenge is to empower people and make the last mile development commercially viable, or at least a business model that pays off for social enterprises.
Digitalization / Utilized data	Data such as tax payment data, car licensees, birth registration, death registration, marriage registration, traffic accident fine payment and address (under construction), land ownership transfer, immigration control, and business registration can be used to provide more user-friendly services.
Proposed methodology of JICA support	• Technical Assistance • "Partnership with the Private Sector" scheme • Grant and loan type assistance
Term	60 MM
Estimate cost	NA

Proposed project name	County level Electronic Health Record project
Aline with SDGs goal and target	SDG 3 "Ensure healthy lives and promote well-being for all at all ages", Target 3.8 Achieving UHC
Expected counterpart or related organizations	County Health Department, Health facilities
Background of the proposal	• It is expected that the quality and efficiency of medical care provision will be improved by digitizing and systematizing hospital management information including patient record. However, at present, it is difficult to exchange/utilize data within and/or between facilities as different systems of electronic health record (EHR) have been introduced. • WHO is developing an integrated EHR platform, which is planned to be introduced in all health facilities in the future. Due to decentralization, the county is primarily responsible for the health service provision system, including budget management, so it is necessary to build and strengthen the system according to the current situation of each county.
Purpose of the proposed Project	By promoting the introduction of integrated EHR platform into health facilities in the selected county, it aims to enhance data exchange within and between the facilities, in order to improve work efficiency in the facility, effective follow-up and referrals of patients, and reduction of unnecessary examinations and other resources for effective use of limited resources.
Beneficiaries	Targeted health facilities' personnel, CHWs and community
Related projects	JICA Project for Organizational Capacity Development for Devolved County Health Systems in Kenya 2014-2019
Contents of the proposed project	• Investigate the current status of hospital management information systems including EHR of the target county, and create an introduction plan for an integrated EHR platform • Support the introduction of integrated EHR platform at each public health facility • Support strengthening capacity for concerned personnel and organizations • Support strengthening capacity to promote the utilization of digitized data
Alignment with Country Assistance Policy for Respective Countries by GoJ / Priority of JICA	• The County Assistance Policy for Kenya states health care is one of the priority areas and Japan provides support to strengthen the health systems and quality of and access to the basic disease prevention measures for the poor and rural areas, while addressing the urgent issues of Kenya. • Health was mentioned as one of the priority areas of the JICA Kenya office.
Conditions	• Confirmation of strategies and policies regarding the construction of hospital information management systems of the MoH and County • Confirmation of the effectiveness of the integrated EHR platform by WHO • Confirmation of infrastructure development status in the target area • Confirmation of data storage location and data security • Confirmation of compliance with the Data Protection Act
Digitalization / Utilized data	Personal health data

Proposed methodology of JICA support	• Technical cooperation
Term	2024 - 2028 (4 years)
Estimate cost	80 MM

Future Investment

Proposed project name	Dissemination of Single Registry for Social Protection
Aline with SDGs goal and target	SDG Goal 1 "End poverty in all its forms everywhere", Target 1.3 Implement nationally appropriate social protection systems and measures for all, including floors, and by 2030 achieve substantial coverage of the poor and the vulnerable, Target 1.2 By 2030, reduce at least by half the proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions.
Expected counterpart or related organizations	Ministry of Labour and Social Protections in charge of Single Registry for Social Protection, Ministry of Interior (Civil Registration Department, National Registration Bureau, Immigration Department, Department of Refugee' Affairs) County Government
Background of the proposal	In Kenya, the Kenya Social Protection Policy was announced in 2011, and the construction of related laws and systems was promoted with Social Assistance, Social Security, and Health Insurance as the three pillars. Social Assistance has a variety of programs, and in 2012 the Social Assistance Fund was established to achieve financial stability and the Single Registry for Social Protection has been promoted for sustainable cooperation. The single registry operates efficiently by increasing interoperability among social protection programs. At the same time, it aims to identify appropriate beneficiaries at an early stage and establish effective service delivery. The single registry in Kenya has already been implemented with three permanent government programs (cash benefits for the poor, disabled and the elderly). In the future, it will be necessary to collaborate with social security programs other than Social Assistance through unique identity. Ultimately, it's expected to realize E-Government by building an Integrated Population Registry System (IRPS) that connects social security and various public services.
Purpose of the proposed Project	To build, improve and provide effective and efficient social security programs by establishment and dissemination of the Single Registry for Social Protection promoted by the Government of Kenyan, To develop institutional design of the integrated system at the central-level ministries and agencies, and To introduce digitization into implementation departments and capacity development at the local level agencies, where social security programs are provided.
Beneficiaries	All citizens receiving social protection program (for super goal) Public officers in charge of social protection program (Ministry of Labour and Social Protection and Local government)
Related projects	WB, Kenya Social and Economic Inclusion Project (2018-2023)
Contents of the proposed project	• Provide institutional and technical advice to the Ministry of Labour and Social Protection for effective use of Single Registry, and implement capacity development for staff in ICT, • Support and enlightenment for system introduction, digitization of implementation departments (infrastructure, equipment and systems), and promote human resource development for implementation and management of new system at the local government and field level where social protection program is implemented, • Social protection programs will be consolidated, abolished, and its contents will be diversified. New technologies will be utilized in the delivery system to beneficiaries. • There is a possibility of various technical support and human resource development

	for that purpose, such as proposal of new implementation method and utilization of private companies including Japanese companies.
Alignment with Country Assistance Policy for Respective Countries by GoJ / Priority of JICA	There is no direct description of social protection in the County Assistant Policy. However, health and medical care are priority areas, and strengthening the health system is mentioned as a development issue. This project will contribute to strengthening the social security system including health and medical care in the future. Health was mentioned as one of the priority areas of the JICA Kenya office. UHC is currently being supported by JICA.
Conditions	• Confirmation of operation capacity of Ministry of Labour and Social Protection and related local government offices • Confirmation of basic infrastructure in rural areas
Digitalization / Utilized data	• Personal information of beneficiaries of the government's social protection program (such as personal name, date of birth, address, family structure, income, financial institution / mobile payment agency information, etc.), Household information
Proposed methodology of JICA support	• Technical cooperation project (Advisor dispatch and technical cooperation project) and/with grant project (equipment provision to local government agencies) • Policy program loan in case of supporting implementation of social protection program
Term	3 to 5 years
Estimate cost	NA

Proposed project name	Enhancement of Birth Registration Project
Aline with SDGs goal and target	SDG Goal 16 Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels, Target 16.9 By 2030, provide legal identity for all, including birth registration SDG Goal 1 "End poverty in all its forms everywhere", Target 1.3 Implement nationally appropriate social protection systems and measures for all, including floors, and by 2030 achieve substantial coverage of the poor and the vulnerable,
Expected counterpart or related organizations	Ministry of Interior, Civil Registration Department (CRD) Civil registration Service Ministry of Health County Government
Background of the proposal	In Kenya, in the Third Medium Term Plan 2018-2022; Transforming Lives: Advancing social-economic development through the "Big Four", security, peacebuilding, and conflict resolution are described as one of nine enablers that are the foundation of economic growth and realize national transformation. In this regard, improvement of data management through IPRS (Integrated Population Registration System) is shown as a program to be implemented. The first thing that is done in population registration is birth registration. Kenya's birth registration rate has improved, but is still less than 70% (WB data). In case of birth at a medical facility, the medical facility will report the information to the registration office. In case of birth at home or in the community, it is difficult to access to the nearest registration office due to the distance. Birth certificates are required for vaccination and admission of children, taking graduation exams, and obtaining national IDs. For this reason, demand of birth registration is increasing to receive appropriate social security and public services.
Purpose of the proposed Project	Promote birth registration, allow newborns and children to receive appropriate public services, and contribute to the smooth acquisition of national IDs. Contribute to the smooth issuance of birth certificates by promoting the digitization of birth registration.
Beneficiaries	Mothers, children and families whose new baby was born in health facilities, at home and in the community.

	Staff engaged in practical work at health facilities and local registration offices Community people
Related projects	WB: Regional Communications Infrastructure Program Transparency and Communications Infrastructure Project (RCIP) and Kenya Transparency and Communication Infrastructure Project (KTCIP) (2007-2016)。 Many DPs provide relevant support relevant project. (https://crvssystems.ca/country-profile/kenya) 1) UNICEF: Improvement of related laws and strategies 2) WB and Global Financing Facility (GFF): Digitization, dissemination, related staff CDs, mobile registration pilots 3) UNFPA: Data editing, CD 4) WHO: Health facility CD 5) UNHCR: Registration at refugee camps 6) Plan International: Community-centered registration strategy planning and implementation support
Contents of the proposed project	1) Health facility-based approach (case of delivery at health facility) • Although the reporting line is clear, due to delay in digitization, promotion of digitization of health facilities (infrastructure, equipment, systems) and support for digitization from health facilities to reporting destinations are needed. • Support enlightenment activities through maternal and child health projects and mainstreaming birth registration • Technical support and training for health facility staff 2) Local registration office-based approach (case of delivery at home / community) • Promotion of digitization (infrastructure, equipment, systems) of local registration offices and support for digitization from registration offices to reporting destinations • Support through community development / local administration strengthening projects and mainstreaming birth registration • Technical support and training for registered office staff 3) Promote and spread registration by mobile phone • Promotion of direct registration from the community through collaboration with mobile phone companies
Alignment with Country Assistance Policy for Respective Countries by GoJ / Priority of JICA	There is no direct description of social protection in the County Assistant Policy. However, health and medical care are priority areas, and strengthening the health system is mentioned as a development issue. Peace building and settlement is another priority area and this proposed project is expected to contribute to it. Health was mentioned as one of the priority areas of the JICA Kenya office. UHC is currently being supported by JICA.
Conditions	• Confirmation of commitment of relevant ministry (Ministry of Interior) • Confirmation of operation capacity of local government officers • Confirmation of basic infrastructure in rural areas
Digitalization / Utilized data	• Personal information on birth registration form (such as personal name, date of birth, parents' name, address of birth, living place of mother, etc.), • The management of registration data is ultimately under the supervision of the CRD, Ministry of Interior.
Proposed methodology of JICA support	• Co-finance with the WB for scale up of birth registration • Technical cooperation project combing Grant and Laon projects for digitization ans related infrastructures of health facilities and registration offices • Cooperation with NGO, Plan, which works on a community basis to promote birth registration • Partnership with private companies for promotion of registration through mobile phones
Term	3 to 5 years
Estimate cost	NA

Source: JICA Study Team

3.2 Rwanda

3.2.3 Priority Issues and Approach for Potential Needs

Based on the analysis of the current situation and potential issues in the previous section, JICA Study Team evaluated the potential support needs for each sector from the viewpoint of consistency with the Country Assistance Policy, activities of other donors, measures taken by the target country, and possibility for effective use of data.

Table 3.2.5   Examination of Priority Issues (Rwanda)

Sector	CAP of Japan	Other Donors	Measures Taken	Data Use	Evaluation
Education	Human Resource Development	MCF, AFD, USAID, UKaid	Increasing IT literacy for students and teacher, etc.	A	Expansion of ICT education
Health	Social Services	WORLD BANK, WHO, GF, USAID	Supporting Digitized Health Services, expansion of UHC	A	Support expansion to other countries, Use of Healthcare data
National ID	Social Services	WORLD BANK	Supporting connection with different services	A	Support expansion to other countries, connectivity in the rural areas
E-Gov.	Social Services	NA	Continuous expansion of Irembo, Government digitize service portal	A	Expansion of Irembo to other countries
Social Protection	NA	WORLD BANK	Supporting creation of integrated registry	A	Need support for operationalization
ICT HRD	Human Resource Development	WEB, GIZ, Korea, African Development Bank	Attracting higher Learning Institutions/Research Institutions, (CMU-A, RCA, ALSU, AIMS, etc.)		Creation of high skilled ICT professionals
ICT Policy	Industry Development	WORLD BANK, African Development Bank, GIZ, Korea	Incorporating ICT components into Development Strategy		Supporting lessons-learned and experiences to other countries
ICT Infra.	Economic Infrastructure Development	WORLD BANK, Korea	Expanding last mile connectivity using USF		Supporting activities not conceivable from Japanese support

Note: A: High potential, B: Potential, NA: Not applicable
Source: JICA Study Team

After all, JICA Study Team examined the roles that JICA can play, solution approaches, and entry points in the high-priority sectors based on the interim discussion with JICA Africa Department and Rwanda Office.

Table 3.2.6   Approaches for Potential Needs (Rwanda)

Sector	Roles of ICA	Solution Approaches	Entry Points
e-Government + ICT Human Resource Development	• Human Resource Development for officers involved in the e-Government (ICT Policy)-(CDOs, MINICT, RISA, etc.) • Support for Policy Lab • Solving Government challenges with startups (supporting the incubation of necessary startups) • ICT human resource development support (e.g., creating human resources with data analysis/utilization)	• Technical Support • Financial cooperation (Loan/Grant Aid) • Private sector collaboration and SDGs business • Private sector cooperation, SDGs Business • Collaboration with external organizations and donor organizations (AIMS, ACE, etc.)	• MINICT • RISA, Ministerial CDOs • Support for Startups (Utilization of NINJA scheme)
Social Security	• Support for the effective operation of the National Social Security Registry (NSPR) • Support for strengthening the targeting and monitoring functions of the vulnerable populace	• Expansion from individual sectors	• Local Administrative Entities Development Agency (LODA)

Source: JICA Study Team

3.2.4 Proposed Roadmap and Support Programs

The table below summarizes the proposed support programs according to COVID-19 crisis response (short-term), COVID-19 post-pandemic response (medium-term), and future investment (long-term), keeping in mind the solution approach to the potential needs in the previous section.

This section explains the outlines of proposed support programs according to three phases. As for the technical and financial cooperation of JICA, detailed programs will be presented in the next section.

Figure 3.2.3   Roadmap of Support Programs (Rwanda)
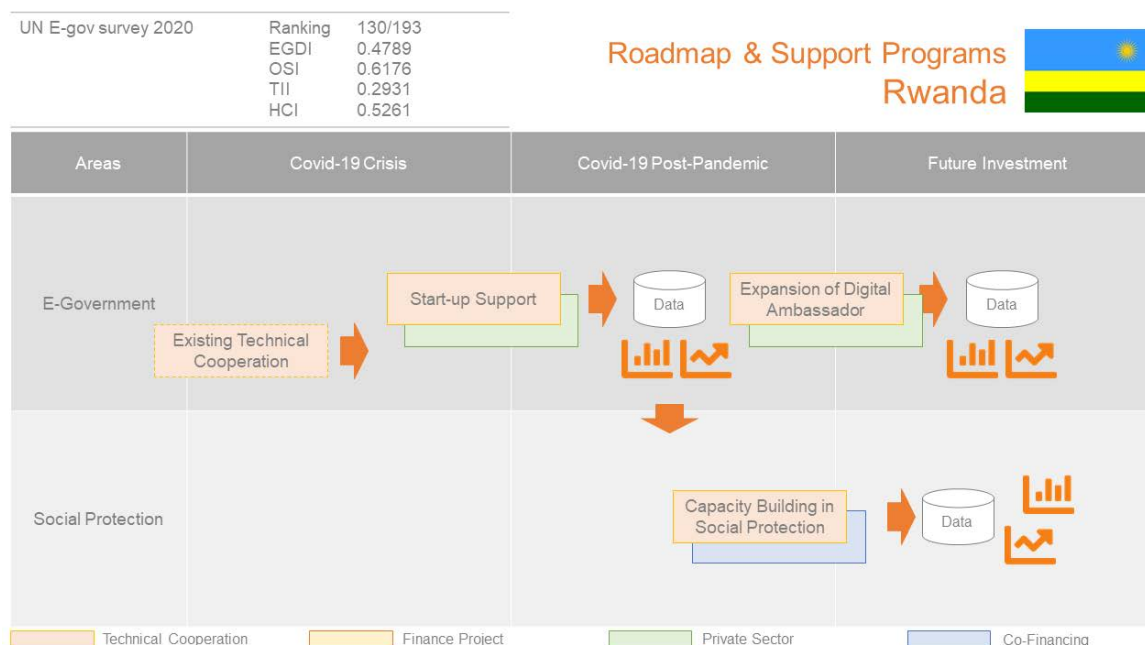
Source: JICA Study Team

Table 3.2.7   Proposed Support Programs (Rwanda)

COVID-19 Crisis Response

Sector	Programs	Needs, Effect, Conditions, etc.	Approaches
N/A	N/A	• N/A	• N/A

COVID-19 Post-Pandemic Response

Sector	Programs	Needs, Effect, Conditions, etc.	Approaches
e-Government	Supporting data enabled Startups to solve public sector challenges	• The need for utilizing digital technology to solve public sector challenges is fully recognized and The Government is establishing CDOs in the ministries and policy labs in MINICT to support that. However, the Government's officials' capacities to formulate and implement policies are still weak and need further strengthening to achieve Rwanda's aspiration to becoming POC country. • Currently, data is not being utilized in the formulation and implementation of the Government policies. However, needs for data driven evidence based policy making and implementation are high. • Opening up public and private sector data to	• Technical Assistance in the area of ICT sector • Partnership with other organizations

| | | ICT private sector could expand innovative services and products. It is also deemed effective in terms of expanding market for the Startups and providing innovative solutions for public service deliveries. Creating environment where private sectors would develop data-oriented services is also useful in creating unique advantages of creating a POC nation.
• In order for the private sector to utilize data properly and securely, it is necessary to encourage the Government to accelerate its open-data implementation and to create a regulatory sandbox to experiment on data enabled services. It is also necessary to have support from other development partners as well. | |

Future Investment

Sector	Programs	Needs, Effect, Conditions, etc.	Approaches
e-Government	Support for expansion of Digital Ambassador	• Lack of devices, high connection fees, lack of digital literacy, and unstable internet connection make it difficult for rural people to access digitized public services. • Digital Ambassadors, IREMBO agents, and agents of mobile phone companies are helping people to access services on the IREMBO Gov platform for a fee. With the expansion of the said services, more people will be able to take advantage of digitized public services. • A potential solution to the shortage of devices: Mara, a cell phone manufacturer, is offering supplier's credit for SACCOs members in a pilot project. (Mara Pride provides credit facilities to retailers to enable people to purchase devices by paying in installments, and applies a phone lock system developed by MARA's R&D team to lock the device if the buyer fails to repay). • Social security payments (G2C), which are not covered by Irembo Pay, are made in rural areas via SACCOS accounts. In addition, a pilot project on cash transfers through digital payments was implemented by an NGO and was successful; the Rwanda Cooperative Agency also developed an app for the SACCO community.	• Technical Assistance in the area of ICT •
Social Security	Capacity Development Project for the Digitalization of Public Services in Social Protection	• The Vision 2020 Umurenge Programme (VUP) has made a significant contribution to improving Rwanda's national social protection system. However, it has challenges in targeting, management information systems and payment mechanisms. • The targeting method using Ubudehe has a targeting error of about 40% (exclusion of the poor and inclusion of the non-poor). Therefore, it aims to reduce the targeting error to about 20% by establishing a system to identify poor households using household surveys and other methods.	• Technical Assistance Project in the area of Social Security • Partnership with other organizations

| | | For the National Social Protection Registry (NSPR), which is in the process of being prepared as a new single registry, there are major challenges in building the capacity of the Government. In addition, measures to improve interoperability with other management information systems are required. To promote the digitization of cash transfers, a pilot project for cash transfers using mobile money has been implemented, but digital payments for cash transfers are just beginning. While World Bank is providing financial and technical assistance, the capacity gap for the effective operation of NSPR remains significant. | |

Source: JICA Study Team

3.2.5 Details of Proposed Support Programs

COVID-19 Post-Pandemic Response

Proposed project name	
Align with SDGs goal and target	16.6, 17.7, 17.8, 17.9
Expected Counterpart and Related Organizations	MINICT, RISA, and relevant agencies
Background of the Proposal	• Rwanda is aiming to establish itself as an ICT hub of the African continent and a proof of concept (POC) country through promoting various different initiatives which include startups to provide various different innovative services. In order to achieve these objectives, however, Rwanda needs to curve out specific niche area and create specific "Rwanda model" to compete against other countries with similar aspirations. • Use of ICT as the Government has created many ICT-related strategies, plans, and policies. However, many of these strategies and policies were created by consultants and ownership of some of these policies are weak among the stakeholders. In addition, many of the Government officials responsible for implementing ICT policies came from technical fields and lack policy and management capacities to implement these plans and policies effectively. Importance of furnishing management and policy related skills is compounded by the fact that, in recent years, many ministries introduced CDO (Chief Digital Officer) system to accelerate sector digitalization in the respective fields. These CDOs are often recruited with technical background and exhibit similar weakness in the area of policy and management capacities. • Currently, not many data are being utilized to formulate and implement policies in Rwanda. However, more and more data will be available as partner development organizations like WORLD BANK and GIZ will implement data driven projects. As more data are available, needs and opportunities for evidence-based policy formulation and implementation will grow. It will become important for Rwanda to use these data effectively. • It will be important for the Government and private sectors to open up their data and to promote innovative products and services from the private sectors. Active use of data is also useful for the private sectors to expand digitized public services, as well as to allow startups to provide innovative solutions which in turn would expand market and employment in the country. Furthermore, creating concrete examples of private sector led service deliveries through utilizing open data will be useful for Rwanda to create a new model of public service deliveries which will help consolidate its position as a POC country in the continent. There are many development partners which offer capacity development initiatives for the Government officials in the area of ICT. However, most of these capacity building initiatives have been targeted to build technical skills and limited in the management and policy related skills (e.g.; training offered by World Bank and GiZ). It is, thus, essential to provide more "soft-type skill training" to the CDOs and select ICT related Government officials to enable them to better formulate appropriate policies and to effectively manage and implement Government and sector digitization agenda.
Purpose of the Proposal Project	Encourage the use of data in the formulation and implementation of evidence-based Government policies to mitigate socio-economic challenges of the key sectors. It also supports strengthening of a data-driven ecosystem that leverages the capabilities of the private sector. • Create an environment where the private sector can utilize open Government and private sector data to create innovative digitalized public services. Provide capacity building support to Ministerial CDO teams, officers of MINICT, RISA focusing mainly on soft skills and utilization of data. Strengthening capacity for formulating evidence-based policies and their implementation.

Beneficiaries	• CDOs, teams of MINICT, RISA and ministries
	• Rwandan companies including Startups
	Rwandan citizens, the institutions/agencies that promotes digitalization in the Rwandan Government
Related Projects	ICT Innovation Ecosystem Strengthening Project (Ends on March 2022)
	Second Phase of ICT innovation Ecosystem Project (Q2 2022~)
Contents of the Proposal Project	Support capacity building activities for the relevant officers of MINICT, RISA, and CDOs (focusing on soft skills and data usage)
Alignment with Country Assistance Policy for Respective Countries by GoJ / Priority of JICA	• Japan's national development cooperation policy toward Rwanda indicates supporting active use of ICT in the area of "human resource development (science and technology education and training) to support growth and job creation. Japan has been providing ICT-related support in Rwanda for the past 10 years which include forging partnerships with Japanese companies and POCs with local companies.
	• ICT is an area that JICA is supporting as a lead donor and co-chair of the sector working group.
	ICT policy/strategy is one of the components within the research. The proposal is made on the grounds that ICT-related policy/strategy formulation/implementation capacity strengthening among the Government institutions is neede,d in order to mainstream digital technologies in diverse fields.
Condition	• The next phase of ICT Ecosystem Enhancement Project will be implemented as an umbrella of the initiative (this initiative will be a component within the project)
	• Creation of a regulatory sand-box for the use of open-data to be used by private sector
	• Other capacity building initiatives (technical) will be implemented by other development partners
Digitalization / Utilized data	• When the digitization promotion programme of the targeted sectors is implemented, various data (transportation, insurance, weather, population, economy, etc.) held by each ministry as well as statistics bureau will be appropriately opened up and effectively be utilized in services provided by public and private institutions.
Proposed methodology of JICA support	• One of the output within a broader TA project.
Term	4 years
Estimated Cost	JPY 50,000,000 (within a bigger TA project)

Proposed project name	Support for expansion of Digital Ambassador
Align with SDGs goal and target	SDGS9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation
	9.1: Develop quality, reliable, sustainable and resilient infrastructure, including regional and transborder infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all.
	9.a.: Facilitate sustainable and resilient infrastructure development in developing countries through enhanced financial, technological and technical support to African countries, least developed countries, landlocked developing countries and small island developing States.
Expected Counterpart and Related Organizations	MINICT, IREMBOGov (Former RwandaOnline), Digital Opportunity Trust (DOT), Rwanda Cooperative Agency, Rwanda ICT Chambers of Commerce.
Background of the Proposal	• Lack of devices, high connection fees, lack of digital literacy, and unstable internet connection make it difficult for rural people to access digitized public services.
	• Digital Ambassadors, IREMBO agents, and agents of mobile phone companies are helping people to access services on the IREMBOGov platform for a fee. With the expansion of the said services, more people will be able to take advantage of digitized public services.
	• A potential solution to the shortage of devices: Mara, a cell phone manufacturer, is offering supplier's credit for SACCOs members in a pilot project. (Mara Pride

	provides credit facilities to retailers to enable people to purchase devices by paying in installments, and applies a phone lock system developed by MARA's R&D team to lock the device if the buyer fails to repay). Social security payments (G2C), which are not covered by IremboPay, are made in rural areas via SACCOS accounts. In addition, a pilot project on cash transfers through digital payments was implemented by an NGO and was successful; the Rwanda Cooperative Agency also developed an app for the SACCO community.
Purpose of the Proposal Project	• People in rural communities will be able to use IremboGov's public services for a reasonable fee. Eventually, people in rural areas will be able to get devices and use digitalized public services on the IremboGov platform by themselves.
Beneficiaries	• citizens • Social security beneficiaries Mobile phone manufacturers and distributors
Related Projects	Digital Opportunity Trust's Digital Ambassador Program
Contents of the Proposal Project	• Increased the number of digital literacy education instructors in collaboration with the Digital Ambassador Program. • Build interoperability between SACCOs and IremboPay to support the creation of a system to pay for social security with digital money. • Supporting people's purchase of devices by selling raw materials and financing supplier's credit to the MARA Group, which sells smartphones and cell phones with a phone lock system. Improve access to information through LEO, stratospheric drones, etc., and collect data from rural areas (medical, agriculture, environment, education, etc.)
Alignment with Country Assistance Policy for Respective Countries by GoJ / Priority of JICA	This project is consistent with one of the Country Assistance Policy for Rwanda, "Human Resource Development to Support Growth and Job Creation (Science and Technology Education and Training)," and JICA's priority area of cooperation, "ICT and Human Resource Development including ICT".
Condition	IremboGov's rules for handling user information needs to be enacted. • Collaborating with Digital Opportunity Trust
Digitalization / Utilized data	• Based on the usage of digitized public services that are handled on IREMBO, it is possible to study the contents and methods of providing more public services.
Proposed methodology of JICA support	• Technical cooperation in the field of ICT • Public-Private Partnerships
Term	3 years
Estimated Cost	JPY 1,000,000,000

Proposed project name	Capacity Development Project for the Digitalization of Public Services in Social Protection
Align with SDGs goal and target	Target 1.3 of SDG Goal 1 aims at the inclusion of all citizens in social protection.
Expected Counterpart and Related Organizations	Local Administrative Entities Development Agency (LODA), and Ministry of Local Government (MINALOC)
Background of the Proposal	• The Vision 2020 Umurenge Programme (VUP) has made a significant contribution to improving Rwanda's national social protection system. However, it has challenges in targeting, management information systems and payment mechanisms. • The targeting method using Ubudehe has a targeting error of about 40% (exclusion of the poor and inclusion of the non-poor). Therefore, it aims to reduce the targeting error to about 20% by establishing a system to identify poor households using household surveys and other methods. • For the National Social protection Registry (NSPR), which is in the process of being prepared as a new single registry, there are major challenges in building the capacity of the Government. In addition, measures to improve interoperability with other management information systems are required.

	• To promote the digitization of cash transfers, a pilot project for cash transfers using mobile money has been implemented, but digital payments for cash transfers are just beginning. While World Bank is providing financial and technical assistance, the capacity gap for the effective operation of NSPR remains significant.
Purpose of the Proposal Project	• To develop the capacity of the Government to ensure smooth and effective utilization of NSPR. • To improve the quality of data collection and monitoring and surveillance. To resolve for functioning interoperability with other management information systems, including civil registration and national ID.
Beneficiaries	LODA and MINALOC official as direct beneficiaries and citizens as indirect beneficiaries
Related Projects	• World Bank Human Capital for Inclusive Growth Development Policy Financing (2020-2022): financial support (US$150 million: US$0.75 million loan, US$0.75 million grant) World Bank Strengthening Social Protection System Project (2018-2021): project loan (US$0.8 million)
Contents of the Proposal Project	Social protection is not included in the country assistance policy. On the other hand, Rwanda has previously provided support for demobilization and reintegration where social protection is highly relevant. In this regard, it proposes the assistance for the post COVID-19 era.
Alignment with Country Assistance Policy for Respective Countries by GoJ / Priority of JICA	• Building analytical and technical capacity to utilize data for Evidence-Based Policy Making (EBPM) in social protection. • The accuracy of targeting to identify poor and vulnerable households will be improved by using the Integrated Household Living Conditions Survey (EICV) and the Household Welfare Score Count to score each household. • A monitoring and evaluation framework for unconditional and conditional post-cash transfers will be developed, data collection methods will be established, impact evaluations will be conducted, and EBPM will be promoted. It will improve interoperability with other management information systems, such as civil registration and national ID.
Condition	• Using administrative big data related to social protection, we can present solutions that lead to the planning of preventive measures required for each region and the effective allocation of resources, such as social cash transfers. • The strengthening of personal data protection laws for social protection and the development of laws and regulations to promote interoperability are required as conditions.
Digitalization / Utilized data	• Beneficiary data • Household data
Proposed methodology of JICA support	• To promote universal coverage, technical cooperation on institution building and capacity development will be implemented through a collaborative approach among the Government, World Bank, and other development partners, focusing on the areas where the World Bank's support is not fully reaching.
Term	2025 - 2028 (3 years)
Estimated Cost	60 M/M

Source: JICA Study Team

3.3   Ethiopia

3.3.3 Priority Issues and Approach for Potential Needs

Based on the analysis of the current situation and potential issues in the previous section, JICA Study Team evaluated the potential support needs for each sector from the viewpoint of consistency with the Country Assistance Policy, activities of other donors, measures taken by the target country, and possibility for effective use of data.

Table 3.3.3   Examination of Priority Issues (Ethiopia)

Sector	CAP of Japan	Other Doners	Measures Taken	Data Use	Evaluation
Education	Education, Health	WB, etc.	D-TEST, digital textbook, ID for students	A	There is no ICT component in the current technical cooperation project to develop teaching materials.
Health	Education, Health	USAID, WHO, etc.	Telemedicine, Platform for health, Electronic medical records	A	The Potential of Telemedicine with Japanese Knowledge
National ID	NA	WB, UNICEF, etc.	Digitalization of Kebere IDs	A	Indirect contributions are expected
E-Gov.	Industrial Promotion	WB, UNDP, KOICA, etc.	Under planning of digital public services by 6 institutions	A	Need to share roles with other donors
Social Protection	NA	WB	Pensions, Employment, Social insurance, medical insurance, etc.	A	It's still early
ICT HRD	Industrial Promotion	WB, Huawei, UNDP, CISCO	Established Digital Skills A/P		There is little room for intervention.
ICT Policy	Infrastructure development	WB	A comprehensive ICT strategy is being developed.		Consideration from a broader perspective, including space data utilization
ICT Infra.	Infrastructure development	Private companies	Privatization and private participation on mobile telecommunication sector		Boosting Japanese companies with a foothold in the mobile telecommunication business

Note: A: High potential, B: Potential, NA: Not applicable
Source: JICA Study Team

After all, JICA Study Team examined the roles that JICA can play, solution approaches, and entry points in the high-priority sectors based on the interim discussion with JICA Africa Department and Ethiopia Office.

Table 3.3.4   Approaches for Potential Needs (Ethiopia)

Sector	Roles of ICA	Solution Approaches	Entry Points
Health	• Training of young doctors through telemedicine education, including improvement of policy making ability for telemedicine using Japanese knowledge	• Development from individual sectors	• Ministry of Health
E-Gov	• Support for digitization of map information • Support for Ethiopian Electronic Single Window (eSW)	• Technical cooperation for ICT environment development (dispatch of experts, technical cooperation projects) • ODA (Grant Aid)	• GII • EESW
Spatial Data	• Supporting the practical use of spatial information and data analysis from space to solve social issues • Microsat development and application technical support • Support for data collection and utilization by advanced drones, etc.	• Technical cooperation and human resource development for ICT environment development • External collaborations (with private and academic institutions in Japan)	• ESTTI

Source: JICA Study Team

3.3.4 Proposed Roadmap and Support Programs

The table below summarizes the proposed support programs according to COVID-19 crisis response (short-term), COVID-19 post-pandemic response (medium-term), and future investment (long-term), keeping in mind the solution approach to the potential needs in the previous section.

This section explains the outlines of proposed support programs according to three phases. As for the technical and financial cooperation of JICA, detailed programs will be presented in the next section.

Figure 3.3.3   Roadmap od Support Programs (Ethiopia)
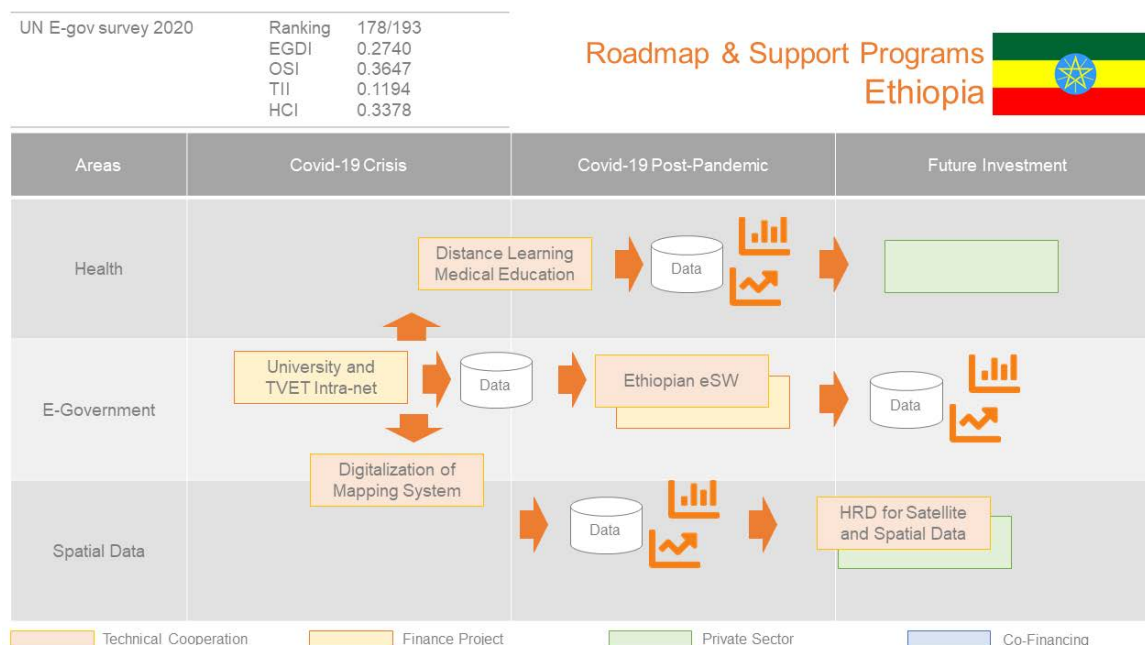
Source: JICA Study Team

Table 3.3.5   Proposed Support Programs (Ethiopia)

COVID-19 Crisis Response

Sector	Programs	Needs, Effect, Conditions, etc.	Approaches
E-Gov.	Support for digitization of Mapping System	• One of the key challenges to the development of e-commerce is the lack of a national addressing system, in addition to the underdeveloped financial and logistics sectors (GII plans to create nationally updated and accurate maps in the cloud) • Support for the development of an address display system will be provided, the manual and time-consuming map-making flow will be simplified using machine learning, AI, satellites, and other ICT by utilizing past project's assets by JICA. • The challenge is to avoid foreign exchange losses when purchasing technology from overseas.	• Technical cooperation for ICT environment development
ICT infra.	Assistance for implementation of communication infrastructure for higher education institutions	• According to an interview with EthERNet, there is a project to build a collaborative system between universities and TVETs, connecting all universities and TVETs via optical fiber, which is currently in the planning stage. • To support ICT infrastructure development in the higher education sector by conducting basic research, master	• Infrastructure development

		planning, feasibility studies, and implementation of ICT infrastructure development for universities and TVET, and to help Japanese companies to enter the market. • The telecom sector is already supported by other countries and companies from other countries, so it is important to avoid duplication of the support.	

COVID-19 Post-Pandemic Response

Sector	Programs	Needs, Effect, Conditions, etc.	Approaches
Health	Assist telemedicine education and health systems using Japanese knowledge	• In interviews with the Ministry of Health, there was a particularly strong interest in "provision of telemedicine" and "ICT-based human resource education for junior doctors". • Provide technical support to the Ministry of Health for policy and strategy development and guideline development in the field of digital health, especially telemedicine. • For the training of young doctors, technical guidance (e.g., diagnostic imaging) will be provided by Japanese specialists through distance learning, the necessary equipment and infrastructure will be developed, and continuous education and training will be provided for the acquisition of skills. • It is necessary government commitment, skills and motivation of health care workers, Communication infrastructure and interoperability, Secure sustainable funds for operations, Compliance with the Personal Information Protection Law	• Development from individual sectors
E-Gov.	Support to Ethiopian Electronic Single Window (eSW)	• Ethiopian Electronic Single Window (eSW), launched in 2020, is a platform that connects 16 cross-border regulatory agencies (CBRAs) and allows traders to process all import and export documents in a single electronic application. • Financial and technical support is needed to increase the number of cross-border regulatory agencies to 20 and to expand the functions of eSW. • Increase the maturity of single point of contact platforms that could reduce the time and cost of trade • Engage more than 20 cross-border regulatory bodies to improve logistics, transportation and port activities • Need to work with existing donors (World Bank, KOICA, Southeast African Market Community) • Countermeasures against foreign exchange losses when importing technology from overseas	• Technical cooperation for ICT environment development

Future Investment

Sector	Programs	Needs, Effect, Conditions, etc.	Approaches
Spatial Data	Support for utilization of space and spatial resources and data	• Ethiopia is promoting the use of space, and has already launched two Microsats with the cooperation of China, and is using the resulting image data for joint projects with academic institutions, the Ministry of Agriculture, the Ministry of Mining, and the Ministry of Water, Irrigation and Energy. • However, since there is not much technological contribution to Ethiopia, Japan will support the country through its human resource development and organizational strengthening approaches. • Consideration must be given to the diversion and outflow of advanced technologies.	• Development from individual sectors • encouraging the private sector

Source: JICA Study Team

3.3.5 Details of Proposed Support Programs

COVID-19 Crisis Response

Proposed project name	Support for digitization of Mapping System
Aline with SDGs goal and target	Goal 17 Revitalize the global partnership for sustainable development **17.6** Enhance North-South, South-South and triangular regional and international cooperation on and access to science, technology and innovation and enhance knowledge sharing on mutually agreed terms, including through improved coordination among existing mechanisms, in particular at the United Nations level, and through a global technology facilitation mechanism. **17.8** Fully operationalize the technology bank and science, technology and innovation capacity-building mechanism for least developed countries by 2017 and enhance the use of enabling technology, in particular information and communications technology.
Expected counterpart or related organizations	FDRE Geospatial Information Institute (GII)
Background of the proposal	• "Digital Ethiopia 2025: Digital Strategy for Ethiopia Inclusive Prosperity" identifies the lack of a national addressing system as one of the key challenges to develop E-Commerce in line with under-developed financial and logistics sectors. • Utilization of JICA's past cooperation assets: support for the creation of 1 : 10,000 scale maps • Need exists to simplify the manual and time-consuming flow of map making using ICT such as machine learning, AI, and satellites. • Digitization of analog maps and providing them online is needed. • Two and a half years after its establishment, GII plans to create updated and accurate maps in the cloud on a national scale in order to go paperless. It has already conducted the first feasibility study for three projects: 1) a big data center, 2) an up-to-date and accurate map system, and 3) modernization of the national geodetic service.
Purpose of the proposed Project	Building a foundation for e-commerce through support for the development of digitalized address system. Streamlining operations through the use of machine learning, AI, satellites, and other ICT to simplify the flow of mapmaking.
Beneficiaries	people FDRE Geospatial Information Institute e-commerce operator
Related projects	NA
Contents of the proposed project	(1) Support for developing digitalized street addressing system Support to GII in expanding the prototype of the "Development of Digital Street Addressing System" currently underway in Addis Ababa City, which will be expanded to 70 cities in the future. A portal for the national geospatial street addressing system is also under development, and financial and technical support will be provided by the government. (2) Support for automation of the workflow by incorporating artificial intelligence, Machine Learning, deep learning and safelight. Financial and technical support for a project to cover the whole of Ethiopia with digital navigation and aerial photography based on JICA's past cooperation. In addition, support for converting analog maps that cannot be searched and viewed through online, into digital maps that can be searched and viewed. Workflow automation by incorporating artificial intelligence, machine learning, and deep learning is also under consideration, and JICA will provide technical and financial support for these activities. Supporting the launch of a start-up center for private companies responsible for geospatial activities within the GII is required,
Alignment with Country Assistance Policy for Respective Countries by GoJ	This cooperation contributes to one of the priority areas of Country Assistance Policy of the Government of Japan for Ethiopia, which is "Industrial Development, Improving productivity, promoting foreign direct investment, Kaizen, human resource

/ Priority of JICA	development, etc.". It will utilize JICA's past cooperation asset of "The Capacity Development Project for Digital Topographic Mapping".
Conditions	Avoiding foreign exchange losses when purchasing or importing technology from overseas.
Digitalization / Utilized data	Integration with other digitized public services will lead to the provision of high value-added public services (e.g., smooth electoral registration by integrating with digitized national IDs in the future).
Proposed methodology of JICA support	Technical cooperation for ICT environment development (dispatch of individual experts, technical cooperation projects) • gratuitous financial assistance
Term	3 years
Estimate cost	Discussions need to be held on possible activities that JICA could undertake in response to the requests for assistance submitted by GII.

Proposed project name	Assistance for implementation of communication infrastructure for higher education institutions
Aline with SDGs goal and target	Goal: 4 Quality Education, Target: 4.3 Goal: 9 Build resilient infrastructure, promote sustainable industrialization and foster innovation, Target: 9.c
Expected counterpart or related organizations	EtherNET
Background of the proposal	Due to the recent COVID-19, distance education is being promoted in Ethiopia. EtherNET, which is in charge of ICT-related matters for educational institutions, is preparing to develop a digital library, promote online classes, and digital teaching materials. However, the ICT infrastructure of educational institutions, which is the foundation for distance education, is not well developed. At present, out of the 46 universities, only 10 universities have completed the development of the Internet. On the other hand, those universities that do not have Internet access are not able to access the digital library developed by EtherNET and are unable to conduct online classes. A project to connect all universities with a communication network is being planned to solve these problems. However, the plan has not progressed due to the lack of technical and financial supporters.
Purpose of the proposal Project	Targeting all universities that do not yet have a communication infrastructure, the project will support the preparation of a development plan. Based on the development plan, the project will implement a communication infrastructure. The objective of this project is to provide equal educational opportunities by the communication infrastructure
Beneficiaries	EtherNET、University staffs、University students
Related projects	N/A
Contents of the proposed project	• Assist for planning of implementation of communication infrastructure for universities which are not implemented communication infrastructure Conduct the implementation of communication infrastructure based on the development plan
Alignment with Country Assistance Policy for Respective Countries by GoJ / Priority of JICA	ICT infrastructure is not mentioned in Assistance Priority by GoJ. On the other hands, in Policy of JICA, possibility of assistance in ICT infrastructure is focused. There is needs to implement communication infrastructure in higher education institute, the project aims to encourage Japanese companies to enter the market by providing this assistance.
Conditions	It is necessary to confirm relation with scope of this project and scope of telecommunication companies. And it is necessary to establish the plan with consideration of utilizing communication network by telecommunication companies.
Digitalization / Utilized data	NA
Proposed methodology of JICA support	Feasibility study, ODA loan

Term	Support of planning is 1 year; the period of implementation will be studied by the planning.
Estimate cost	Support of planning is 30 MM; the cost of implementation will be studied by the planning.

COVID-19 Post-Pandemic Response

Proposed project name	Assist telemedicine education and health systems using Japanese knowledge
Aline with SDGs goal and target	3.4 By 2030, reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being.
Expected counterpart or related organizations	Ministry of Health
Background of the proposal	In line with the Information Revolution Strategic Plan (2018-2025), the government is implementing the following seven initiatives; • Digitalization for the effective and timely deployment of health information • Provision of telemedicine • Development of health information exchange infrastructure (interoperability) • Management of electronic medical records with a single patient ID • Training of young doctors in the use of ICT • Establishment of a research and development center for the use of health big data • Use of electronic money in healthcare (including payment for medical insurance) According to the interviews with the Ministry of Health, there was a particularly high level of interest in the provision of telemedicine and ICT-based human resource training for young doctors. One of the challenges is the weak capacity of policy makers in the field of digital health, which makes it difficult for them to exercise strong leadership and management. Considering the above, we came up with the idea of a technical cooperation project to train young doctors through telemedicine education, including the improvement of policy-making capacity in telemedicine using Japanese knowledge, from the perspectives of "training young doctors", "training policy-makers in the field of digital health" and "telemedicine".
Purpose of the proposal Project	• Technical support will be provided to the Ministry of Health in the area of digital health, particularly in the development of policies and strategies and guidelines for telemedicine. For the training of young doctors, we will provide technical guidance (e.g. diagnostic imaging) by distance learning by Japanese specialists, the necessary equipment and infrastructure, and continuous education and training to acquire the skills.
Beneficiaries	Patients with the relevant disease and their families
Related projects	NA
Contents of the proposed project	For the Ministry of Health, it will provide technical support in the field of digital health, particularly in the development of policies and strategies and guidelines for telemedicine. For the training of young doctors, it will provide technical guidance (e.g. diagnostic imaging) through distance learning by Japanese specialists, the necessary equipment and infrastructure, and continuous education and training to acquire the skills.
Alignment with Country Assistance Policy for Respective Countries by GoJ / Priority of JICA	In the area of health, it mentions that the Government of Japan (GoJ) contribute to building capacity as well as it supports the development of health systems and the improvement of the quality of health services under the principle of Universal Health Coverage (UHC).
Conditions	• Government commitment, the skills and motivation of the medical workforce • Communication infrastructure and interoperability • Securing sustainable operational funding • Compliance with privacy laws
Digitalization / Utilized data	NA
Proposed methodology of	Technical assistance

JICA support	
Term	3 years
Estimate cost	36 MM

Proposed project name	Support to Ethiopian Electronic Single Window (eSW)
Aline with SDGs goal and target	Goal: SDG17 SDG 17.11 SDGS 17.18
Expected counterpart or related organizations	Ethiopian Electronic Single Window, Ministry of Revenues
Background of the proposal	• Launched in 2020, the "Ethiopian Electronic Single Window" (eSW) (https://www.esw.et/esw-trd/) is a platform that connects 16 cross-border regulatory agencies (CBRAs) and allows parties involved in trade and transport to lodge standardized information and documents with a single entry point to fulfill all import, export and transit related regulatory requirements. • The online submission and processing of standardized information and documents that meet regulatory requirements for import, export, and transportation by trade, transportation, and logistics businesses has been shown to significantly shorten delivery times, increase government revenue, reduce costs, lower corruption rates, and improve customer satisfaction. • eSW is mandated to provide the results of data analysis to policymakers. It analyzes raw data on a quarterly, semi-annual, and annual basis and provides multiple data and reports to the government to improve import and export sector transactions. Financial and technical support is needed to increase the number of current Cross Border Regulatory Agencies (CBRAs) to 20 and to expand the functions of eSW.
Purpose of the proposed Project	• Increase the maturity of single window platforms that could reduce the time and cost of trade. In addition to the existing 16 Cross-Border Regulatory Agencies (CBRAs), more than 20 organizations will be involved to improve logistics, transportation and port activities.
Beneficiaries	• Trade, transportation, and logistics providers • Cross-border Regulatory Authority (CBRA) Ministry of Revenues
Related projects	The World Bank, KOICA, and the Common Market for Eastern and Southern Africa (COMESA) are supporting the project. • US$32mil for Phase I and Phase II by the Government of Ethiopia • KOICA: US$7.5 mil • COMESA: US$ 1.6 mil
Contents of the proposed project	• Software development support (business analysis and development, data harmonization, design, software development, testing, completion) Expected duration: 2.5 years • National Data Model Development Project (building a national data model for international trade to facilitate information transfer among systems and organizations involved in international trade and logistics): expected duration: 1 year • ESW -AI Project : AI technology will be incorporated into the services provided by eSW to make the system easier to use, more efficient, less costly, and more secure. (1) CBRA Service Enhancement (automating CBRA's officer's work); (2) User Experience Enhancement; (3) Prediction and Policy Making Report Generation; (4) Operation and Help Desk (Chatbot Issue registration and tracking(reporting); (5) Financial Intelligence and Fraud Detection (Attachment forgery detection, Currency and permit approval fairness legality, Business Intelligence) and (6) Data mirroring and Data Recovery Center Development. Expected duration: 2 years 2 years • Building interoperability: To facilitate trade operations and enhance information sharing, eSW will be linked with other systems such as national ID, e-payment platforms, and regulatory agency systems. (Note: At present, large taxpayers can

	pay taxes to the government through eSW (electronic Single Window) using cell phones and internet banking): Expected duration: 1 year.
Alignment with Country Assistance Policy for Respective Countries by GoJ / Priority of JICA	"Priority areas of Country Assistance Policy of the Government of Japan for Ethiopia: Industrial Development": Improving productivity, promoting foreign direct investment, Kaizen, human resource development, etc.
Conditions	• Collaboration with existing donors (World Bank, KOICA, Southeast African Market Community) Foreign exchange loss prevention when purchasing or importing technology from overseas
Digitalization / Utilized data	• Data attribution: Partly to the trader and partly to the 16 Cross-Border Regulatory Agencies (CBRAs). Both the trader and the regulator own the data used to process international transactions for their respective organizations. • eSW provides platform and facilities for traders and cross-border regulators eSW is responsible for providing the results of data analysis to policy makers. eSW analyzes data on a quarterly, semi-annual, and annual basis to improve trade in the import and export sector, and produces multiple data and reports.
Proposed methodology of JICA support	Technical cooperation Conditional financial assistance
Term	1 to 2.5 years (depending on the project) The details need to be discussed with the Ethiopian Revenue Service (ERS).
Estimate cost	To be determined based on the results of the above discussion.

Future Investment

Name of Supporting Idea	Support for utilization of space and spatial resources and data
Align with SDGs goal and target	Goal2, 6, 8, 9, 11, 12, 13, 15, 16, 17
Expected Counterpart and Related Organizations	Ethiopian Space Science and Technology Institute (ESSTI)
Background of the Proposal	ESSTI is a specialized agency for space utilization which has been promoting space and spatial technologies in Ethiopia. Ethiopia has already launched two microsatellites through cooperation of China, and is using the image data obtained from these satellites for joint projects with academic institutions and the Government ministries such as the ministry of agriculture, the ministry of mining, and the ministry of water, irrigation and energy. However, the development and production of these satellites have been done in China, and as a consequence, transfer of space technologies to Ethiopia have been limited. Japan's support for space development (space resource utilization) in other countries, on the contrary, is more comprehensive. Its approach not only includes relevant human resource development and institutional strengthening at the recipient countries, but also technology transfer which includes designing and development of microsatellites. The use of space technologies (including microsatellites and high-altitude drones) and spatial information to solve social challenges are the area where Japan has comparative advantages both with actual space/spatial technologies and the use of data derived from the technologies. As such, it would be highly effective to support a technical cooperation initiative which would combine both human resource development as well as to furnish technological capacity building in the area of space/spatial technologies and utilization of acquired data.
Purpose of the Proposal Project	• Support solving socio-economic challenges by academic institutions, private sector, and government agencies through using satellite and spatial data (Strengthening capacity for data acquisition, analysis, and use) • Strengthen the capacity of relevant government ministries and agencies to formulate and implement data-driven policies (data-driven policy formulation and implementation)

	• Develop human resources for satellite and spatial data utilization Foster satellite designing, manufacturing, and utilization technologies
Beneficiaries	• ESTTI (training of human resources in satellite technology, strengthening of spatial and satellite information analysis capacity) • Ethiopian Government agencies (using satellite and spatial data to solve sectoral problems and create and implement data-based policies) • Academic institutions (human resource development for satellite technology, strengthening of spatial and satellite information analysis capacity) Private sector (strengthening capacity to provide sectoral problem-solving services using satellite and spatial data)
Related Projects	• Space technology support by China (launching of Ethiopian satellite) Ground station maintenance support by France and China
Contents of the Proposal Project	Institution and human resource capacity development through Technical Assistance Project
Alignment with Country Assistance Policy for Respective Countries by GoJ / Priority of JICA	ICT Policy/Strategy • While ICT policy/strategy is not the area where Country Assistance Policy by GoJ / Priority of JICA stipulates in Ethiopia, it is one of the components within the research. The proposal is made on the grounds that ICT-related policy/strategy formulation/implementation capacity strengthening among the Government institutions is needed in order to mainstream digital technologies in diverse fields. Space and Spatial Technology: Space and spatial technology are not within the cooperation area where Country Assistance Policy by GoJ / Priority of JICA stipulates in Ethiopia. However, the use of data and analysis obtained from the space and spatial technology use could be beneficial for the areas stipulated by the Japan's Country Assistance Policy, namely in (1) Agriculture, (2) Industry Development, (3) infrastructure Development, (4) Education and Health. In the same manner, it may also contribute to the JICA Ethiopia's priorities of (1) Agriculture/rural Development, (2) Private Sector Development, and (3) Infrastructure Development.
Condition	• Spatial data can be obtained not only from space and drones, but also from cell phone movement data (CDR), vehicle movement data, IOTs etc. (In other countries, there are example of services which use these spatial data to solve various socio-economic challenges). • Use of advanced drones seems to be possible, however, relevant regulations need to be confirmed with authorities. Differentiation from China's support is necessary.
Digitalization / Utilized data	• Spatial data Satellite and drone images/data, etc.
Proposed methodology of JICA support	Sector Training in Japan (Space) Technical Assistance Project
Term	3 years
Approximate Cost	NA

Source: JICA Study Team

3.4   Uganda

3.4.3 Priority Issues and Approach for Potential Needs

Based on the analysis of the current situation and potential issues in the previous section, JICA Study Team evaluated the potential support needs for each sector from the viewpoint of consistency with the Country Assistance Policy, activities of other donors, measures taken by the target country, and possibility for effective use of data.

Table 3.4.3   Examination of Priority Issues (Ugandad)

Sector	CAP of Japan	Other Doners	Measures Taken	Data Use	Evaluation
Education	Creating environment for achieving economic growth	World Bank	Free basic education, Partial online education	NA	Possibility of coordination with World Bank
Health	Living environment improvement	World Bank, USAID, UNICEF	Management of health equipment, Support center hospital, DHIS 2	A	Health improvement linking to National ID and CRVS
National ID	Social stability in the northern region	World Bank, UNICEF	NIRA has both responsibility of citizen registration and National ID.	A	Possibility of application to other sectors
E-Gov.	Living environment improvement, Economic growth	World Bank, MDA, UNCDF, etc.	e-Citizen portable,16 government organizations	A	Needs of interoperability and promotion of utilization of e-government
Social Protection	Correcting regional disparities	World Bank, USAID, etc.	Dissemination of National Single Registry	A	Social Protection linking to national ID and CRVS
ICT HRD	Creating environment for achieving economic growth	NA	ICT human development by universities, government, and China		Human development with economic growth
ICT Policy	Creating environment for achieving economic growth	World Bank, MDA, Estonia, etc.	Under construction of integrated ICT strategy		Promoting digitalization of public service.
ICT Infra.	Creating environment for achieving economic growth	China, MNO	12,000 km of domestic backbone		There is issue of last one mile connection

Note: A: High potential, B: Potential, NA: Not applicable
Source: JICA Study Team

After all, JICA Study Team examined the roles that JICA can play, solution approaches, and entry points in the high-priority sectors based on the interim discussion with JICA Africa Department and Uganda Office.

Table 3.4.4   Approaches for Potential Needs (Uganda)

Sector	Roles of ICA	Solution Approaches	Entry Points
Health	• Improvement of ICT literacy using the assets of the JICA project like NOMAD • Startup support for making of Regional Core Hospitals system and telemedicine systems	• Starting from assisting individual sectors • Boosting the private sector	• MoH • Startup Support Hub
National ID	• Biometric technology • Capacity development of information technology	• Boosting the private sector Technical Assistance Project (Training) in National ID	• NIRA
E-Gov	• Capacity development of E-Governance • Support establishment and operation of E-Government • Complementary collaboration with World Bank digital transformation	• Starting from assisting individual sectors • Technical Assistance Project (Training) in E-Government sector • Collaboration with other organizations (like World Bank)	• NITA • UIA (SME Portal establishment)
Social Protection	• Promotion of effective use of National Single Registry • Human resource development • Support policy making of consolidation of social protection programs	• Starting from assisting individual sectors • Technical Assistance Project in Social Protection sector • Collaboration with other organizations (like World Bank)	• MGLS • Local Government

Source: JICA Study Team

3.4.4 Proposed Roadmap and Support Programs

The table below summarizes the proposed support programs according to COVID-19 crisis response (short-term), COVID-19 post-pandemic response (medium-term), and future investment (long-term), keeping in mind the solution approach to the potential needs in the previous section.

This section explains the outlines of proposed support programs according to three phases. As for the technical and financial cooperation of JICA, detailed programs will be presented in the next section.

Figure 3.4.2   Roadmap od Support Programs (Uganda)
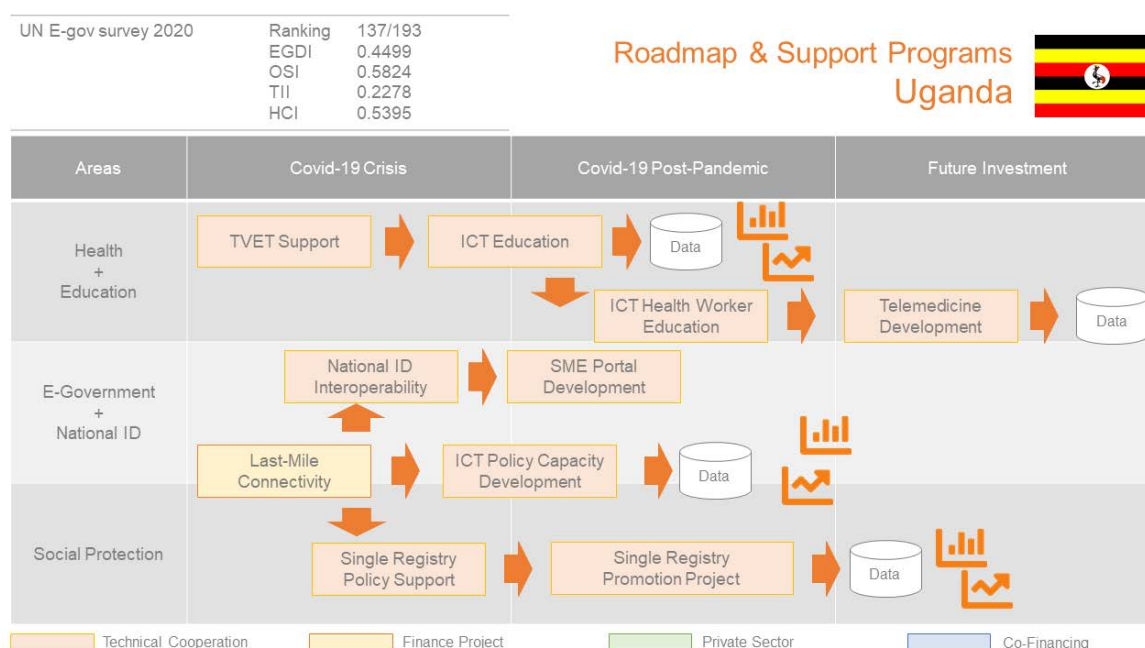
Source: JICA Study Team

Table 3.4.5   Proposed Support Programs (Uganda)

COVID-19 Crisis Response

Sector	Programs	Needs, Effect, Conditions, etc.	Approaches
Social Protection	Promotion of National Single Registry for Social Protection 【Dispatch of Technical Cooperation Expert 24MM】	• By promoting National Single Registry (NSR) for social protection, the Government of Ugandan aims to identify beneficiaries, confirm eligibility requirements, and to implement and monitor social security programs effectively and efficiency. However, multiple programs are running separately without linkage with NSR and the core proponent MGLSD cannot take full advantage of the NSR. The information in NSR is centralized in the MGLSD. The usefulness of NSR has not been fully communicated to the local governments, which are the implement agencies of social protection programs, and the NSR has not been performed effectively. • Aim for effective and efficient operation of social protection programs and improvement of access to public service for their beneficiaries by utilizing the National Single Registry (NER) which has been promoted by the Government of Uganda • If there is a successor project to the World Bank	Technical cooperation for • Dissemination of National Single Registry • Coordination with related organizations

Sector	Programs	Needs, Effect, Conditions, etc.	Approaches
		UNSAF 3, it is necessary to clarify and collaborate with the project.	
Education / Edu-tech	Support Technical Education 【Dispatch of Technical Cooperation Expert 12MM】	• School closure due to COVID-19 is a particularly big issue for TVET, where practical training is indispensable, and although online education and training is being sought independently, the outlook is not bright. • By adding a new remote education and training implementation function to NVTC, which has been strengthened with the support of Japan, the purpose of the institution will be maintained and developed.	• Starting from assisting individual sectors
ICT Infrastructure	Expansion of last mile communication network 【Loan Project 10 Billion JPY】	• It is necessary to expand the communication network to schools and health facilities in order to carry out distance education and telemedicine nationwide, as the line spreads to the last mile. • The communication network necessary for distance education, telemedicine, etc. will be established, and an environment will be created in which digitized public services will be widely provided to the public. • The coordination is necessary regarding demarcation of role of Uganda side including UCC and Japanese side including.	Infrastructure System Export • Boosting the private sector
National ID	Improvement of Interoperability of National ID 【JICA Country Training Program】	• Utilization of national ID is being promoted, but biometric information is planned to be added, and capacity development for appropriate management is required. • Appropriate and secure biometric information management is carried out in line with the protection of personal information • It is required to adopt safe and advanced technology possessed by Japanese companies	• Technical Assistance of ICT Environment Development • Boosting the private sector

COVID-19 Post-Pandemic Response

Sector	Programs	Needs, Effect, Conditions, etc.	Approaches
Social Protection	Promotion of National Single Registry for Social Protection 【Technical Assistance Project 60MM】	By promoting National Single Registry (NSR) for social protection, the Government of Ugandan aims to identify beneficiaries, confirm eligibility requirements, and to implement and monitor social security programs effectively and efficiency. However, multiple programs are running separately without linkage with NSR and the core proponent MGLSD cannot take full advantage of the NSR. The information in NSR is centralized in the MGLSD. The usefulness of NSR has not been fully communicated to the local governments, which are the implement agencies of social protection programs, and the NSR has not been performed effectively. Aim for effective and efficient operation of social protection programs and improvement of access to public service for their beneficiaries by utilizing the National Single Registry (NER) which has been promoted by the Government of Uganda It is necessary to clarify and collaborate with the World Bank NUSAF 3 on the division of roles by individual experts in the previous stage.	Technical cooperation for Dissemination of National Single Registry Coordination with related organizations
Education / Edu-tech	Support secondary education 【Dispatch of	• Strengthening the teacher capacity of secondary education continues to be a major issue, and as the school enrollment rate increases under the policy	• Starting from assisting individual

	Technical Cooperation Expert 12MM】	of free secondary education, the need for quality assurance is increasing. • The experience of SESEMAT support build by JICA will be effectively applied to USEEP support promoted by the World Bank.	sectors
ICT Policy	Capacity development and advocacy support for ICT Policy implementation 【Technical Assistance Project 24MM】 or 【Dispatch of Technical Cooperation Expert 24MM】	There is a growing push to establish e-Government and digitization of Government business processes in Uganda. However, many ministries are silo-ed and it is challenging to provide centralized services. In addition, there are few digitally literate personnel who can effectively implement e-Government properly. There is also a significant lack of human resources within the government to utilize data. Citizens are also skeptical of e-Government, much of the services are not in multiple languages, and there is a digital divide and digital literacy problem that limits the expansion and accessibility of electronic services to citizens Strengthening the capacity of the Ministry of ICT and associated agency in Uganda to create and implement policies and plans, and supporting public awareness campaigns for the digitization of Uganda	• Technical cooperation for • ICT environment development
Health	ICT health workforce development 【Add in existing technical cooperation project 】	The Uganda National eHealth Policy was published in November 2018 and promotion of eHealth is a priority area in Uganda's National Development Plan II. One of the challenges is to improve the ICT literacy of the health workforce that inputting and other information is a burden. • In the JICA technical cooperation project (5S-KAIZEN), the project was supporting Regional Core Hospitals (RRHs = secondary care facilities) to grasp the status of medical equipment by providing training on the operation of the "NOMAD" system introduced by USAID. • Using the assets of the above project, the health workforce of the regional core hospitals (RRHs = secondary care facilities) who have been trained in NOMAD would receive training aimed at further improving their operations and ICT skills in general. • Data on the improvement in operational efficiency before and after the training was collected and the content of the training was improved based on evidence. • Increased ownership of telecommunications infrastructure and smart phones • Cooperation of health facilities (as they will be less staffed during the training period) • It is necessary to improve the communication infrastructure, improve the ownership rate of smartphones, and cooperate and understand the target medical facilities (because the labor will be reduced by that amount during the training period).	Technical cooperation for Development of ICT of health workforce
E-Gov	Support for establishment and operation of SME Portal 【Technical Assistance Project, 60MM】	• Uganda Investment Agency (UIA) is planning to build an SME Portal that will contribute to the promotion of employment and entrepreneurship of university graduates in local areas. • Through the SME Portal, it is expected that the employment of young people in local areas will be promoted and the industry will be diversified, through	• Starting from assisting individual sectors

		providing financial and non-financial service, supporting SME and entrepreneurship such as matching with investors, with the utilization of JICA's cooperative asset OVOP in mind. • UIA has already created the concept of SME Portal by DaaS company and human resources development labs collaborating with PPP. However, there are still unclear parts. It is necessary to confirm the whole picture and details.	

Future Investment

Sector	Programs	Needs, Effect, Conditions, etc.	Approaches
Health	Assist in the development of telemedicine systems 【Technical Assistance Project 60MM】	• The Uganda National eHealth Policy states that the promotion of eHealth is a high priority area in Uganda's National Development Plan II. • The number and quality of doctors also needs to be improved and ICT is being explored as a way of compensating for this. • Making the best use of the relationship with Regional Core Hospitals (RRH = secondary healthcare facilities), which it already has as an asset through JICA support, it will provide support to the Ministry of Health in developing a telemedicine system, policy and strategy, and guidelines, with a focus on RRH. • In order to support start-up companies, it will be noted that collaboration with Japanese companies through matching will be shared so that the Japanese side can also benefit. • Development of telecommunications infrastructure • Improving the ICT literacy of healthcare workforce. • Political leadership • Legislation such as the Personal Information Protection Act	• Technical cooperation for development of telemedicine systems

Source: JICA Study Team

3.4.5 Details of Proposed Support Programs

COVID-19 Crisis Response

Proposed project name	Promotion of National Single Registry for Social Protection
Aline with SDGs goal and target	SDG Goal 1 "End poverty in all its forms everywhere", Target 1.3 Implement nationally appropriate social protection systems and measures for all, including floors, and by 2030 achieve substantial coverage of the poor and the vulnerable, Target 1.2 By 2030, reduce at least by half the proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions.
Expected counterpart or related organizations	Expected counterpart: Ministry of Gender, Labour and Social Development in charge of National Single Registry (NSR) for Social Protection and Implement Agencies of NSRS Related organizations: National Identification Registration Authority (NIRA)
Background of the proposal	By promoting National Single Registry (NSR) for social protection, the Government of Ugandan aims to identify beneficiaries, confirm eligibility requirements, and to implement and monitor social security programs effectively and efficiency. However, multiple programs are running separately without linkage with NSR and the core proponent MGLSD cannot take full advantage of the NSR. The information in NSR is centralized in the MGLSD. The usefulness of NSR has not been fully communicated to the local governments, which are the implement agencies of social protection programs, and the NSR has not been performed effectively.
Purpose of the proposed Project	Aim for effective and efficient operation of social protection programs and improvement of access to public service for their beneficiaries by utilizing the National Single Registry (NER) which has been promoted by the Government of Uganda. Aim to establish Social Registry in the future based on the establishment of NSR by liking with household and census information other than beneficiaries of social protection programs which are running.
Beneficiaries	All citizens receiving social protection programs (as super goal) Public officers in charge of social protection programs (Ministry of Gender, Labour, and Social Development and Local government)
Related projects	WORLD BANK, Third Northern Uganda Social Action Fund Project (NUSAF 3) (2016 to 2021)
Contents of the proposed project	• For MGLSD, support technical advice for effective utilization of NSR and capacity development in ICT, • For local government for implementation of social protection programs, support and enlighten for system introduction, digitization of implementation departments (infrastructure, equipment and systems), and promote human resource development for implementation and management of new system, • For MGLSD, support policy-level advice for elimination and consolidation of existing social protection programs, • For MGLSD, support policy-level and technical advice for introduction of new delivery system using new technology according to the progress of elimination and consolidation of social protection programs and diversification of the programs based on the needs, (By proposing a new implementation system, there is a possibility of utilizing private companies including Japanese companies and supporting new human resource development to adapt to new implementation systems and various services.)
Alignment with Country Assistance Policy for Respective Countries by GoJ / Priority of JICA	• There is no direct description of social protection in the County Assistant Policy. However, the basic policy stipulates the correction of regional disparities and support for improving the lives of residents. In addition, promotion of economic growth is priority areas and includes enhancement of vocational education. Health is also priority areas. This proposed project will contribute to strengthening the social security system including health in the future. • Social Protection was mentioned as one of the priority areas of the JICA Uganda office.

Conditions	• Confirmation of operation capacity of Ministry of Gender, Labour and Social Development and related local government officers • Confirmation of basic infrastructure in rural areas • If there is a successor project to the World Bank UNSAF 3, it is necessary to clarify and collaborate with the project.
Digitalization / Utilized data	• National Single Registry (NSR) Personal information of beneficiaries of the government's social protection program such as personal name, date of birth, address, family structure, income, financial institution / mobile payment agency information, etc.)
Proposed methodology of JICA support	• Technical cooperation project (Advisor dispatch and technical cooperation project) and/with grant project (equipment provision to local government agencies) • (There is a possibility of policy program loan if the project includes system development and implementation of social protection program.)
Term	3 to 5 years
Estimate cost	NA

COVID-19 Post-Pandemic Response

Name of Supporting Idea	Capacity development and advocacy support for ICT Policy implementation
Align with SDGs goal and target	16.6, 17.7, 17.8, 17.9
Expected Counterpart and Related Organizations	Ministry of Information and Communications Technology and National Guidance (MINICT)、 National Information Technology Authority (NITA)
Background of the Proposal	There is a growing push to establish e-Government and digitization of Government business processes in Uganda. However, many ministries are silo-ed and it is challenging to provide centralized services. In addition, there are few digitally literate personnel who can effectively implement e-Government properly. There is also a significant lack of human resources within the government to utilize data. Citizens are also skeptical of e-Government, much of the services are not in multiple languages, and there is a digital divide and digital literacy problem that limits the expansion and accessibility of electronic services to citizens. The Ministry of ICT and National Guidance and NITA are the key ministries for the digitization of the Government. Their capacity building (including technical aspects) and leadership are essential for advancing the digitization of the Ugandan Government. Awareness raising activities for the digitization are also very important as the citizens are skeptical of the e-Government initiative.
Purpose of the Proposal Project	Strengthening the capacity of the Ministry of ICT and associated agency in Uganda to create and implement policies and plans, and supporting public awareness campaigns for the digitization of Uganda • Promote the digitization of the Ugandan Government by strengthening the capacity of the Ministry of ICT and related institutions to formulate and implement policies and plans • Support public awareness activities to promote e-Government and organizational reform
Beneficiaries	• MINICT, NITA • Uganda Government, Ugandan citizens
Related Projects	• Relevant Technical Assistance Project which could add the initiative as one of its outputs.
Contents of the Proposal Project	Support for organizational and human capacity building and awareness raising activities for the MINICT and NITA • Strengthen capacity of MINICT and related agency to formulate and implement policies and plans • Strengthen core officers' technological capacity of MINICT and related agency. • Support the MINICT and related agencies in utilizing data • Support strengthening Innovation Ecosystem (Programme Formulation) • Support Domestic awareness raising on digitalization, especially within

	Government agencies
Alignment with Country Assistance Policy for Respective Countries by GoJ / Priority of JICA	• While ICT policy/strategy is not the area where Country Assistance Policy by GoJ / Priority of JICA stipulates in Uganda, it is one of the components within the research. The proposal is made on the grounds that ICT-related policy/strategy formulation/implementation capacity strengthening among the Government institutions is needed in order to mainstream digital technologies in diverse fields.
Condition	• As the office is not considering dispatching an expert, this activity needs to be conducted as a sub-component within other relevant projects. • Capacity building in the form of on-the-job type training should be considered for the staff of the MINICT and NITA (both soft-skills and technological skills) • Strengthening of Innovation Ecosystem (including support for Fablab and innovation Hub type facilities) should be considered within JICA's current survey into startups ecosystem in Uganda.
Digitalization / Utilized data	It is expected that data held by ministries and agencies will be appropriately opened and shared, and effectively utilized by the public, private, and academic sectors when further public sector digitization is implemented, It is also expected that the Government will formulate future policies based on evidence and data (use of various different data for better policy decision making).
Proposed methodology of JICA support	One of the outputs within a TA project.
Term	3 years (within s TA project)
Approximate Cost	JPY 50 million (within a TA project)

Proposed project name	ICT health workforce development
Aline with SDGs goal and target	3.C Substantially increase health financing and the recruitment, development, training and retention of the health workforce in developing countries, especially in least developed countries and small island developing States.
Expected counterpart or related organizations	Ministry of Health
Background of the proposal	• The Uganda National eHealth Policy was published in November 2018 and promotion of eHealth is a priority area in Uganda's National Development Plan II. • One of the challenges is to improve the ICT literacy of the health workforce that inputting and other information is a burden.
Purpose of the proposal Project	• In the JICA technical cooperation project (5S- KAIZEN), the project was supporting Regional Core Hospitals (RRHs = secondary care facilities) to grasp the status of medical equipment by providing training on the operation of the "NOMAD" system introduced by USAID. • Using the assets of the above project, the health workforce of the regional core hospitals (RRHs = secondary care facilities) who have been trained in NOMAD would receive training aimed at further improving their operations and ICT skills in general. • Data on the improvement in operational efficiency before and after the training was collected and the content of the training was improved based on evidence.
Beneficiaries	• Health workforce • Residents in the medical area of the trained medical facility
Related projects	JICA technical cooperation project (5S-KAIZEN)
Contents of the proposed project	Using the assets of the JICA project, the project will contribute to the improvement of operations at regional core hospitals (RRHs = secondary healthcare facilities) that have received NOMAD training by providing them with training aimed at further improving their operations and ICT skills in general. In the future, the trained personnel will be able to provide guidance within and outside the facilities.
Alignment with Country Assistance Policy for Respective Countries by GoJ / Priority of JICA	• In the health sector, it mentions that the Government of Japan supports the improvement and expansion of core medical facilities and equipment in rural areas, as well as the improvement of equipment maintenance and management techniques, hospital operations and services.

	• Health was not a priority issue from JICA Uganda office, however we propose it because of the country assistance policy and JICA assets.
Conditions	• Increased ownership of telecommunications infrastructure and smart phones • Cooperation of health facilities (as they will be less staffed during the training period)
Digitalization / Utilized data	NA
Proposed methodology of JICA support	Implemented as one component of a technical assistance
Term	Timely within the relevant project
Estimate cost	NA

Further Investment

Proposed project name	Assist in the development of telemedicine systems
Aline with SDGs goal and target	3.4 By 2030, reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being.
Expected counterpart or related organizations	Ministry of Health
Background of the proposal	• The Uganda National eHealth Policy states that the promotion of eHealth is a high priority area in Uganda's National Development Plan II. • The number and quality of doctors also needs to be improved and ICT is being explored as a way of compensating for this.
Purpose of the proposal Project	• Making the best use of the relationship with Regional Core Hospitals (RRH = secondary healthcare facilities), which it already has as an asset through JICA support, it will provide support to the Ministry of Health in developing a telemedicine system, policy and strategy, and guidelines, with a focus on RRH. • Building a localized telemedicine system by supporting start-ups in synergy with Ninjya Cup. • In order to support start-up companies, it will be noted that collaboration with Japanese companies through matching will be shared so that the Japanese side can also benefit.
Beneficiaries	Patients and families with telemedical/diagnosable conditions
Related projects	Ninjya Cup
Contents of the proposed project	This project will contribute to the capacity building of the Ministry of Health by making the most of the relationship with the Regional Core Hospitals (RRHs), which are JICA's assets, and providing support to the Ministry of Health in the development of institutional structures, policies, strategies and guidelines around the RRHs. At the same time, the project will share synergies with NINJA to support start-up companies to build localized telemedicine systems and collaborate with Japanese companies through matching.
Alignment with Country Assistance Policy for Respective Countries by GoJ / Priority of JICA	• In the health sector, it mentions that the Government of Japan supports the improvement and expansion of core medical facilities and equipment in rural areas, as well as the improvement of equipment maintenance and management techniques, hospital operations and services. • Health was not a priority issue from JICA Uganda office, however we propose it because of the country assistance policy and JICA assets.
Conditions	• Development of telecommunications infrastructure • Improving the ICT literacy of healthcare workforce. • Political leadership • Legislation such as the Personal Information Protection Act
Digitalization / Utilized data	NA
Proposed methodology of JICA support	Technical assistance and support for start-ups (including use of the Ninjya Cup and matching with Japanese companies)
Term	5 years
Estimate cost	60 MM

3.5 Mozambique

3.5.3 Priority Issues and Approach for Potential Needs

Based on the analysis of the current situation and potential issues in the previous section, JICA Study Team evaluated the potential support needs for each sector from the viewpoint of consistency with the Country Assistance Policy, activities of other donors, measures taken by the target country, and possibility for effective use of data.

Table 3.5.4   Examination of Priority Issues (Mozambique)

Sector	CAP of Japan	Other Doners	Measures Taken	Data Use	Evaluation
Education	Human Resource Development	UNICEF, GPE, USAID, CIDA	EPS 2029、Distance Education, University LMS	A	Contribution to human resource development to meet the needs of society
Health	Human Resource Development	GF, USAID, CDC, WHO etc.	Health Strategy 2024, Digital Health Strategy	A	Private sector support, UHC promotion
National ID	Human Resource development, poverty reduction	UNICEF, World Bank	Registration: Ministry of Justice, Ministry of Home Affairs: National ID	A	Expected to be used in many areas, but difficult to intervene
E-Gov.	Stimulation of Regional Economy	World Bank	GovNET、ax administration system, driving license	A	Consider contribution to improving administrative efficiency
Social Protection	Poverty reduction	World Bank	Measures under Social Security Policy 2024	A	Potential contribution to poverty reduction considered
ICT HRD	Human Resource Development	CIUEM	Basic training by ministries, centers by universities		Advanced ICT human resource development in cooperation with universities
ICT Policy	Stimulation of Regional Economy	World Bank, UNICEF, China, etc.	Promoting e-government with a focus on INAGE		Strengthening ICT administration through INAGE
ICT Infra.	Stimulation of Regional Economy	World Bank, China, Vietnam	3,860 km ADSL, CDMA network etc.		Last mile challenges but difficult to intervene

Note: A: High potential, B: Potential, NA: Not applicable
Source: JICA Study Team

After all, JICA Study Team examined the roles that JICA can play, solution approaches, and entry points in the high-priority sectors based on the interim discussion with JICA Africa Department and Mozambique Office.

Table 3.5.5   Approaches for Potential Needs (Mozambique)

Sector	Roles of ICA	Solution Approaches	Entry Points
Education	• Funding: provision of ICT equipment, mainly to secondary schools, in line with national plans • Technical cooperation: follow-up to the provision of equipment, training of teachers in the use of ICT in education (using ongoing technical cooperation)	• Development from individual sectors	• Ministry of Education
Health	• Support for computerization of data at community level in relation to current maternal and child health support • Strengthening of the eIDCR system	• Development from individual sectors	• Ministry of Health
E-gov.	• Technical cooperation to establish and strengthen e-government • Technical cooperation for the establishment and strengthening of e-government Financial cooperation for the expansion of data centers	• Technical cooperation for the development of ICT environment	• INAGE • INTIC

Source: JICA Study Team

3.5.4 Proposed Roadmap and Support Programs

The table below summarizes the proposed support programs according to COVID-19 crisis response (short-term), COVID-19 post-pandemic response (medium-term), and future investment (long-term), keeping in mind the solution approach to the potential needs in the previous section.

This section explains the outlines of proposed support programs according to three phases. As for the technical and financial cooperation of JICA, detailed programs will be presented in the next section.

Figure 3.5.2   Roadmap od Support Programs (Mozambique)
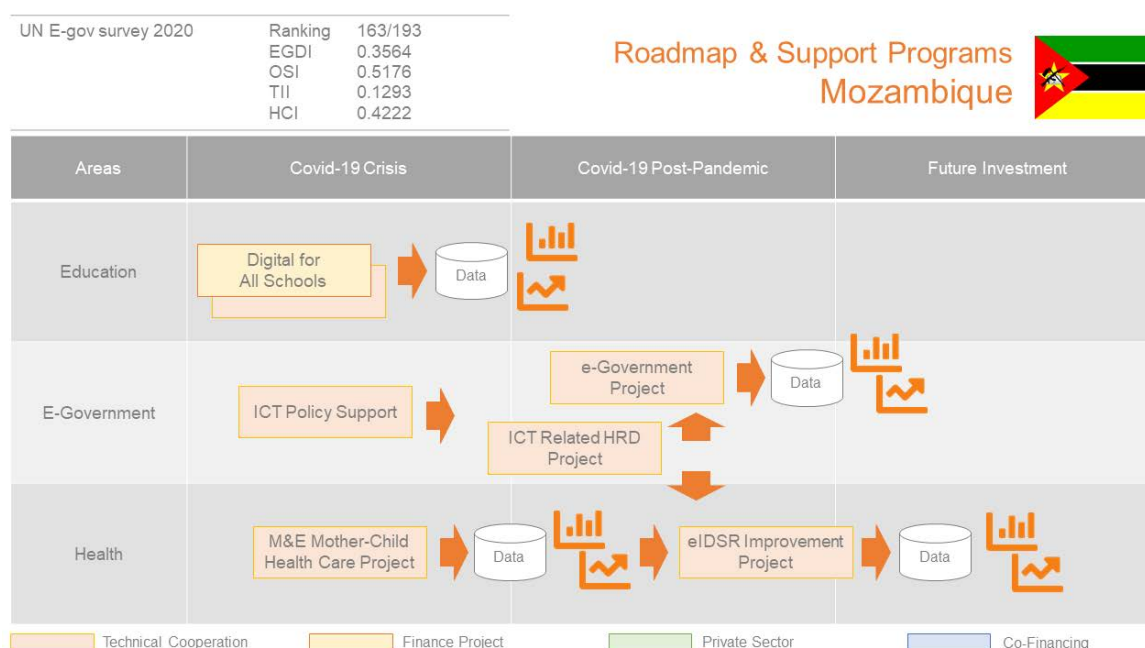
Source: JICA Study Team

Table 3.5.6   Proposed Support Programs (Mozambique)

COVID-19 Crisis Response

Sector	Programs	Needs, Effect, Conditions, etc.	Approaches
Education	Digital for All Schools 【Grant 2 billion JPY】【Additional 12MM for an existing technical cooperation project】	• Until the economic crisis of 2016, computers were being introduced into schools, but the equipment is outdated and not only is it not fulfilling its original purpose, but the economic gap is widening. • MINEDEH will re-launch the project, install the equipment, add an ICT component to the ongoing training system of the project "Dissemination of the curriculum for the new schooling system", and train personnel in the use and maintenance of the equipment.	• Development from individual sectors
Health	Maternal and child health M&E system strengthening project 【Technical cooperation 36MM】	• Reducing maternal and child mortality is one of the most important issues. Infant mortality is higher than the average for sub-Saharan Africa; Community-level health information systems have been introduced in some programmes, such as malaria, but are not unified. Data quality and use needs improvement. • Improve the quality and use of data and provide evidence-based support for improving maternal and child health by promoting the digitization of primary-	• Development from individual sectors

Sector	Programs	Needs, Effect, Conditions, etc.	Approaches
		level maternal and child-related information; work with the Ministry of Health, UNICEF and the World Bank to select and implement appropriate software for the establishment of community health information systems. • Agreeing community strategies and software specifications with the Ministry of Health, coordinating donor collaboration, checking the state of infrastructure, and ensuring compliance with data security and privacy laws.	
ICT Administration E-gov	support to strengthen ICT policy development and enforcement capacity 【Individual expert 24MM】	• An e-government project is underway with World Bank support, but links and interoperability with national IDs have not been established, and the services of ministries are far from being provided centrally; INAGE's enforcement capacity needs to be strengthened • Strengthening the e-government enforcement capacity of INAGE and related agencies • It is desirable to set up technical cooperation projects through the dispatch of individual experts, coordinating with donors such as the World Bank and relevant ministries and agencies.	• Technical cooperation on ICT environment development

COVID-19 Post-Pandemic Response

Sector	Programs	Needs, Effect, Conditions, etc.	Approaches
E-gov	Support for building e-government 【Technical cooperation 60MM】	• An e-government project is underway with support from the World Bank, but the linkage and interoperability with national IDs is not yet established, and the services of ministries and agencies are far from being provided centrally. • Strengthen the e-government enforcement capacity of INAGE and related institutions, and support POC-like innovative approaches to solving government problems using the private sector (e.g., start-ups). • Should be initiated by individual experts in coordination with donors such as the World Bank and relevant ministries	• Technical cooperation on ICT environment development
ICT human resource development	Technical cooperation in the project for the training of information technicians (successor project) 【Technical cooperation 24MM】	• Efforts to improve the ICT skills of civil servants are continuing, with ICT-related training, albeit only basic, being provided by civil service training institutions; on the other hand, there is an overwhelming shortage of ICT human resources in Mozambique as a whole, and even if ICT-related training is provided to civil servants, it is lost to the private sector; it is therefore important to provide ICT training opportunities widely, not only to civil servants but also to students and jobseekers who want to learn ICT skills. • MICTI will train people to design, manage, monitor, and improve ICT training, so that it can be relevant as technology evolves. • JICA implemented the "Information Technology Training Project" (a technical cooperation project) from 2007 to 2010 and has since dispatched short-term experts and volunteers.	• Technical cooperation on ICT environment development

Futur Investment

Sector	Programs	Needs, Effect, Conditions, etc.	Approaches
Health	Electronic integrated disease surveillance system (eIDSR) Project 【Technical cooperation 48MM】	• The burden of disease is still high for infectious diseases. Infectious disease surveillance system is planned to be rolled out nationally, linked to DHIS2, but regular central information compilation (weekly/monthly reports) is not yet in place. Emergency disease surveillance is not yet electronic. In addition, the surveillance system is not systematic, and the accuracy and timeliness of data reporting and lack of collaboration with laboratories have been identified. • Analyze the current status of the eIDSR system, identify issues, and support the establishment of a system for collaboration with laboratories and the introduction of electronic urgent disease surveillance, and strengthen the functioning of the eIDSR system by strengthening the capacity of communities and the Ministry of Health. • Confirmation of consistency with the Ministry of Health's support policy, confirmation of the ICT infrastructure environment in target areas, and compliance with data security and personal information protection laws	• Development from individual sectors

Source: JICA Study Team

3.5.5 Details of Proposed Support Programs

COVID-19 Crisis Response

Proposed project name	Digital for All Schools
SDGs Goal and Target Which the Idea is Expected to Contribute	4.1, 4.3, 4.4, 4.5, 4.6, 4.7, 4.a, 4.c
Expected Counterpart and Related Organizations	MINEDH-Ministry of Education and Human Development National Institute of Technology and communication (INTIC)
Background of the Proposal	Mozambique's national development plan includes the introduction of ICT in schools, and before the economic crisis in 2016, some schools received a certain number of ICT equipment. But this plan is stopped and the equipment is now outdated and non-functional anymore. The initial objective is not achieved. At the same time, this crisis negatively affected the purchasing power of average Mozambican people to afford ICT equipment. The aim of this project is to make a breakthrough to this blocked situation and make a positive change to the education sector through introduction of ICTs.
Purpose of the Proposal Project	Promote the introduction of ICTs in Education using existing Japanese resources and maximize the outcome of ongoing JICA Project "Project for Expansion of New Curriculum of Teacher Training Institute (IFP) in Mozambique (PENCIFOP)".
Beneficiaries	Direct Beneficiaries: Teachers in primary schools Indirect Beneficiaries: Students in primary schools
Related Projects	"Project for Expansion of New Curriculum in Mozambique" Initially, this project contained introduction of ICT in schools by distance learning, but the study team found out that ICT equipment is necessary to IFPs and pilot schools.
Contents of the Proposal Project	1. Establishment of Digital Pedagogy 2. Equipment to IFP and pilot schools 3. Development of Educational Programmes 4. Development of modules for ICT equipment management and maintenance 5. Pilot Project 6. Make a policy on Data usage and storage in MINEDH 7. Make an execution plan for Data usage and storage
Conditions	This program is still an idea from the information acquired and needs further research to implement as a real project.
Data to be Digitalized and Utilized :	Meaningful data can be generated from this project, from the contents creation by teachers and students.
Approach / Methodology	Grant Aid and Technical Cooperation Project
Term	3 years
Approximate Cost	NA

Proposed project name	Community maternal and child health project
Aline with SDGs goal and target	SDG 3 "Ensure healthy lives and promote well-being for all at all ages", Target 3.8 Achieving UHC
Expected counterpart or related organizations	Ministry of Health, Health facilities
Background of the proposal	• Reducing maternal and child mortality is one of the most important issues. The causes of death are the highest in the order of HIV/AIDS, neonatal disorder, and tuberculosis (2019), and infant mortality is higher than the average in Sub-Saharan Africa. • Antenatal care 4 or more visits are 51% (UNICEF, 2018) and institutional delivery is 67% (WHO, 2018), so there is still a lot of room for improvement. It is also believed that malnutrition is associated with the root cause of about 45% of deaths in children under 5 years of age (WHO, 2021). • Japan is supporting the strengthening of maternal and child nutrition services through the dissemination of maternal and child health handbooks and the strengthening of community activities.

	• There is a lack of quality of health data, including maternal and child health, and data utilization for decision making. • UpSCALE has been introduced by UNICEF as a major app for community-level health information systems. While there are issues with sustainability such as cost and infrastructure, the measures are currently under consideration with the MoH. Major donors such as the World Bank and USAID are implementing and/or considering its scale up. • It is difficult to cover a vast area only by outreach from health facilities, and the Community Health Worker (CHW) program is important for achieving UHC. It is expected that the access and quality of community health services will be improved by promptly sharing information on residents/patients and strengthening CHW's activities and decision-making by using appropriate apps such as UpSCALE. Currently, it is used by about 2,600 CHWs in 7 Provinces.
Purpose of the proposed Project	The purpose is to improve the quality and utilization of data by promoting the digitization of community-level maternal and child health-related information. With synergistic effect with the maternal and child health project supported by JICA, it can contribute to the enhancement of the evidence-based planning and implementation
Beneficiaries	Targeted health facilities' personnel, CHWs and community
Related projects	JICA "The project for strengthening maternal and child nutrition services (2021-2024)"
Contents of the proposed project	• In collaboration with the MoH, UNICEF and the World Bank, support efforts toward standardization of community-level health information systems. • Utilize/modify the app agreed with the MoH and confirm the modules for CHWs to provide the information necessary for the activity and modules for collecting the information of the community members. • Introduce the above app to the activities of CHWs and health facility staff and formulate and implement necessary training and supervision plans. • Organize and analyze the collected information of community members, grasp the service utilization status related to pregnancy, childbirth and postnatal care and the nutritional status of children and extract issues, and support the formulation and implementation of appropriate activity plans
Alignment with Country Assistance Policy for Respective Countries by GoJ / Priority of JICA	• The County Assistance Policy for Mozambique states that support for health services is provided as part of the priority area "Human Development". In addition, human resource development including health care will be supported in line with the "Poverty Reduction Action Plan". • Health was mentioned as one of the priority areas of the JICA Mozambique office.
Conditions	• Confirmation of discussions with the government regarding the sustainability of the UpSCALE app • When using UpSCALE, confirm the contents of the module, and the possibility to change the specification if necessary • Coordination with other development partners • Infrastructure situation necessary for introducing information systems at the community level • Data storage location, data security and compliance with the Personal Data Protection Law
Digitalization / Utilized data	Personal health data
Proposed methodology of JICA support	• Technical cooperation project to complement and strengthen existing maternal and child health projects • Add components and personnel to existing technical cooperation projects
Term	2022 – 2024
Estimate cost	20 MM

Proposed project name	Strengthening capacity for ICT Policy Implementation
Aline with SDGs goal and target	16.6、17.7、17.8、17.9
Expected counterpart or	Instituto Nacional de Governo Electrónico (INAGE)

related organizations	
Background of the proposal	In Mozambique, comprehensive e-Government project is currently underway with the support of the World Bank. However, the system is not linked to National ID and its interoperability has not yet been established. In addition, coordination between ministries is noy yet streamlined which resulted in difficulties providing consolidated services to Mozambique citizens. In order to coordinate the e-Government initiatives effectively, the INAGE's capacity for e-government implementation needs to be strengthened. Although the World Bank is reportedly providing support for capacity building since the need sa re vast, this could be an area where JICA support may be useful. Furthermore, the World Bank's support is reported to be not very flexible, which makes it difficult for INAGE to take an innovative approach to solving public service delivery challenges in innovative manners through utilizing private companies (e.g., startups). Supporting creation of innovative solutions for public service deliveries by the private sector could be an area which JICA may be able to support, given its experiences in supporting project in Rwanda and through such programme as NINJA programme.
Purpose of the proposed Project	• Promote e-Government activities in Mozambique by strengthening the implementation capacity of INAGE and related institutions • Solving Government challenges through supporting flexible POC activities by the private sectors in collaboration with the World Bank EDGE project. • Solving social challenges with Japanese technology and supporting Japanese companies to enter the local market (Africa) through supporting joint POC initiatives between Japanese and local companies
Beneficiaries	INAGE and associated agencies/ministries, SMEs (Startups) in Mozambique
Related projects	• World Bank Mozambique's Digital Governance and Economy Project (EDGE) • Lessons-learned from JICA NINJA initiative and such project as Rwanda's ICT Innovation Ecosystem Strengthening Project
Contents of the proposed project	Conduct the following activities in coordination with the World Bank EDGE project: • Strengthen the e-Government related implementation capacity of INAGE and related institutions • Provide POC support to the private sector (e.g., start-ups) to take an innovative approach to solving Government challenges (especially in the area of public service deliveries) • Support POC of digital solutions to help alleviate challenges in the JICA's country priority support areas: (Human Resource Development and Social Development / Human Development / Health Improvement Program) (Economic Growth, Productivity Improvement and Job Creation / Agricultural and Industrial Development) (Sustainable Use of Natural Resources and Environment / Water, Environment and Climate Change) (Peace Building and Governance / Security Improvement) (Disaster Management) (peace building and governance/security improvement) (disaster prevention) • Support joint POC between Japanese companies and local companies (encouraging forming joint initiatives using the technology and knowledge of Japanese companies).
Alignment with Country Assistance Policy for Respective Countries by GoJ / Priority of JICA	• ICT policy support is not within the JICA's country-specific development cooperation priorities. • While ICT policy/strategy is not the area where Country Assistance Policy by GoJ / Priority of JICA in Mozambique, it is one of the components within the research. The proposal is made on the grounds that ICT-related policy/strategy formulation/implementation capacity strengthening among the Government institutions is needed in order to mainstream digital technologies in diverse fields.
Conditions	• Close coordination with World Bank EDGE project is necessary to support both the policy implementation capacity and the innovative problem-solving through utilizing POC methodologies.

Digitalization / Utilized data	As INAGE moves forward with the digitization of Government, it is assumed that a variety of data will be generated. By opening up these data to the private sector, it could offer unique opportunities to stimulate creation of innovative solutions to the Government and other socio-economic challenges in Mozambique.
Proposed methodology of JICA support	• Expert Dispatch (If concentrated sorely on INAGE's capacity development) • Technical Assistance Project (Strengthening INAGE's capacity and supporting activities to generate innovative solutions through POC implementation - coordination with the World Bank's Edge project support Activities)
Term	Expert dispatch: 2 years Technical cooperation projects: 3 years (2023~)
Estimate cost	Expert dispatch: JPY 100,000,000 Technical Assistance Projects: JPY 400,000,000

COVID-19 Post-Pandemic Response

Proposed project name	Electronic integrated disease surveillance system (eIDSR) Project
Aline with SDGs goal and target	SDG 3 "Ensure healthy lives and promote well-being for all at all ages", Target 3.8 Achieving UHC
Expected counterpart or related organizations	Ministry of Health, National Institute of Health
Background of the proposal	• The causes of death are high in the order of HIV, neonatal disorder, and tuberculosis (2019), and the disease burden of infectious diseases is high. In Mozambique, where there are many natural disasters such as floods, it is important to strengthen public health measures in an emergency. • IDSR is implemented in 7-8 provinces and will be rolled out nationwide. Although it is reported as part of DHIS2, weekly and monthly reports at the central level have not been prepared, and information on the outbreak of infectious diseases cannot be quickly grasped and shared. Emergency disease surveillance is not digitized. • World Bank's research report (2021) points out the low level of timeliness (52%) and completeness (92%) of data reporting, unsystematized indicator surveillance and community-based surveillance, lack of cooperation with the laboratory, and lack of guidelines for emergency countermeasure preparation. • WHO IDSR Guidelines (2019) recommends that the use of eIDSR can be expected to improve the speed and completeness of reports, early detection, investigation, and response for outbreaks, error reduction by paper-based management, and promotion of data utilization.
Purpose of the proposed Project	The purpose is to strengthen the eIDSR system by digitizing emergency disease surveillance, restructuring the system including laboratory networking, and strengthening the operational capacity.
Beneficiaries	National Institute of Health, district and provincial health department, health service providers and community members
Related projects	None
Contents of the proposed project	• Study the current status and issues of the existing IDSR system including the operation of the electronic system. • Support restructuring the mechanism, for example, of networking with laboratories and introduction of the electronic system for emergency disease surveillance as necessary • Strengthen the capacity to implement the eIDSR system at each level of district, province, and national level in the selected area to promptly and appropriately grasp the outbreak situation of infectious diseases and respond to it.
Alignment with Country Assistance Policy for Respective Countries by GoJ / Priority of JICA	• The County Assistance Policy for Mozambique states that support for health services is provided as part of the priority area "Human Development". In addition, human resource development including health care will be supported in line with the "Poverty Reduction Action Plan". • Health was mentioned as one of the priority areas of the JICA Mozambique office.
Conditions	• Confirmation of consistency with the MoH policy and the National Institute of

	Health
	• Collaboration and coordination with other development partners
	• Confirmation of ICT infrastructure environment in the target area
	• Confirmation of compliance with data security and personal data protection law
Digitalization / Utilized data	Infectious disease incidence
Proposed methodology of JICA support	• Expert dispatch or technical cooperation project
Term	2024 – 2028
Estimate cost	40-60 MM

Source: JICA Study Team

3.6 South Africa

3.6.3 Priority Issues and Approach for Potential Needs

Based on the analysis of the current situation and potential issues in the previous section, JICA Study Team evaluated the potential support needs for each sector from the viewpoint of consistency with the Country Assistance Policy, activities of other donors, measures taken by the target country, and possibility for effective use of data.

Table 3.6.6   Examination of Priority Issues (South Africa)

Sector	CAP of Japan	Other Doners	Measures Taken	Data Use	Evaluation
Education	Strengthening the human resource base	NA	It's up to each state and varies from state to state.	A	Support needs was not confirmed.
Health	Correction of economic and social disparities	World Bank, WHO	Development of Digital health strategy, Promotion of UHC	A	Support needs for non-infectious diseases and telemedicine.
National ID	NA	NA	Switching to smart card	A	No need for support as they are proceeding on their own.
E-Gov.	NA	NA	Drawing of e-government framework, Slowdown due to the vertical administration structure	A	Examining the possibility of developing support for the water supply schemes.
Social Protection	Correction of economic and social disparities	NA	Operation of a social security and relief benefit system	A	They are proceeding on their own. COVID-19 support needed.
ICT HRD	Support for promoting infrastructure development	NA	Human resource development through government initiatives		Human resource development is necessary to meet priority issues.
ICT Policy	Support for promoting infrastructure development	NA	E-government, Public service digitalization strategy		Support for improved interoperability among departments and provinces.
ICT Infra.	Support for promoting infrastructure development	NA	Affordable broadband by 2030		There is no big issue.

Note: A: High potential, B: Potential, NA: Not applicable
Source: JICA Study Team

After all, JICA Study Team examined the roles that JICA can play, solution approaches, and entry points in the high-priority sectors based on the interim discussion with JICA Africa Department and South Africa Office.

Table 3.6.7   Approaches for Potential Needs (South Africa)

Sector	Roles of ICA	Solution Approaches	Entry Points
ICT administration	Strengthening the capacity of government to achieve interconnected e-government (capacity building, probability of standards and norms, coordination among ministries and provincial governments)	Technical Cooperation on ICT environment development	DPSA
Health	Technical support and human resource development for the universal health care coverage system (e.g., system design for setting insurance premiums and benefits, etc.) Support for the establishment of an NHI infrastructure system linked to the national ID (Department of Home Affairs) for authentication and identification to complement the national health insurance system.	Development from individual sectors Private sector boost	NHI NDoH
Social Protection	Lateral support for the implementation of SOCPEN's next-generation MIS single registr.y Utilization of Japanese companies' technologies.	Possibility of private sector boost	SASSA
Water Supply	Improvement of data collection and data-based management capacity of water supply projects. Revitalization of JICA's cooperative asset, the Infrastructure Branch Training Centre (IBTC), and the IBTC's partnerships with local governments.	Development from individual sectors Private sector boost	DWS Local governments

Source: JICA Study Team

3.6.4 Proposed Roadmap and Support Programs

The table below summarizes the proposed support programs according to COVID-19 crisis response (short-term), COVID-19 post-pandemic response (medium-term), and future investment (long-term), keeping in mind the solution approach to the potential needs in the previous section.

This section explains the outlines of proposed support programs according to three phases. As for the technical and financial cooperation of JICA, detailed programs will be presented in the next section.

Figure 3.6.3   Roadmap od Support Programs (South Africa)
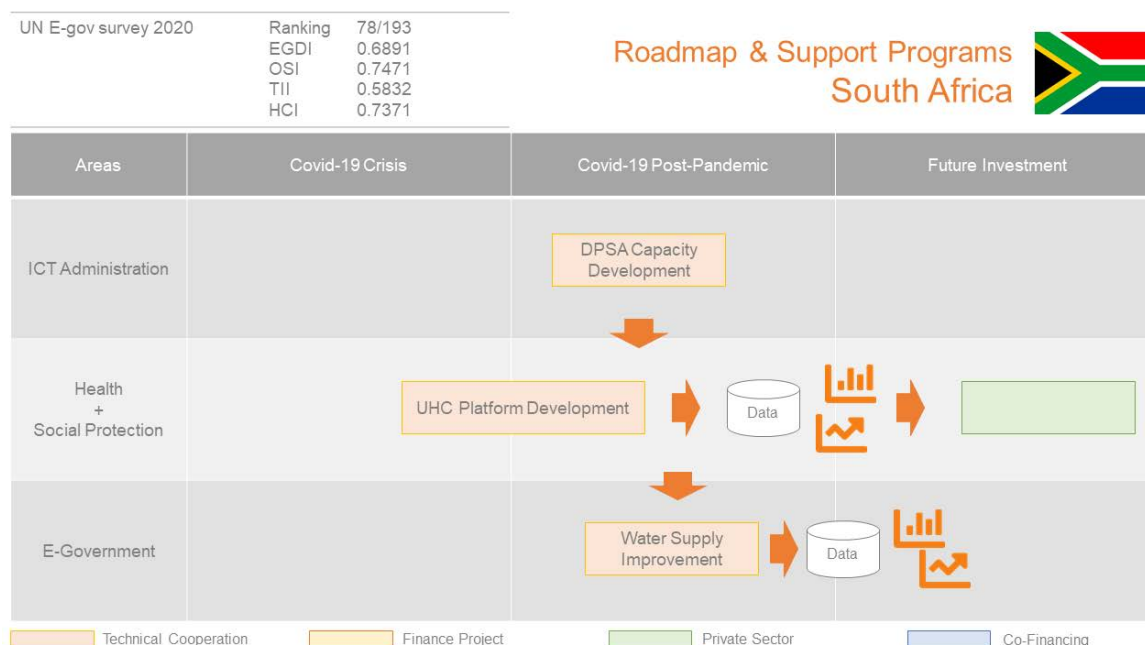
Source: JICA Study Team

Table 3.6.8   Proposed Support Programs (South Africa)

COVID-19 Crisis Response

Sector	Programs	Needs, Effect, Conditions, etc.	Approaches
NA	NA	NA	NA

COVID-19 Post-Pandemic Response

Sector	Programs	Needs, Effect, Conditions, etc.	Approaches
ICT administration	Strengthening for the capacity of DPSA 【Technical Cooperation 50MM】	• DPSA, which implements coordination between CIOC and the ministries, has budgetary and capacity challenges, and coordination among the ministries, central and provincial governments has not been successful, resulting in a duplicative structure where various applications are not interconnected. • By dispatching experts, it is possible to clarify the division of roles between ministries, central and provincial governments, design digitized public services into an integrated design, and eliminate duplication and contradiction of operations and data. • However, while experts can support with coordination, they are not able to give orders to the government, making it difficult for them to succeed unless they are accompanied by leadership and implementation skills	Technical cooperation for ICT environment development

		on the government side.	
Health	Establishment of NHI's ICT infrastructure visual system to achieve UHC【Dispatch of Expert 24MM】【Yen Loan 20 billion yen】	• "The National Digital Health Strategy for South Africa (2019 - 2024)" has been developed as a health plan/digital health strategy and aims to achieve UHC under the slogan "One patient, One record". The strategy aims to accurately capture insurer registrations by linking the National Health Insurance ID with the national ID. • Improve the accuracy and efficiency of insurer registration for UHC by developing an ICT infrastructure system that enables interoperability of national IDs, National Health Insurance IDs, and medical databases; also contribute to improving convenience for the insured. • Need to ensure strong leadership and willingness of the Presidency to foster collaboration with the Ministry of the Interior, which has jurisdiction over national IDs, interoperability of available systems, privacy protection, and other laws.	Technical Cooperation for the health sector Strategic Yen loan Boosting the Private Sector
Water Supply	Improvement of water supply data collection capacity and efficiency of water supply through digital technology	• South Africa's water supply coverage ratio is low at 92% in urban areas and 38% in rural areas; a total of 152 municipalities (Metro: 8, District Municipality/DM: 44, Local Municipality/LM: 226) are responsible for water supply in a total of 278 municipalities (Metropolitan Municipality/Metro: 8, District Municipality/DM: 44, Local Municipality/LM: 226) across the country. ; However, according to a survey conducted by DWS in 2015 to assess the "vulnerability (size, financial strength, and technical capacity)" of all water utilities, 76% of water utilities were rated as vulnerable; Of the 152 water utilities, about 10% have a non-revenue water ratio of less than 20%, which is relatively low, but the rest have a non-revenue water ratio of more than 20%, with 20 utilities in particular having a non-revenue water ratio of more than 60%. ; This vulnerability is the result of a combination of factors, one of which is the fact that the basic information and data on water supply, production, and other aspects of the water supply are not properly collected by each utility, making it impossible to understand the full scope of the water supply. ; Most of the coastal cities, including Cape Town, also have problems with constant water shortages. ; Furthermore, the DWS, which obtains and manages information and data from all water utilities, does not have a platform in place to effectively utilize the collected information and data. • ICT in water supply: Improve the quality of data collected by local governments and the efficiency of water supply and share the data with DWS so that they can understand the situation of water supply in the whole country and formulate an appropriate national water supply plan. For local governments, GIS data of water supply facilities will first be prepared to understand the condition of water supply facilities in the area under their jurisdiction; at that time, pilot	Technical Cooperation of water supply sector

| | | areas will be chosen and data will be managed using smart meters to improve the efficiency of water supply.
• Both the local governments and DWS need to improve their ICT environments; also, local government officials need to improve their IT literacy. | |

Future Investment

Sector	Programs	Needs, Effect, Conditions, etc.	Approaches
NA	NA	NA	NA

Source: JICA Study Team

3.6.5 Details of Proposed Support Programs

COVID-19 Post-Pandemic Response

Proposed project name	Assistance in building NHI's ICT infrastructure system to achieve UHC
Aline with SDGs goal and target	3.8 Achieve universal health coverage, including financial risk protection, access to quality essential health care services and access to safe, effective, quality and affordable essential medicines and vaccines for all.
Expected counterpart or related organizations	Counterpart: NHI, NDoH Relevant institutions: National Department of Home Affairs, Presidency etc. Development partners: WHO, World Bank
Background of the proposal	• The government of South Africa has developed a health plan/digital health strategy, the National Digital Health Strategy for South Africa (2019 - 2024), with the slogan "One patient, One record". One patient, One record" is the slogan of the National Digital Health Strategy for South Africa (2019 - 2024), which aims to achieve UHC in line with global health trends. Particular attention has been paid to the interaction with other key government systems, such as the National Identity (National Department of Home Affairs) for authentication and identification, to complement the National Health Insurance program. • One of the priority areas of support from WHO and the World Bank, the main development partners in the health sector, is the development of a NHI system (digitalization) for UHC. • The NDoH and other ministries are currently working on the design of the system, including setting premiums and benefits, but there is a lack of human resources.
Purpose of the proposal Project	• Linking national IDs with patient IDs will enable citizens to have a single ID for their entire life to track their medical records and prescriptions, reduce duplication of tests, administration, etc., thereby reducing the burden on patients and ultimately contributing to an overall reduction in healthcare costs. • Contributing to the promotion of national identity and the reduction of central and provincial administrative silos through health/medical triggers. • As a capacity builder in the NDoH, contribute to the training of health finance experts, drawing on the knowledge of Japan's universal health coverage, to enhance policy-making capacity.
Beneficiaries	• Citizens (short term) • Government (medium term: reduction of healthcare costs) • Private sector (long term: with medical big data)
Related projects	NA
Contents of the proposed project	The development of an ICT infrastructure system that enables the interoperability of national IDs, National Health Insurance IDs and medical databases, thereby improving the accuracy and efficiency of UHC insurer registration and contributing to greater convenience for insured persons.
Alignment with Country Assistance Policy for Respective Countries by GoJ / Priority of JICA	• The health sector is mentioned as promoting the reduction of economic and social disparities through support for the improvement of health insurance services and community development. • According to JICA South Africa office, health sector is one of priority issues.
Conditions	• Strong leadership and commitment of the President to work with the related ministries and state governments • Lack of government human resources in the public sector (use and appointment of private companies and academia) • Development of personal data law (protection of patient data)
Digitalization / Utilized data	The use of medical big data
Proposed methodology of JICA support	Expert dispatch and private sector support (e.g., Grant aid for projects and management rights)
Term	2 years (Expert dispatch) +α (private sector support)
Estimate cost	24 MM (Expert dispatch) +α (private sector support)

Proposed project name	Water Supply Digitalization Project
Aline with SDGs goal and target	• 6.4 By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity. • 6.B Support and strengthen the participation of local communities in improving water and sanitation management. • 9.B Support domestic technology development, research and innovation in developing countries, including by ensuring a conducive policy environment for, inter alia, industrial diversification and value addition to commodities.
Expected counterpart or related organizations	Targeted Municipalities, WRC, DWS and SALGA
Background of the proposal	As the water supply services in South Africa has been decentralized since the 1990s, the responsibility for the water supply business has been transferred to each local municipality from the Water Board, which is under the umbrella organization of DWS and mainly controls bulk water supply. In this process, sufficient technical support is not provided to local municipalities that lack the ability to operate and implement water supply services. In addition, the technology and knowledge on water supply are not sufficiently inherited to the municipalities. Due to the above situation, many local municipalities are facing a decline in their ability to operate and maintain water services and in the quality of their services, which in turn has led to serious water shortages. Currently, measures are being taken to develop human resources for water supply engineers in the local municipalities through strengthening training centers within the DWS supported by JICA and training programs conducted by private enterprises. However, another major problem is that all data related to water supply such as water distribution amount, water supply amount, and information on existing facilities, etc.) are not accurately recorded, making it difficult to share. Therefore, in some cases, the local municipalities themselves that manage the water supply services cannot grasp the current situation, and it is not possible for them to accurately calculate the non-revenue water rate. In addition, DWS, as the central government, is in a position to obtain information on water supply from local municipalities nationwide and to formulate future plans of water supply projects in the entire country. However, at present, there is no system that connects the local municipalities and DWS, and DWS regularly urges the sending of data by e-mail or telephone. The technical improvement and human resource development of local municipalities are priorities set by the National Development Plan: Vision for 2030 and the National Water Resources Strategy II.
Purpose of the proposed Project	The aim of the proposal project is to improve the quality of data collected by local municipalities and the efficiency of water services by means of ICT in water supply services, and to share this data with the DWS so that the DWS can monitor the status of water services in the country as a whole and formulate appropriate national water supply plans.
Beneficiaries	Water users, Targeted local municipalities, DWS, SALGA
Related projects	• Project for Strengthening the Training Capacity of IBTC on Non-Revenue Water (2017-2021: Completed) • Pilot Feasibility Study on Non-Revenue Water Reduction in City of Ekurhuleni (2018-2020: Completed)
Contents of the related project	Proposed project is divided in the two phases (or two components) as follows, (Phase 1) Digital Transformation of Municipalities

	(Phase 2) Establishment of Database in the DWS
	Regarding the first phase, some target municipalities will be selected, and the contents will vary depending on the situation of each municipality, however as an example, GIS data of water supply facilities will be developed to comprehend and record the condition of water supply facilities in the area under their jurisdiction. In the same time, a pilot area will also be chosen and data will be managed using smart meters. Currently, a project titled "The Smart Water Meter Challenge" to install smart meters in educational institutions is underway in the Western Cape Province and shall be referred. In addition, the automatic water meters will be installed in water treatment plant and distribution plant and SCADA systems will also be introduced to accurately measure the amount of water produced and sent.
	As shown in the attached "South African Water Innovation Prospectus 2017" and "List of the technical innovations in South Africa", a number of universities and private companies are developing products and technologies related to the digitalization of water supply in the country. The choice of which digital technology to adopt depends on the situation and requirements of the target municipalities.
	The target municipalities could not be identified in this Study. However, as mentioned above, the project to install smart meters has begun in the Western Cape Province, and the Cape Town water service authority is actively promoting the use of ICT in its operations. Product and technology development related to ICT in water supply is also being undertaken by the University of Cape Town and private companies based in the city. It would be beneficial to include the Western Cape Province including the City of Cape Town in the scope of the project. Other large cities, such as Tshwane and Johannesburg, are also digitizing their water systems. However, the impact of Digitisation is expected to be greater in rural areas where human resources are scarce, and technology is low. In any case, the target municipalities will be decided in consultation with DWS and SALGA.
	In the second phase, a web-based platform (database) is built inside the DWS, and the data and information collected in the first phase will be managed collectively there. At present, each municipality sends such data and information to DWS by e-mail, and it is processed manually in the DWS. Thus, the data from each municipality will be automatically sent to the DWS and can be managed in the DWS database. Ultimately, the DWS will use this accurate data and information for the development of the future program such as National Water Master Plan.
Alignment with Country Assistance Policy for Respective Countries by GoJ / Priority of JICA	• "Strengthening the human resources base and supporting infrastructure development for accelerating growth" is one of the priority areas (medium-term goals). In particular, in order to accelerate the development of high-quality infrastructure, particularly in the fields of water and other energy, electricity, and transportation, which will lead to sustained economic growth, the policy calls for support for project formation and planning, with a view to implementing projects not only with public funds but also with private capital, including that of Japanese companies. • Although the digitalization of water supply is not a JICA's priority area, the South Africa office gave an instruction to understand and summarize the trends and needs for the digitalization in South Africa as a whole from the WRC and other organizations.
Conditions	As for the second proposal, it is necessary for DWS and local municipalities to cooperate with each other, which originally had a weak relationship. In the related project the "Project for Strengthening the Training Capacity of IBTC on Non-Revenue Water", DWS took charge of human resource development of water supply officers in the targeted municipalities, DWS has thus been able to build good relationships with the local municipalities. In the project, DWS collaborated with SALGA, which

	oversees the local governments, and it is required to establish a similar team structure in the proposed project
Digitalization / Utilized data	As indicated in the "Background of the Proposal", a major problem of water supply in South Africa is that few local authorities have accurate data. By digitizing their operations and strengthening the connections among stakeholders, the data obtained can be used for efficient operations and future policy development.
Proposed methodology of JICA support	Technical Cooperation (The collaboration with the existing project shall be considered)
Term	3 to 4 years
Estimate cost	40 MM

Source: JICA Study Team

3.7   Ghana

3.7.3 Priority Issues and Approach for Potential Needs

Based on the analysis of the current situation and potential issues in the previous section, JICA Study Team evaluated the potential support needs for each sector from the viewpoint of consistency with the Country Assistance Policy, activities of other donors, measures taken by the target country, and possibility for effective use of data.

Table 3.7.4   Examination of Priority Issues (Ghana)

Sector	CAP of Japan	Other Doners	Measures Taken	Data Use	Evaluation
Education	Human resource development	WB	e-Learning Platform (Edmodo)	NA	Consider the possibility of backing up the private sector
Health	Health and medical care	WHO	Improvement of eHealth policy, Electronic medical record, Telemedicine	A	Consider the possibility of backing up the private sector
National ID	NA	NA	Spreading Ghana Card	A	Promotion of utilization in various fields is necessary
E-Gov.	NA	ITU, GIZ, Korea, etc.	Integration of all public services into GhanaGov	A	Community-level digitalization support
Social Protection	NA	WB, EU, UKaid, USAID	Poverty reduction, Employment, Universal health care, School lunches and Education	NA	Lack of support for digitization needs
ICT HRD	Human resource development	NA	Promotion of human resource development such as by AITI-KACE		Development of advanced ICT human resources
ICT Policy	Economic infrastructure	WB	Update of digital strategy (ICT4D)		Request for technical advice on ICT administration
ICT Infra.	Infrastructure development, Economic infrastructure	WB, China	Last-mile connectivity by using GIFEC, Huawei, etc.		Little room for support

Note: A: High potential, B: Potential, NA: Not applicable
Source: JICA Study Team

After all, JICA Study Team examined the roles that JICA can play, solution approaches, and entry points in the high-priority sectors based on the interim discussion with JICA Africa Department and Ghana Office.

Table 3.7.5   Approaches for Potential Needs (Ghana)

| Sector	Roles of ICA	Solution Approaches	Entry Points
ICT Policy	Advice on ICT strategies under revision Identifying issues related to the NITA act and other ICT-related laws, and updating ICT-related laws to meet the current situation Establishment of standards and norms to improve interoperability Coordinating the division of roles among ministries and between central and regional governments	Technical cooperation for improving the ICT	NITA /Ministry of Communication
E-Gov	Support for the promotion of digitalization of community facilities (schools, health facilities, etc.) through the Smart Community Project Support for people to benefit from digitalization, such as improving efficiency of hospital operations and farmers' production and sales through data utilization Support for improving the digital literacy of community ICT center staff	Technical cooperation for improving the ICT (Including PPPs such as the use of Keidanren's co-creation document use cases) Grant aid (Community ICT center) Technical cooperation (ICT training for the center's staff, etc.)	GIFEC NIA Private organization (IMS, etc.) NITA Community ICT center
Health	Support the NHIA, the organization that manages the healthcare insurance system, to improve the efficiency and accuracy of its operations through digitalization in order to achieve UHC Promotion of telemedicine/diagnosis by encouraging Japanese companies to enter the market Support for Japanese companies to develop user-friendly applications using mobile phones in the field of maternal and child health	Start to intervene from each sector Backing up the private sector	NIHA, MoH, and GHS

Source: JICA Study Team

3.7.4 Proposed Roadmap and Support Programs

The table below summarizes the proposed support programs according to COVID-19 crisis response (short-term), COVID-19 post-pandemic response (medium-term), and future investment (long-term), keeping in mind the solution approach to the potential needs in the previous section.

This section explains the outlines of proposed support programs according to three phases. As for the technical and financial cooperation of JICA, detailed programs will be presented in the next section.

Figure 3.7.2   Roadmap od Support Programs (Ghana)
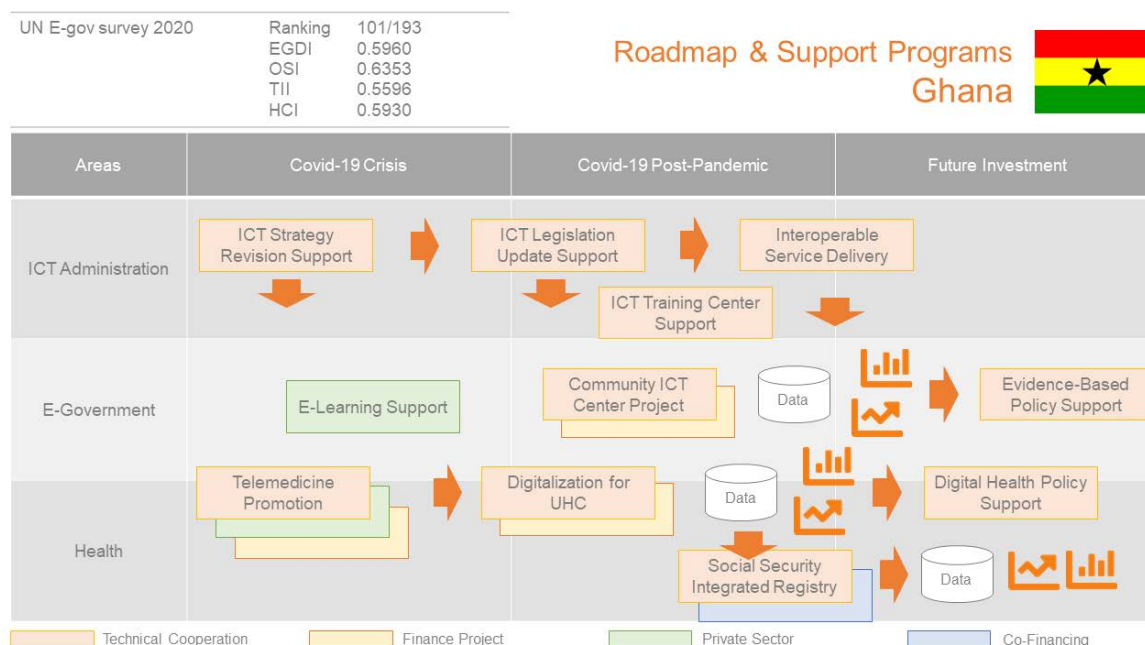
Source: JICA Study Team

Table 3.7.6   Proposed Support Programs (Ghana)

COVID-19 Crisis Response

Sector	Programs	Needs, Effect, Conditions, etc.	Approaches
ICT Administration	Advice on the ICT strategy under revision	• Need advice on whether the ICT strategy updating will solve Ghana's issues or not.	Technical cooperation for improving the ICT environment
Health	Encouraging telemedicine/diagnosis by pushing Japanese companies to enter the market.	• It is one of the top priorities of the digital strategy currently being developed, and the need for it is being fostered in the context of the impact of COVID-19. • To improve the quality and uniformity of medical services by correcting the uneven distribution of physicians among cities, and to improve the ICT literacy of medical professionals in order to utilize and strengthen community health workers (CHWs). • The existence of Japanese companies to be interested, their commitment and the support of the Japanese government, as well as the development of telecommunication infrastructure and legislation for telemedicine and diagnosis in rural areas.	Backing up the private sector

Education	Support of the development of distance learning tools and materials by leveraging the knowledge of Japanese companies	• Under the COVID-19 disaster, there is a growing need for distance education tools and digital learning materials, but few startups have the knowledge and expertise in the education field • Distance education and teaching materials using ICT will be effective in ensuring the quality of education under the COVID-19 disaster. • Since not many households have constant access to the Internet, consideration and countermeasures against the digital divide are necessary.	Backing up the private sector

COVID-19 Post-Pandemic Response

Sector	Programs	Needs, Effect, Conditions, etc.	Approaches
ICT Administration	Development of digital-related training programs for the Civil Servant Training Center (CSTC) and support for capacity building in training management	• In Ghana, the government has been implementing the National Public Sector Reform Strategy 2018-2023 since 2018, in which the government is promoting digitized public sector services and systems. In addition, Ghana.Gov will be launched in 2020 to enable procedures for some public services. On the other hand, the awareness of public servants in general about the digitization of public services is still insufficient and training opportunities are limited. • In order to promote the digitization of public services, it is desirable that civil servants in general, regardless of their affiliation or job title, have basic knowledge of ICT/digital-related issues. • CSTC is a training organization under the Office of the Head of Civil Service that provides various training services to civil servants. • The CSTC still provides training programs related to ICT, such as how to use Microsoft Office products, but all of these programs are aimed at improving technical skills in ICT, and are not relevant to policy and institutional planning for civil servants, such as e-government and promotion of digitalization of public services. • In the past, CSTC has been supported by JICA's technical cooperation project through the Civil Service Training Center Enhancement Project (2011-14).	Technical cooperation for improving the ICT environment
ICT Administration	Identification of issues related to the NITA act and other ICT-related laws, and update of ICT-related laws to meet the current situation	• Need advice on how to amend the NITA act, and want to develop designs, standards and roadmaps to ensure interoperability. • Establishment of standards and norms for interoperability and coordination of roles among ministries and between central government and regions are expected to improve the efficiency of ICT administration.	Technical cooperation for improving the ICT environment
Health	Support of NHIA's digitalization to improve efficiency in order to achieve UHC	• One of the top priorities of the MoH and the GHS is to improve the efficiency and accuracy of the operations of the NHIA, the operational agency of the health insurance system, through digitization in order to achieve UHC. • By aiming to link the Ghana Card, insurance card,	Technical cooperation on health sector Grant aid for projects and management rights

		and patient information, the project will improve the accuracy and efficiency of insurer registration, while contributing to the convenience of the insured. Furthermore, the health sector will be used as a trigger to help increase the number of registrations for the Ghana Card, which has a low penetration rate. • Strong leadership and will of the Office of the President, collaboration with other ministries such as NITA and NIA, interoperability of available systems, and legal framework for privacy protection need to be ensured.	
Social Protection	Strengthening the operation of the integrated Social Security Registry	• Integrated social security systems need to be improved to enhance social security services • Support for the implementation and operation of the World Bank-supported Ghana National Household Registry (GNHR), improved interoperability, and the digitization of cash benefits will improve the accuracy of targeting poor and vulnerable households, reduce administrative and procedural costs, and promote capacity building of government officials. These will ensure equitable social security services for citizens in need. • Leadership and cooperation among local government ministries, local government agency development agencies, and local governments, effectiveness of the World Bank-supported GNHR, effectiveness of new targeting methods and methods for updating household information, and strengthening of personal information protection laws are needed.	Technical cooperation on social protection sector Collaboration with other development partners
E-Gov	Support for expansion of community ICT centers	• Need to support access to digitized public services for people in rural and remote areas • Support digitalization of community hospitals, schools, etc.	Grant aid ICT training for staff in rural and remote areas

Futur Investment

Sector	Programs	Needs, Effect, Conditions, etc.	Approaches
ICT Administration	Support of the implementation of digitalization of interconnected public services	• In accordance with the roadmap discussed in the COVID-19 post-convergence response, various applications between ministries, central government and regions will be interconnected to achieve optimized digitization without duplication or inconsistency. • Government operations are expected to become more efficient. • Strong leadership from the Ghanaian government is required, since the consultant cannot force the regions and ministries to have an interconnected structure.	Technical cooperation for improving the ICT environment
E-Gov	Technical support for data-driven decision making	• Technical support for data-driven policy formulation and decision-making, leveraging accumulated experience in e-government support	Technical cooperation for improving the ICT environment

Health	Technical support for digital health policy	• Technical support for future digital health policy, drawing on accumulated experience such as in technical cooperation	Roll out from individual sectors

Source: JICA Study Team

3.7.5 Details of Proposed Support Programs

COVID-19 Crisis Response

Proposed project name	Supporting the improvement of the quality of diagnosis through telemedicine education by pushing the knowledge of Japanese health care services and the participation of Japanese companies
Aline with SDGs goal and target	3.4 By 2030, reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being.
Expected counterpart or related organizations	GHS, MoH
Background of the proposal	• One of the top priorities of the digital strategy currently being prepared • The need in COVID-19 • Improving health services by reducing the urban maldistribution of doctors • Low ICT literacy of the health workforce
Purpose of the proposal Project	• Knowledge of Japanese health care services and encouragement of Japanese companies to participate (matching) • Improving the quality of health care services for rural health workforce through telemedicine education (including improving ICT literacy) • Development of telecommunications infrastructure
Beneficiaries	Patients and families living in rural areas
Related projects	JICA technical assistance (2017-2022): Project for Strengthening Community-based Health Services focusing on the Life-Course Approach in the Upper West, Upper East, and Northern Regions
Contents of the proposed project	• In order to improve the quality and uniformity of health care services by reducing the urban maldistribution of doctors, D to D through telemedicine education will close the quality gap between doctors between urban and rural areas. For example, an experienced doctor in a city can give advice to a doctor in a rural area on how to diagnose or prescribe a treatment when he or she has a problem in a rural area. • It is envisaged that the guidance of city-based doctors will be carried out remotely by Japanese doctors. This will be a strong demand in the Ghanaian context, but the technology and experience of Japanese doctors will be used for diseases for which diagnostic mechanisms and evidence have been established, for example, screening methods for early detection of breast cancer. At the same time, if the Japanese doctors who are supervising the project are using equipment from Japanese companies for diagnosis and other purposes, it will be introduced to Ghana to explore the possibility of Japanese companies participating in the project.
Alignment with Country Assistance Policy for Respective Countries by GoJ / Priority of JICA	• The health sector is one of the priority areas, and in supporting the Government's efforts for UHC, where all citizens can enjoy good health services, Japan's past experience in cooperation will be utilized to support Ghana's urgent issues of reducing maternal and infant mortality, as well as improving nutrition and lifestyle-related diseases. In addition to the urgent issue of reducing maternal and infant mortality in Ghana, we will also provide support for maintaining the health of newborns, adults, and the elderly by improving nutrition and lifestyle-related diseases. Specifically, it will strengthen health-related awareness-raising activities in rural and regional areas, support capacity building of health workforce, and improve health care services through the dispatch of experts. • According to JICA Ghana office, health sector is one of priority issues.
Conditions	• Identification of diseases (Ghanaian government's request and Japan's strength (matching resources)) • Existence of a Japanese company or health facility to match • Commitment of that company or health facility • Legislation for telemedicine/diagnosis
Digitalization / Utilized data	N/A
Proposed methodology of JICA support	SDGs business (public-private partnerships),
Term	3 years

Estimate cost	36 MM (Technical assistance)

COVID-19 Post-Pandemic Response

Proposed project name	Project to strengthen the functioning of the Civil Service Training Centre for the Digitalization of Public Services
Aline with SDGs goal and target	16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels 16.6 Develop effective, accountable and transparent institutions at all levels
Expected counterpart or related organizations	Implementation Agency: Civil Service Training Centre (CSTC) Related Agency: Office of the Head of Civil Service (OHCS) National Information Technology Agency (NITA)
Background of the proposal	• The government Ghana has been implementing the "National Public Sector Reform Strategy 2018-2023" since 2018, which promotes the digitalization of public sector services and systems. Ghana.Gov launched in 2020 and some public services can be done online. • In order to further promote the digitalization of public services, it is necessary for all public servants to acquire a general knowledge of the digitalization of public services. It is also necessary to understand the status of digitalization of public services promoted by the government, such as Ghana.gov, and to acquire the attitude to consider the digitalization of public services provided by each government agency autonomously. • Currently, the ICT training provided by the CSTC only focuses on technical aspects such as how to use Microsoft Office products such as Word and does not explore the policy and institutional aspects necessary for civil servants to promote e-Government and the digitalization of public services.
Purpose of the proposed Project	• To equip civil servants with knowledge and skills related to e-Government and the digitalization of public services, and to improve their ability to formulate policies related to the digitalization of public services. • To improve the training capacity of the CSTC, so that systematic and quality training programmes are provided to civil servants in an efficient and continuous manner.
Beneficiaries	• CSTC (short term: development of new training programmes and training of trainers on the digitalization of public services) • Civil servants attending CSTC training (medium term: acquire the necessary knowledge on the digitalization of public services) • Citizens (long term: expansion the digitalization of public services)
Related projects	• JICA' Technical Assistance Project "Capacity Development of Government Administration" (2007-10) • JICA' Technical Assistance Project "Project for Institutional Capacity Development of the Civil Service Training Centre" (2011-14) • JICA's advisor to CSTC for "Capacity Development of the Civil Service Training" (2016-17) • JICA's advisor to CSTC for "Strengthening the Administrative Human Resource Base" (planned to be dispatched in 2021)
Contents of the proposed project	• Development of training curricula and materials for the digitalization of public services • Capacity development of the trainers of CSTC • Introduction of a Leering Management System (LMS) for efficient training management • Introduction of E-learning system
Alignment with Country Assistance Policy for	• GoJ's Country Assistance Policy for Ghana states that the basic policy for the cooperation for Ghana is to "promote sustainable and stable economic growth" and

Respective Countries by GoJ / Priority of JICA	mentions "strengthening the human resource base of the civil service" and "initiatives for human resource development" as part of this basic policy. In addition to supporting the improvement of the quality of science and mathematics education, the Country Assistance Policy also states that "in order to develop human resources who will be responsible for improving administrative and fiscal management in the context of decentralization, GoJ's cooperation will focus on strengthening the basic skills of civil servants by enhancing the functions and quality of civil servant training centres, strengthening the administrative capacity of local governments, which are expected to be a responsible body of decentralization, and strengthening fiscal management capacity to establish fiscal discipline. • JICA's Development Cooperation Plan for Ghana states that it will "focus on strengthening the function and quality of civil service training centres with a view to strengthening the basic capacity of civil servants to develop human resources for governance and decentralization, and to providing efficient support to enable the development of a large number of human resources in a short period of time". The proposed project is consistent with the Development Cooperation Policy and Development Cooperation Plan for Ghana, as the capacity building of public servants is essential to promote the digitalization of public services.
Conditions	• The main objective of the proposed support is to design and implement training courses provided by the CSTC to enable civil servants to acquire knowledge and skills related to e-Government and the digitalization of public services, and to improve their capacity to formulate policies related to the digitalization of public services. Though strengthening the capacity of the CSTC through the design and implementation of the introduction of a Learning Management System (LMS) and an E-learning system will be an adjunct to this, it will require demarcation with JICA's advisor who is dispatched separately.
Digitalization / Utilized data	NA
Proposed methodology of JICA support	Technical Assistance Project
Term	5 years
Estimate cost	60 MM

Proposed project name	Digitalization support at NHIA to achieve UHC
Aline with SDGs goal and target	3.8 Achieve universal health coverage, including financial risk protection, access to quality essential health care services and access to safe, effective, quality and affordable essential medicines and vaccines for all.
Expected counterpart or related organizations	NHIA, GHS, MoH
Background of the proposal	• Top priority in the MoH and GHS • To achieve this, the operational organization, NHIA, needs to digitize its operations to improve efficiency and accuracy. • Linking the Ghana Card to insurance cards and patient information is a challenge; Ghana Card penetration is low.
Purpose of the proposal Project	• The Ghana Card will allow for the sharing of data with other ministries and agencies, for example, the sharing of personal income information, which will enable the setting of premiums on a pro-rata basis, ensuring equity and increasing the financial resources of the NHIA. • By linking the Ghana Card with insurance cards and patient information, citizens will be able to access their medical history and prescriptions with a single ID for life, which will reduce the burden on patients by reducing duplication of tests and administration, and ultimately contribute to reducing overall healthcare costs.
Beneficiaries	National People
Related projects	NA
Contents of the proposed	• Establishment of an infrastructure system that links the systems developed

project	separately by NHIA.
	• By linking the Ghana Card, insurance card, and patient information, we aim to improve the accuracy and efficiency of the insurer registration process, while also contributing to the convenience of the insured. At the same time, the project will develop an infrastructure system for the NHIA, which will enable the NHIA to link the Ghana Card with personal income information held by other ministries and agencies to set premiums on a pro-rata basis.
	• In addition, the project will contribute to increasing the number of enrollments of the Ghana Card, which has a low penetration rate, triggered by the health sector.
Alignment with Country Assistance Policy for Respective Countries by GoJ / Priority of JICA	• The health sector is one of the priority areas, and in supporting the Government's efforts for UHC, where all citizens can enjoy good health services, Japan's past experience in cooperation will be utilized to support Ghana's urgent issues of reducing maternal and infant mortality, as well as improving nutrition and lifestyle-related diseases. In addition to the urgent issue of reducing maternal and infant mortality in Ghana, we will also provide support for maintaining the health of newborns, adults, and the elderly by improving nutrition and lifestyle-related diseases. Specifically, it will strengthen health-related awareness-raising activities in rural and regional areas, support capacity building of health workforce, and improve health care services through the dispatch of experts.
	• According to JICA Ghana office, health sector is one of priority issues.
Conditions	• Strong leadership by the President.
	• Cooperation with other ministries such as NITA and NIA
Digitalization / Utilized data	NA
Proposed methodology of JICA support	Technical assistance, Grant aid for projects and management rights
Term	3 years
Estimate cost	36 MM (Technical assistance)

Proposed project name	ICT law and strategy enhancement support
Aline with SDGs goal and target	16.7 Ensure responsive, inclusive, participatory and representative decision-making at all levels
Expected counterpart or related organizations	Ministry of Communications and Digitalisation, NITA
Background of the proposal	Ghana's ICT-related laws need to be updated in terms of content. For example, in the NITA Act enacted in 2008, NITA is supposed to be mainly responsible for infrastructure development. However, it is also necessary to develop applications, etc., and it is necessary to expand the scope of NITA's jurisdiction, respond to standardization, etc., and ensure interoperability for communication between applications. It is also necessary to specify whether to cooperate with the private sector. The field of ICT is changing rapidly, and the legal framework needs to be adapted to it. In terms of strategy, although revisions are underway, it is necessary to verify whether the content is consistent with the national direction.
Purpose of the proposed project	ICT-related laws will be updated to reflect the changing needs in Ghana, and strategies for implementing digitization will be completed.
Beneficiaries	Government of Ghana, private sector, general citizens
Related projects	e-Transfrom Ghana Project
Contents of the proposed project	An experts will be dispatched to review ICT-related laws, identify issues, and update problem areas. She or he will comment on the strategy being prepared by the Government of Ghana with the support of the World Bank.
Alignment with Country Assistance Policy for Respective Countries by GoJ / Priority of JICA	• This is not mentioned in the Country Assistance Policy .
	• Although this is not a priority area in JICA, this is proposed on the grounds that this can serve as a basis for promoting digitalization in the priority sectors in the future by utilizing the results of this study.
Conditions	Appointments could not be made with the Ministry of Communications and Digitalisation, so the willingness to receive assistance from the government should be

	confirmed before the project is started.
Digitalization / Utilized data	NA
Proposed methodology of JICA support	Long-term expert assignment
Term	2 years
Estimate cost	24 MM

Proposed project name	County level Electronic Health Record project
Aline with SDGs goal and target	SDG Goal 1 "End poverty in all its forms everywhere", Target 1.3 Implement nationally appropriate social protection systems and measures for all, including floors, and by 2030 achieve substantial coverage of the poor and the vulnerable, Target 1.2 By 2030, reduce at least by half the proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions.
Expected counterpart or related organizations	Expected counterpart: Ministry of Gender, Children and Social Protection in charge of Ghana National Household Registry (GNHR) Related organizations Ministry of Local Government, Decentralization and Rural Development (MLGDRD) Ministry of Education, National Health Insurance Authority (NHIA) Metropolitan, Municipal and District Assemblies (MMDAs)
Background of the proposal	In Ghana, the Ghana National Social Protection Policy was announced in 2015 to promote the construction of the Ghana National Household Registry, especially to identify the beneficiaries of social welfare programs. So far, the integration of related information between Livelihood Employment Against Poverty (LEAP) and Labor Intensive Public Works (LIPW) is underway. In 2021, the Resettlement Policy Framework (RPF) was formulated, and a system for enhancing social protection programs and for promoting digitalization has been established. Based on the Ghana National Household Registry (GNHR), full-scale operation of the Single Window Citizen Engagement Service (SWCES) has been promoted.
Purpose of the proposed Project	Support the Ghana National Household Registry for social protection program, which is promoted by the Government of Ghana and the construction of improvement and implementation of effective and efficient social protection programs. Support the central ministries and agencies to design a system for the full-scale start of the Single Window Citizen Engagement Service (SWCES). Promote the digitization of implementation departments (infrastructure, equipment, systems) at the local field level where social protection programs are provided. Provide technical support for capacity development accompanying digitalization.
Beneficiaries	All citizens receiving social protection program (as super goal) Public officers in charge of social protection program (Ministry of Gender, Children and Social Protection and Local government)
Related projects	WB, Ghana Productive Safety Net Project (GPSNP-2) (2021-2024)
Contents of the proposed project	• Support scale up through coordination with the WB. (Exploring the possibility of a cooperative system such as dividing the support target of taking charge of technical support.) • Support and enlightenment for system introduction, digitization of implementation departments (infrastructure, equipment and systems), and promote human resource development for implementation and management of new system at the local government and field level where social protection program is implemented, • Construction of a system for providing cash transfer and collecting insurance premiums through mobile phones in partnership with a private mobile phone company and financial institution.
Alignment with Country	There is no direct description of social protection in the County Assistant Policy.

Assistance Policy for Respective Countries by GoJ / Priority of JICA	However, health is priority areas, and strengthening the UHC promotion program is implementing. This project will contribute to strengthening the social security system including health in the future. Health was mentioned as one of the priority areas of the JICA Ghana office.
Conditions	• Confirmation of operation capacity of Ministry of Gender, Children and Social Protection and related local government offices • Confirmation of basic infrastructure in rural areas
Digitalization / Utilized data	• Ghana National Household Registry (GNHR) (Personal information of beneficiaries of the government's social protection program such as personal name, date of birth, address, family structure, income, financial institution / mobile payment agency information, etc.), and Household information • Single Window Citizen Engagement Service (SWCES) (all citizens' personal information)
Proposed methodology of JICA support	• Technical cooperation project (Advisor dispatch and technical cooperation project) and/with grant project (equipment provision to local government agencies)
Term	3 to 5 years
Estimate cost	NA

Proposed project name	Support for expansion of community ICT centers
Aline with SDGs goal and target	SDG 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation Target9.1: Develop quality, reliable, sustainable and resilient infrastructure, including regional and transborder infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all.
Expected counterpart or related organizations	Ghana Investment Fund for Electronic Communications (GIFEC)
Background of the proposal	• Under the Rural Telephony project, the government is working with the private sector (Huawei, etc.) to develop telecommunication infrastructure in rural areas, so providing support in that area is not included. • GIFEC's Smart community project is promoting the digitization of community hospitals, schools, agriculture and other areas, and GIFEC requested cooperation from the Japanese government and companies in this area. • Every year, GIFEC creates a database of all areas without internet access and develops infrastructure in areas where there are no plans for infrastructure development by mobile network operators. • There are plans to use 241 Community ICT Centers in rural areas as an ID registration center which is implemented by the National Identification Authority (NIA) in collaboration with a private agency (IMS). There is a need for support for the facilities.
Purpose of the proposed Project	• To help people enjoy the benefits of digitalization and to bridge the digital divide. • By digitalizing data, we support the digitization of community resources where people can benefit from digitization, such as improving the efficiency of hospital operations and improving production and sales for farmers.
Beneficiaries	• People in rural and remote areas • Civil servants in remote rural areas (training people to teach how to use digitalized public services)
Related projects	The following projects by GIFEC. Rural Telephony Project Smart Community Project Digital Transformation Centres (DTC) Project (ITU, NORAD, CISCO)
Contents of the proposed project	• Utilization of Keidanren Use Case F1-1 "Data Driven Solution for Social Changes in Developing Countries: Solving social problems in developing countries and improving people's lives through the use of big data and collaboration with startup companies". The project will introduce technologies that can be used on a community basis in the areas of "digitization of public infrastructure such as public

	safety, transportation, medical care, health, education, sanitation, geography, etc. and improvement of yield and logistics through digitization of the agricultural sector and the mobility sector. • Support ICT center staff in improving their digital literacy.
Alignment with Country Assistance Policy for Respective Countries by GoJ / Priority of JICA	By making public servants in remote rural areas capable of instructing others on how to use digitalized public services, the project can contribute to "strengthening the administrative capacity of local governments" which is included in "human resource development," one of the priority areas in the Country Assistance Policy for Ghana, and "strengthening the administrative and financial management capacity," one of JICA's priority areas.
Conditions	Project should be implemented in close collaboration with the above mentioned GIFEC's related projects.
Digitalization / Utilized data	Data-driven policy formulation and decision-making.
Proposed methodology of JICA support	Technical cooperation for ICT environment development Grant ICT training for staff in rural and remote areas
Term	36 MM
Estimate cost	NA

Source: JICA Study Team

3.8   Nigeria

3.8.3 Priority Issues and Approach for Potential Needs

Based on the analysis of the current situation and potential issues in the previous section, JICA Study Team evaluated the potential support needs for each sector from the viewpoint of consistency with the Country Assistance Policy, activities of other donors, measures taken by the target country, and possibility for effective use of data.

Table 3.8.4   Examination of Priority Issues (Nigeria)

Sector	CAP of Japan	Other Doners	Measures Taken	Data Use	Evaluation
Education	Reconstruction assistance in the North (East) Region, peace and stability	WB, UNICEF, etc.	ICT Education	A	Facilities and equipment take priority over ICT in the Northeast region
Health	Inclusive and robust health and medical systems	WHO, UNICEF, USAID, GIZ, etc.	Promotion of UHC	A	Priority sector in the Country Assistance Policy
National ID	Reconstruction assistance in the North (East) Region, peace and stability	WB	NIMC is carrying out a project to digitalize national ID.	NA	Proposing indirect support for the WB national ID project
E-Gov.	A foundation for economic growth	WB, Korea	E-government project is in progress.	A	Proposing indirect support for the WB national ID project
Social Protection	Reconstruction assistance in the North (East) Region, peace and stability	WB, UNICEF	NRS: Benefit NHIS: Universal Health Insurance , etc.	A	Proposing indirect support for the WB national ID project
ICT HRD	A foundation for economic growth	Korea	Trainings are provided to the staff of three levels (federal, states and provinces) of the government officials		HRD with consideration for matching with employment
ICT Policy	A foundation for economic growth	NA	Federal ministry: ICT Policy Agencies under the ministry: Execution of the strategy		Necessary to strengthen cooperation between federal, state, and provincial governments
ICT Infra.	A foundation for economic growth	WB, China	China-funded fiber network in major cities		Little room for intervention

Note: A: High potential, B: Potential, NA: Not applicable
Source: JICA Study Team

After all, JICA Study Team examined the roles that JICA can play, solution approaches, and entry points in the high-priority sectors based on the interim discussion with JICA Africa Department and Nigeria Office.

Table 3.8.5   Approaches for Potential Needs (Nigeria)

| Sector	Roles of ICA	Solution Approaches	Entry Points
ICT Public Administration	• Fostering ICT human resources to contribute to the digitization of e-government and public services	• Technical cooperation for improving the ICT environment	• Administrative Staff College of Nigeria (ASCON)
E-Gov.	• Support for FIRS's the tax collection and payment system for FIRS(TAX Pro Max)	• Financial support • Technical cooperation for improving the ICT environment	• Federal Income Tax Service (FIRS)
Health	• Contributing to the achievement of UHC by supporting startups through the ongoing Ninja Cup and other events in Nigeria and other countries	• Backing up the private sector	• Ministry of Health

Source: JICA Study Team

3.8.4 Proposed Roadmap and Support Programs

The table below summarizes the proposed support programs according to COVID-19 crisis response (short-term), COVID-19 post-pandemic response (medium-term), and future investment (long-term), keeping in mind the solution approach to the potential needs in the previous section.

This section explains the outlines of proposed support programs according to three phases. As for the technical and financial cooperation of JICA, detailed programs will be presented in the next section.

Figure 3.8.3   Roadmap od Support Programs (Nigeria)
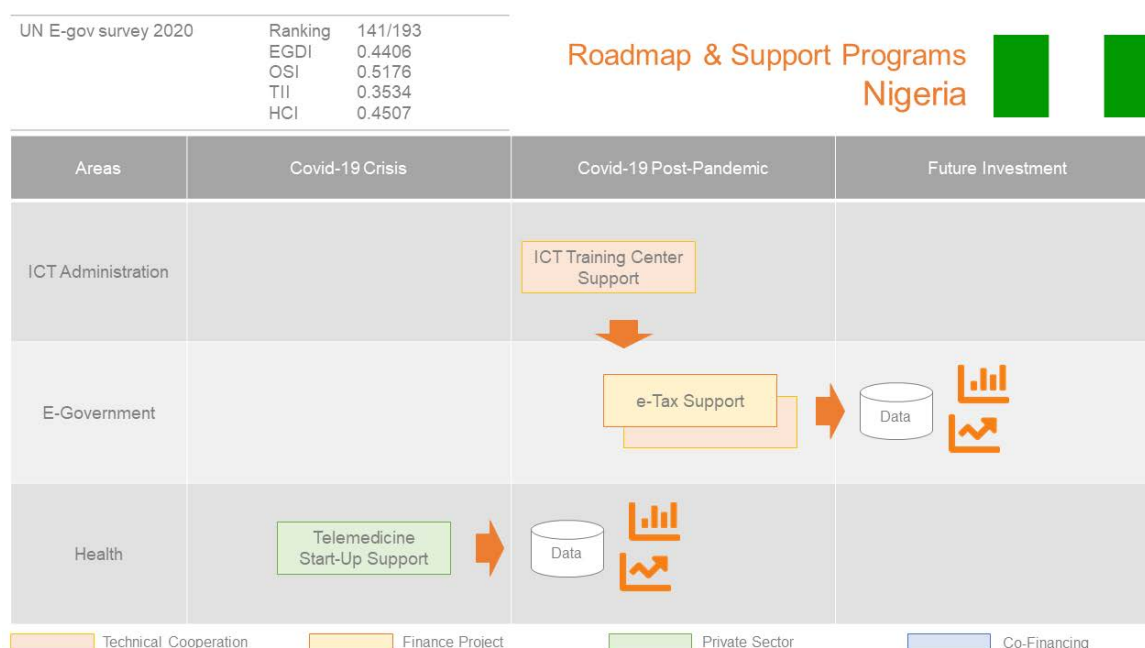
Source: JICA Study Team

Table 3.8.6   Proposed Support Programs (Nigeria)

COVID-19 Crisis Response

Sector	Programs	Needs, Effect, Conditions, etc.	Approaches
Health	Support for the development of telemedicine systems using start-up companies	• The possibility of contributing to the improvement of medical services (building a medical system that patients can receive when they need it) to achieve the UHC of the digital strategy; the fact that the Ninja Cup hosted by JICA has many applications in the health sector and is a place where many start-up companies exist; the fostering of the need for COVID-19; and the improvement of medical services by correcting the uneven distribution of doctors in cities. • Backing up the services of Japanese companies (matching Japanese companies with start-ups in the Ninja cup); technical cooperation with the Ministry of Health in policy and strategy development, guideline creation, etc., and human resource development; development of telecommunications infrastructure. • Government commitment, skills and motivation of healthcare professionals; improving interoperability; matching with and commitment to Japanese companies; compliance with personal data protection	Backing up the private sector

		laws.	

COVID-19 Post-Pandemic Response

Sector	Programs	Needs, Effect, Conditions, etc.	Approaches
ICT Public Administration (ICT HRD)	Support for the development of civil servants who will contribute to the promotion of e-government	• In order to promote the digitization of public services from a medium- to long-term perspective, it is necessary for civil servants to acquire basic ICT skills; basic technical skills such as email and Word/Excel usage are necessary, but it is also necessary to train public servants who can properly understand the direction of e-government being promoted by the Nigerian government and develop policies and systems that promote the digitization of public services. • The proposed program will support the formulation of human resource development and training plans for civil servants to the realize e-government, and the development of training curricula and materials, training of trainers, and introduction of learning support systems and e-learning systems. In this way, civil servants who are capable of planning and designing policies and systems using ICT will be fostered; this will lead to the progress of digitization of public services.	Technical cooperation for improving the ICT environment
E-Gov.	FIRS Electronic Document Management System	• While the tax management system has created a system for online registration and payment of taxes, the Self Service Desk at each state branch office assists users who are unable to do so online. • Support the dissemination of the government revenue information system in rural areas to expand the tax base, increase revenue, and contribute to inclusive economic and social development and social stability; Utilize JICA's cooperative assets in the field of taxation (technical cooperation, training, etc.) • The Federal Tax Administration issues Tax IDs to corporations and individuals for tax collection; the National ID project aims to issue IDs to all citizens, but individuals who pay VAT are expected to obtain Tax IDs to receive refunds, and linkage with the National ID is under consideration; the project's progress will be noted.	Financial support Technical cooperation for improving the ICT environment

Future Investment

Sector	Programs	Needs, Effect, Conditions, etc.	Approaches
NA	NA	NA	NA

Source: JICA Study Team

3.8.5 Details of Proposed Support Programs

COVID-19 Crisis Response

Proposed project name	Assist for the development of a telemedicine system collaboration with start-ups
Aline with SDGs goal and target	3.4 By 2030, reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being.
Expected counterpart or related organizations	Federal Ministry of Health
Background of the proposal	• The possibility of contributing to the improvement of health care services (building a health system that patients can access when they need it) in order to achieve UHC alien with the digital strategy • The Ninjya Cup organized by JICA has attracted a lot of applications from the health sector and there are a lot of start-ups. • The need for COVID-19 • Improvement of health care services by correcting the urban maldistribution of doctors
Purpose of the proposal Project	• Boosting the services of Japanese companies (matching start-ups with Japanese companies in the Ninja cup) • Technical assistance to the Federal Ministry of Health in policy and strategy development, guideline development and human resource development • Development of telecommunications infrastructure
Beneficiaries	Patients and families with telemedical/diagnosable conditions
Related projects	Ninjya cup
Contents of the proposed project	Encouraging Japanese companies to offer their services (matching start-ups with Japanese companies in the Ninja cup) and providing technical assistance to the Federal Ministry of Health in policy and strategy development, guideline development and human resource development.
Alignment with Country Assistance Policy for Respective Countries by GoJ / Priority of JICA	In the health sector, it mentions that the Government of Japan (GoJ) will support the strengthening of community health services, the achievement of UHC, the improvement of nutrition, and the strengthening of infectious disease response capacity including through the strengthening of laboratories and disease prevention centers.
Conditions	• Government commitment, skills and motivation of healthcare professionals • Interoperability • Matching and commitment from Japanese companies • Compliance with personal data protection laws
Digitalization / Utilized data	NA
Proposed methodology of JICA support	Technical assistance + SDGs business (public-private partnerships)
Term	3 years (Technical assistance) + One year (SDGs business (public-private partnerships))
Estimate cost	36 MM (Technical assistance) + JPY 30,000,000 (SDGs business (public-private partnerships))

COVID-19 Post-Pandemic Response

Proposed project name	Project for the capacity development of civil servants to for the promotion e-government
Aline with SDGs goal and target	16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels 16.6 Develop effective, accountable and transparent institutions at all levels
Expected counterpart or related organizations	Implementation Agency: Administrative Staff College of Nigeria (ASCON) Related Agency: Office of the Head of the Civil Service of the Federation (OHCSF)
Background of the proposal	• The Nigerian government has developed the "Nigeria E-Government Master Plan" to promote e-government. The plan mentions the need for ICT capacity building and training for public sector employees. • In order to further promote the digitalization of public services, it is necessary for all public sector employees, including local government employees, to acquire general knowledge of the digitalization of public services, to understand the context in which the government is promoting the digitalization of public services, and to be able to autonomously manage the digitalization of public services provided by their respective government agencies. • The e-Government Training Centre (e-GTC) at the Public Service Institute of Nigeria (PSIN), supported by KOICA, has been established to provide training programmes on e-government to civil servants. Though e-GTC provides training programmes on e-government to civil servants, but it would be difficult for the e-GTC alone to cover training for all public service personnel involved in e-government including local government officials. • ASCON, which provides training to civil servants alongside PSIN, has been providing training programs for all three tiers of government - federal, state and local government. However, ICT related training is more technical in nature and does not explore the policy and institutional aspects needed by civil servants, such as e-Government and digitalization of public services.
Purpose of the proposed Project	• To develop civil servants capable of formulating and designing ICT-based policies and systems by providing ASCON with support for the formulation of human resource development and training plans for civil servants that contribute to the realization of e-government, support for the development of training curricula and training materials, training of trainers (ToT), and support for the introduction of learning management systems (LMS) and e-learning systems. It is expected that this accelerate the digitalization of public services.
Beneficiaries	• Short-term: ASCON (support for development of training curricula and materials, training of trainers (ToT), introduction of learning management systems (LMS) and e-learning systems) • Medium-term: Public servants in general (ICT capacity building) • Long-term: General public (promotion of digitalization of public services)
Related projects	• JICA's thematic training in Japan "Capacity Building for ICT Project Planning (ex. e-government, e-education, e-health, e-agriculture, etc.)"
Contents of the proposed project	• Formulation (revision) of human resources development and training plans for civil servants • Development of training curriculum and materials in accordance with the above • Providing ToT to ASCON trainers in relation to the above • Introduction of a Learning Management System (LMS) for efficient training management • Introduction of an E-learning system to enable remote training
Alignment with Country Assistance Policy for Respective Countries by GoJ / Priority of JICA	• GoJ's Country Assistance Policy and Development Cooperation Plan for Nigeria does not mention the cooperation in the digital sector and human resource development of civil servants. • On the other hand, Country Assistance Policy states that "promote high quality

	and inclusive economic and social development and social stabilization" as the basic policy (major goal) of Japan's ODA for Nigeria. In order to achieve this, it is obvious that it is essential to strengthen the capacity of civil servants, who are responsible for public services. • ASCON expressed strong expectations for GoJ's cooperation to support for the realization "Nigeria E-Government Master Plan" through their capacity building activities for civil servant.
Conditions	Since KOICA is supporting e-GTC located at PSIN, close coordination and collaboration with KOICA is required.
Digitalization / Utilized data	NA
Proposed methodology of JICA support	Technical Assistance Project / Dispatch of an Expert
Term	24 MM
Estimate cost	300 million yen

Proposed project name	Electronic document and record management system support for the Federal Inland Revenue Service
Aline with SDGs goal and target	Goal 17: Strengthen the means of implementation and revitalize the global partnership for sustainable development. Target: 17.1: Strengthen domestic resource mobilization, including through international support to developing countries, to improve domestic capacity for tax and other revenue collection
Expected counterpart or related organizations	Federal Inland Revenue Service (FIRS) Headquarters and branch offices National Information Technology Development Agency (NITDA)
Background of the proposal	• While an automated tax payment management system was created which enables taxpayers to register and pay taxes online, not all taxpayers can register and pay taxes online from their homes or offices. • FIRS set up Self Service Desks in 5 to 12 branch offices in each province to help people and businesses register and pay taxes online, and requested the Study Team to support the activities. • One of the public services that NITDA wants to digitize is the Government Revenue Digital System. • The possibility of utilizing JICA's "Tax Administration Support" program.
Purpose of the proposed Project	To support the roll out of the government revenue digitalization system promoted by the Nigerian government in rural areas, thereby expanding the tax base, leading to increased revenue and contributing to inclusive economic and social development and social stability.
Beneficiaries	Federal Tax Administration Officials Taxpayers
Related projects	• Participation of senior officials of national tax authorities in JICA subject-specific training course "International Tax Administration (Advanced)" (2018) • Implementation of "Risk Management" Course for Nigerian Customs Officers by Customs Training Institute (2019) • JICA has dispatched experts to more than 10 countries to assist in (1) the transition from a levy taxation system to a declaration taxation system and the establishment of a tax payment system (development of an environment for proper declaration and payment of taxes, tax audits, and taxpayer management); (2) responses to the inflow of foreign capital (international taxation, taxation of large taxpayers, etc.); and (3) responses to the sophistication of economic activities and the rise in income (e-commerce, taxation of small businesses, etc). The use of digital technology is also attracting attention as a means of effective and efficient cooperation.
Contents of the proposed project	• Strengthen the federal tax management system Tax Pro Max and support the digitization of paper documents within FIRS for data collection (currently no donors are helping to strengthen Tax Pro Max).

	• Provision of equipment for Self Service Desk in each state branch of the FIRS and human resource development (registration of people and businesses and tax payment support) • FIRS deals with corporate income tax (limited liability companies. Public limited companies) and value added tax.
Alignment with Country Assistance Policy for Respective Countries by GoJ / Priority of JICA	Priority areas of Country Assistance Policy of the Government of Japan for Nigeria: Building a foundation for high-quality economic growth. To support: improvement of core infrastructure (especially in the power sector) for the foundation of economic activities; improvement of urban infrastructure (especially transportation, urban water supply and sanitation) as the base of economic activity; and diversification of the economy and promotion of industrial development (particularly agriculture, fisheries and food industry, and private sector).
Alignment with Country Assistance Policy for Respective Countries by GoJ / Priority of JICA	This cooperation aligns with one of the priority areas of the Country Assistance Policy of Japan, which is "building the foundation of infrastructure for high quality economic growth (development of basic and urban infrastructure, economic diversification and industrial development)".
Conditions	FIRS assigns a Tax Identification Number (TIN), a unique ID number, to corporations and individuals to collect taxes. While the World Bank's Digital National ID project aims to issue IDs to 66 million Nigerians, individuals who pay VAT are expected to obtain a Tax Identification Number and receive a VAT refund. Integration of TIN with the World Bank's national ID will also be taken into consideration.
Digitalization / Utilized data	With TAX PRO MAX, tax revenue increased by about 25% from NGN 526billion to NGN 650 billion in one year from June 2020 to June 2021. The support will contribute to further increase in revenue.
Proposed methodology of JICA support	Technical cooperation For IT projects such as system construction, integration, and maintenance for the tax bureaus' branch offices, it is worth considering about the possibility of using the "Grant Aid for Business and Operation Rights" scheme by Japanese companies that can provide continuous maintenance services.
Term	3 years
Estimate cost	NA

Source: JICA Study Team

3.9 Angola

3.9.3 Priority Issues and Approach for Potential Needs

Based on the analysis of the current situation and potential issues in the previous section, JICA Study Team evaluated the potential support needs for each sector from the viewpoint of consistency with the Country Assistance Policy, activities of other donors, measures taken by the target country, and possibility for effective use of data.

Table 3.9.6   Examination of Priority Issues (Angola)

Sector	CAP of Japan	Other Doners	Measures Taken	Data Use	Evaluation
Education	Diversified human resource development	World Bank, UNICEF etc	Offline tablets, school management	A	Still offline stage of ICT use
Health	Support for human safety	WHO, USAID, GF, UNICEF	Health strategy2025, health not-updated information strategy	A	Support needs are high
National ID	Efficiency of administration services	UNICEF (CRVS)	Ministry of Justice and Human Rights in charge of ID	A	Needs for expansion by e-government promotion
E-Gov.	Efficiency of administration services	World Bank, AfDB	portals for agriculture and fisheries, health, education, etc	A	Possibility for specific priority areas
Social Protection	Support for human safety	World Bank, EU, UNICEF	Building SIGAS and expanding nationwide	A	Support needs are high, but it is premature
ICT HRD	Diversified human resource development	China	Huawei supporting technical teaching center		Little room for intervention
ICT Policy	Economic development of industrial diversification	China	Legal and regulatory development, technological innovation		Little room for intervention
ICT Infra.	Economic development of industrial diversification	China, Finland,	Fiber networks in 8 cities, undeveloped inland areas		Considering introduction of high-altitude drones

Note: A: High potential, B: Potential, NA: Not applicable
Source: JICA Study Team

After all, JICA Study Team examined the roles that JICA can play, solution approaches, and entry points in the high-priority sectors based on the interim discussion with JICA Africa Department and Angola Office.

Table 3.9.7   Approaches for Potential Needs (Angola)

| Sector	Roles of ICA	Solution Approaches	Entry Points
Health	• Support for digitization in the health field by utilizing or deploying existing cooperation assets	• Technical cooperation for specific sectors • Collaboration with other development partners • Backing up the private sector	• MoH
E-Gov.	• Support by technical cooperation for the establishment of e-governance or digitization of public services	• Technical cooperation for improving the ICT environment	• MTTI

Source: JICA Study Team

3.9.4 Proposed Roadmap and Support Programs

The table below summarizes the proposed support programs according to COVID-19 crisis response (short-term), COVID-19 post-pandemic response (medium-term), and future investment (long-term), keeping in mind the solution approach to the potential needs in the previous section.

This section explains the outlines of proposed support programs according to three phases. As for the technical and financial cooperation of JICA, detailed programs will be presented in the next section.

Figure 3.9.3   Roadmap od Support Programs (Angola)
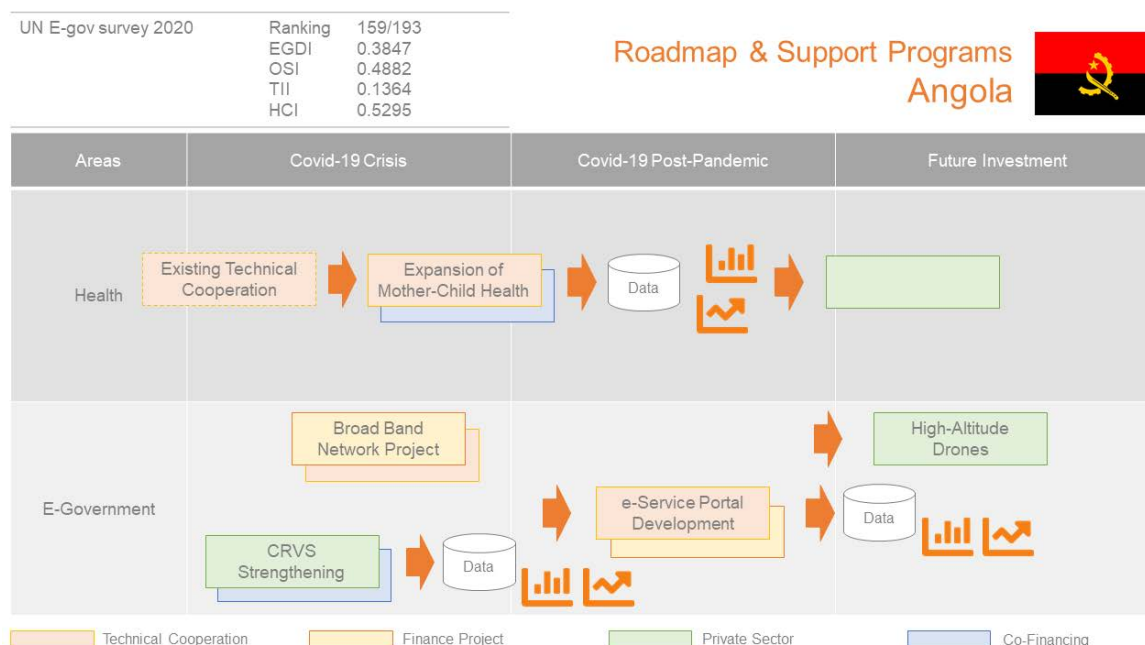
Source: JICA Study Team

Table 3.9.8   Proposed Support Programs (Angola)

COVID-19 Crisis Response

Sector	Programs	Needs, Effect, Conditions, etc.	Approaches
Health	Part of the maternal and child health project	• Reducing maternal and child mortality and morbidity is one of the most important issues. While DHIS2 is being deployed nationwide as a health data monitoring system, the reporting rate and utilization level in some programs are limited. Community-level personal data digitization project started in malaria and nutrition programs. Digitization of maternal and child health data is generally inadequate • By promoting the digitization of information on community-level maternal and child health (MCH) in the selected area, the quality and utilization of data will be improved, and the impacts of MCH support will be further enhanced. • Confirmation/agreement with the MoH regarding support fields/application specifications, cooperation and coordination between donors; confirmation of legal development regarding data storage, confirmation of compliance with the Personal Data Protection Law etc	• Part of technical cooperation in specific sectors • Collaboration with partners such as UNICEF and PSI
ICT Infra	Broadband network	• In Angola, the information gap between urban coastal	• Technical

		areas and inland areas is large, and ICT infrastructure development has not spread to rural areas. Internet and mobile communication charges are also high. • Contributing to an inclusive information infrastructure system and the correction of the information gap with rural areas by developing a broadband network in the inland area. • Confirmation of progress and contents of communication network development plan, confirmation of support of other donors	cooperation for improving the ICT environment • Financial support
for inland areas			
National ID	CRVS improvement	• Since 2009, the penetration rate of digitized national IDs is still reported to be 50-60%, which is an obstacle to digitized public services; partly because of the low birth registration rate. • Promoting birth registration by biometrics in collaboration with UNICEF, UN LIA, etc. that support CRVS.	• Backing up the private sector • Collaboration with other partners

COVID-19 Post-Pandemic Response

Sector	Programs	Needs, Effect, Conditions, etc.	Approaches
E-Gov.	e-Gov portal strengthening	• MINTTICS is establishing an e-service portal (SEPE) that can use the digitized public services of each ministry in line with the e-government action plan, but currently, the available services are limited. It is due to the institution's low awareness of ICT literacy and digitization. • Supporting the strengthening e-government portal is expected to contribute to the efficiency of administrative services for the industrial diversification and the development of economic and social infrastructure, as well as to improve governance such as clarification of procedures and prevention of corruption. • Among the priorities of the Angola government, it is possible to focus on industry, commerce and services; and an effective combination with ICT human resource development and infrastructure support is desirable.	• Technical cooperation for improving the ICT environment • Financial support

Futur Investment

Sector	Programs	Needs, Effect, Conditions, etc.	Approaches
ICT Infra	High altitude drones	• Stable high-speed wireless communication solution by the airborne drone that can meet communication demand in rural non-electrified areas and is more cost-effective than ground infrastructure development, which is time-consuming and costly. • In early 2020, Swift Engineering, Inc. in the United States had already succeeded in commercialization, test flight, and test communication, and the provision of solutions according to demand has started. • Similar technology is being developed by HAPS Mobile Corp. of SoftBank Group, but Swift Engineering, Inc. level solution has not been provided yet.	• Backing up the private sector

Source: JICA Study Team

3.9.5 Details of Proposed Support Programs

COVID-19 Crisis Response

Proposed project name	Implementation of broadband network for inland areas
Aline with SDGs goal and target	Goal: 9 Build resilient infrastructure, promote sustainable industrialization and foster innovation, Target: 9.c
Expected counterpart or related organizations	Ministry of Telecommunications and Information Technologies、 Ministry of Health,、 Ministry of Education
Background of the proposal	Angola has a digital divide between the coastal areas where the cities are located and the inland areas. This digital divide is caused by a lack of ICT infrastructure in rural areas, high Internet and mobile communication fees, and lack of ICT literacy, etc. It is expected to promote employment opportunities and stimulate the economy by correcting this digital divide. The implementation of a broadband network for inland areas is one of the ways to realize these goals.
Purpose of the proposal Project	Survey the areas and sectors in inland areas that require broadband network development. Based on the results of the survey, a broadband network development project will be implemented to provide rural and inland areas with the same opportunities to use information and communication as in urban areas. This project aims to contribute to an inclusive information infrastructure system through the expansion of ICT infrastructure and to correct the digital divide between rural, inland areas and urban areas.
Beneficiaries	Residents of inland, regional, and rural
Related projects	NA
Contents of the proposed project	• Conduct a survey area where broadband networks are not yet in place. • Conduct a survey of priority sectors for telecommunications infrastructure development and support the establishment of the development plan for these sectors. • Implementation of communication infrastructure development project based on the development plan.
Alignment with Country Assistance Policy for Respective Countries by GoJ / Priority of JICA	In the country assistance policy, basic infrastructure development is listed as Development Issue 1-1. In this Development Issue, it is mentioned that the reconstruction of roads, ports, railroads, and communication infrastructure as well as the development of electricity and water infrastructure, which are important for the lives of the people. In addition, telecommunications infrastructure is included in the infrastructure development for industrial diversification in Priority of JICA. The content of this project is consistent with the country assistance policy and Priority of JICA.
Conditions	it is necessary to check the development plan thoroughly in order to avoid overlap between the development plan of the telecommunication network promoted by the telecommunication companies and the scope of this project, In the ICT infrastructure market, the following support from other countries is also available. • Swedish support for the expansion of the meteorological observatory network • Technical assistance between Chinese IT-related companies (Huawei, ZTE) and Angolan domestic suppliers, etc. These assistances by other countries are not directly related to the project. However, in implementing this project, it is necessary to consider the assistance by other countries. In addition, it is necessary to consider a specific project with consideration of Japanese assistance as an advantage. (e.g., technology transfer and operation and maintenance management).
Digitalization / Utilized data	NA
Proposed methodology of JICA support	Feasibility study, ODA loan
Term	Support of planning is 1 year, the period of implementation will be studied by the planning.

Estimate cost	Support of planning is 30 MM; the cost of implementation will be studied by the planning.

Proposed project name	Digitalizing maternal and child health project
Aline with SDGs goal and target	SDG 3 "Ensure healthy lives and promote well-being for all at all ages", Target 3.8 Achieving UHC
Expected counterpart or related organizations	Ministry of Health, Health facilities
Background of the proposal	• Although maternal and child mortality has declined significantly in recent years, improving maternal and child health remains one of the most important issues. The main causes of maternal mortality include anemia, malnutrition and lack of access to family planning3. The direct causes of neonatal death are mainly intrapartum related events and preterm birth complications which also have a negative impact on the child health4 Access to health services, which are reported to be effective to address those causes, is low at 61% for antenatal care (ANC) (4 times or more) and 46% for institutional deliveries (UNICEF 2020). • The MoH prioritize strengthening the monitoring and evaluation system and promoting the integration of subsystems. It has also been pointed out that data collection and management of sex education and reproductive health are inadequate. • It has been reported that the digitization of personal health data related to maternal and child health has hardly been carried out, and it is insufficient to grasp the current situation on the ground. In general, information is often submitted on paper from the health center to the central level, and the accuracy, management, and utilization of the data are low. • As for community-level information systems, many different systems have been introduced, so the MoH and UNICEF have started a pilot project (SIS community) for standardization. First, malaria and nutrition are targeted, but they plan to expand to other fields as well. • When JICA launches a maternal and child health project, introducing a digital solution can contribute to the improvement of accurate information collection of the community members and timely sharing and utilization of the information among concerned personnel, which is expected to benefit the appropriate referrals and follow-ups of the pregnant women. For example, it can include the early identification of high risk pregnant women and paying attention to encourage ANC consultation and institutional delivery.
Purpose of the proposed Project	The purpose is to improve the access to maternal and child health services through promoting the digitization of community-level maternal and child health-related information and strengthening the collection and utilization of community health information.
Beneficiaries	Targeted health facilities' personnel, CHWs and community
Related projects	JICA "Project on Improving Perinatal and Pediatric Health Services through the Maternal and Child Health Handbook 2017-2021"
Contents of the proposed project	• Study the progress of the SIS community project and other community information system status with the MoH and development partners. • Identify the data to be collected and recorded from community members (eg pregnancy/childbirth/postnatal care, child vaccination status, etc.) and digital content needed to improve the quality of services provided by CHWs (risk factors confirmation method etc.). • Identify the app to use and make the necessary specification modification. The app can be KoboCollect or the one linked with DHIS2, and it needs to be convenient and technically appropriate. • Support the app SOP development as well as necessary training and capacity

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3 Natacha Amora (2020) Maternal Mortality in Angola: Bridging the Gap
4 Healthy Newborn Network data in 2017, https://www.healthynewbornnetwork.org/country/angola/

	building.
	• Support utilizing the collected data to be organized and analyzed in real time and continuously, and for follow-up of community members, provision of individual services such as referrals, understanding of local issues, and consideration of countermeasures.
Alignment with Country Assistance Policy for Respective Countries by GoJ / Priority of JICA	• The County Assistance Policy for Angola states that support for improving medical services and public health awareness will be provided in the priority field of "Support for people's safety".
	• Health was mentioned as one of the priority areas of the JICA Angola office.
Conditions	• Coordination with the MoH and other development partners on the project contents
	• Confirmation of standard application based on the result of SIS community project
	• Confirmation of app software
	• Adequate ICT infrastructure development at selected areas
	• Confirmation of the adequate legal framework and data security
	• Compliance with the personal data protection law
Digitalization / Utilized data	Personal health data
Proposed methodology of JICA support	• One component of a technical cooperation project
	• Collaboration with MoH and UNICEF
Term	NA
Estimate cost	NA

Source: JICA Study Team

3.10   Malawi

3.10.3 Priority Issues and Approach for Potential Needs

Based on the analysis of the current situation and potential issues in the previous section, JICA Study Team evaluated the potential support needs for each sector from the viewpoint of consistency with the Country Assistance Policy, activities of other donors, measures taken by the target country, and possibility for effective use of data.

Table 3.10.5   Examination of Priority Issues (Malawi)

Sector	CAP of Japan	Other Doners	Measures Taken	Data Use	Evaluation
Education	Human resources for self-sustained growth	WB, VSO	Digitalized teaching material and tablet, teacher training college	A	Consider support based on the past cooperation
Health	NA	GF, USAID, WB, WHO, GIZ	National Digital Health Strategy 2020-2025, DHIS2, EMR etc.	A	Many development partners are in place and little room for intervention.
National ID	Foundation for growth	UNDP	Connected with election, agriculture, and social protection, etc.	A	The registration rate of civil registration is significantly low
E-Gov.	Foundation for growth	WB, China, USAID/UKAid	Each MDA has its own system and no e-government in place.	A	Development of e-Government shall start and supporting needs are high.
Social Protection	NA	WB, GIZ, EU	Rolling out UBR nationwide	A	Needs are high though donor coordination is necessary
ICT HRD	Human resources for self-sustained growth	WB, AfDB	ICT Master Plan 2031, Digital Economy Strategy 2021-2026		Needs development of ICT officers and review of their management system
ICT Policy	Foundation for growth	UNDP, WB, GIZ	ICT M/P 2031, Digital Economy Strategy 2026		Policy enforcement capacity strengthening is in need
ICT Infra.	Foundation for growth	China, WB	National backbone extension plan of 3,000 km		Last-mile connection strengthening is in need

Note: A: High potential, B: Potential, NA: Not applicable
Source: JICA Study Team

After all, JICA Study Team examined the roles that JICA can play, solution approaches, and entry points in the high-priority sectors based on the interim discussion with JICA Africa Department and Malawi Office.

Table 3.10.6   Approaches for Potential Needs (Malawi)

| Sector	Roles of JICA	Solution Approaches	Entry Points
Education	• Supporting unqualified and underqualified teachers based on the past experience of supporting in-service training under SMASSE	• Technical cooperation in specific sectors • Collaboration with other development partners (WB)	• Ministry of Education
e-Government	• Supporting MITA to etablish e-government	• Technical cooperation for improving the ICT environment • Financial support for ICT infrastructure (WB)	• e-Government Department of Ministry of Information
	• Support for the development and use of applications that comprehensively support the improvement of productivity of agriculture as main industry in Malawi	• Technical cooperation in specific sectors • Collaboration with SHEP	• Ministry of Agriculture
Social Protection	• Supporting effective operation of UBR	• Technical cooperation in specific sectors • Collaboration with other development partners (WB)	• Ministry of Economic Planning and Development and Public Sector Reform (MOEPDPSR)

Source: JICA Study Team

3.10.4 Proposed Roadmap and Support Programs

The table below summarizes the proposed support programs according to COVID-19 crisis response (short-term), COVID-19 post-pandemic response (medium-term), and future investment (long-term), keeping in mind the solution approach to the potential needs in the previous section. Here the outline of the support programs are presented and their details are described in the next section.

This section explains the outlines of proposed support programs according to three phases. As for the technical and financial cooperation of JICA, detailed programs will be presented in the next section.

Figure 3.10.2   Roadmap od Support Programs (Malawi)
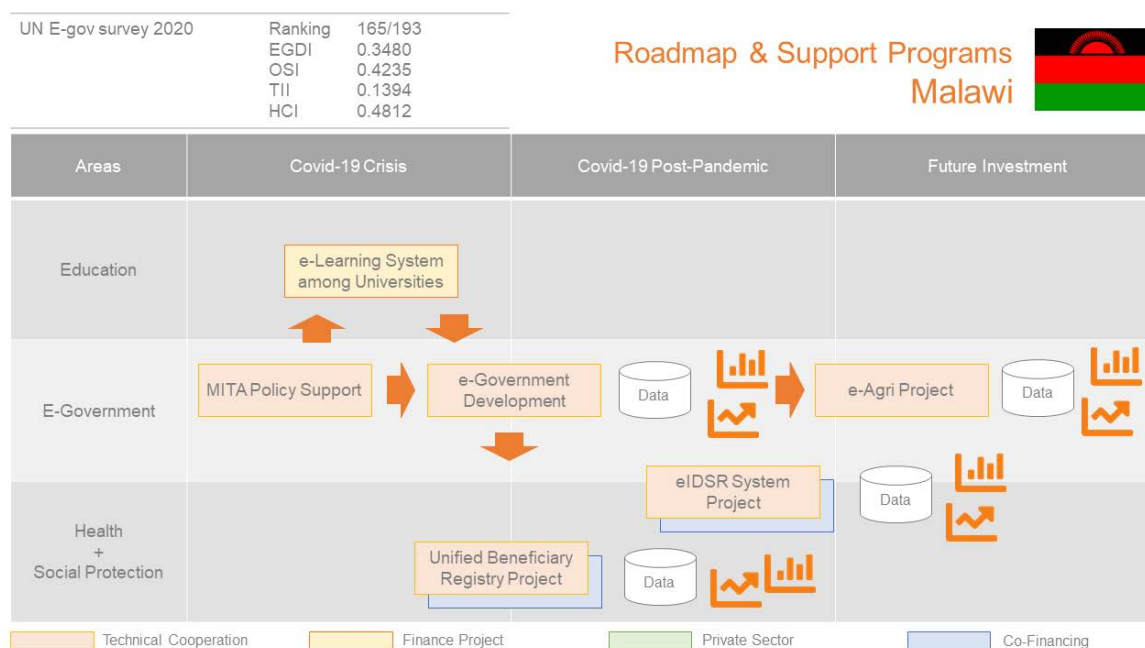
Source: JICA Study Team

Table 3.10.7   Proposed Support Programs (Malawi)

COVID-19 Crisis Response

Sector	Programs	Needs, Effect, Conditions, etc.	Approaches
ICT Policy and Human Resource Development	MITA Capacity Development and Advocacy Support for ICT Policy Implementation 【Individual Expert JPY 100 million】	• GoM is implementing the digitization of public services with the support of WB and other development partners. However, there exist numerous challenges that need to be addressed by strengthening infrastructure and increasing digitized applications and public services, but most needed are strengthening human resource and institutional capacity. With the existing digital divide and low digital literacy, access to and dissemination of public services are still the challenges on their own, thus an intervention is needed. • Proposed activities: strengthening MITA's capacity to formulate and implement various policies and plans to promote the digitization of Malawi's government; supporting public awareness activities to promote e-government and organizational reform. • MITA will be the most important agency which will	• Technical cooperation for improving the ICT environment

Sector	Programs	Needs, Effect, Conditions, etc.	Approaches
		lead the nation's digitization efforts. ICT common service will also be managed by MITA as professionals and strengthening their capacity including technical aspects and coordination capacity is essential.	
Digital Education, Infrastructure	Support for building inter university remote lecture system 【Japanese Grant Aid Project JPY3 billion】	• MAREN is planning to build a remote lecture system, which does not rely on international communication network-based Zoom nor Google Meet. • ICT infrastructure necessary for remote lecture system (connecting MAREN and universities) and education contents. • Communication network is supported by the World Bank and will be completed in 2021. An assistance need for the remote lecture system remains.	• Financial support

COVID-19 Post-Pandemic Response

Sector	Programs	Needs, Effect, Conditions, etc.	Approaches
ICT Policy and Human Resource Development	MITA Policy Implementation Capacity Strengthening Project 【Technical Cooperation Project: 48MM】	• Successor project of "MITA Capacity Development and Advocacy Support for ICT Policy Implementation" above. • In order to institutionalize the capacity of MITA and related institutions to enact and enforce policies and plans, reformed ICT common service, and the capacity to utilize data, which must have been instilled by the predecessor support, it is ideal to apply those capacity to priority sectors. • Promoting further digitization of the public services; leveraging MITA's ICT policy planning and implementation capacity and MDA's data utilization capacity built through the predecessor support, and supporting digitalization of target priority sectors; supporting evidence-based planning through data utilization in target priority sectors	• Technical cooperation for improving the ICT environment
Social Protection	Capacity Development Project for the Digitalization of Public Services in Social Protection 【Technical Cooperation project 60MM】	• In order to improve social protection service, it is necessary to improve household data collection, and analysis, oversight, monitoring and reporting (OMR) in the Unified Beneficiary Registry (UBR). • By supporting the improvement of UBR operation, inter-operability, and cash transfer digitization, it will realize improved targeting of poor and vulnerable households, reduced administrative processing costs, and capacity building of government officials; these will help ensure the rapid delivery of equitable social security services to natoinals in need. • Leadership and cooperation from the Ministry of Economic Planning, Development and Public Sector Reform (MOEPDPSR), and harmonization with other donors such as the World Bank.	• Technical cooperation for social protection sector • Collaboration with other partners
Health	Electronic integrated disease surveillance system (eIDSR) Project 【Technical Cooperation	• While it is reported that the IDSR system is linked to DHIS2, the World Bank report on the infectious disease surveillance system (2021) states that the IDSR is still mainly a paper-based system. In addition, inadequate IDSR data completeness and timeliness, lack of cooperation with laboratories, insufficient data analysis and utilization,	• Technical cooperation for specific sectors • Collaboration with other partners

	project 48MM】	disorganization of community-based surveillance, and lack of emergency response system have been pointed out. Recently Ministry of Health with a support from development partners such as WHO establishes One health surveillance platform (OHSP) including human being, animals and environment, and is preparing for rolling it out to the district level. • Support strengthening the capacity of the district and the MoH for them to collect prompt and appropriate information of the outbreaks and implement the response and follow-up at each level. Regarding community-level capacity building, it will collaborate with the Integrated Community Health Information System (iCHIS) Project. • Conditions: confirmation of consistency with government OHSP policy; coordination with other development partners; confirmation of ICT infrastructure environment in the target area; Confirmation of compliance with data security and personal data protection law.	

Futur Investment

Sector	Programs	Needs, Effect, Conditions, etc.	Approaches
e-Government	Agriculture ICT Project 【Technical Cooperation Project 24MM】	• Agriculture is the pillar of the industry, accounting for one-third of GDP and 80% of exports, and "promoting diversified and market oriented agriculture" is listed as the top priority area in Japan's Country Development Cooperation Policy, and SHEP project is currently being implemented. • Tablets have been distributed to about 1,000 agricultural extension workers with JICA support, but they are mainly used for training purposes only, so adding modules ranging from agricultural production to market linkage and shipment will contribute to the industrialization of agriculture. • A mechanism to ensure sustainability, such as the use of agricultural start-ups, is necessary.	• Technical cooperation for improving the ICT environment • Technical cooperation for specific sectors •

Source: JICA Study Team

3.10.5 Details of Proposed Support Programs

COVID-19 Crisis Response

Proposed project name	MITA Capacity development and advocacy support for ICT Policy implementation
Aline with SDGs goal and target	16.6: Develop effective, accountable and transparent institutions at all levels 17.7: Promote the development, transfer, dissemination and diffusion of environmentally sound technologies to developing countries on favourable terms, including on concessional and preferential terms, as mutually agreed 17.8: Fully operationalize the technology bank and science, technology and innovation capacity-building mechanism for least developed countries by 2017 and enhance the use of enabling technology, in particular information and communications technology 17.9: Enhance international support for implementing effective and targeted capacity-building in developing countries to support national plans to implement all the sustainable development goals, including through North-South, South-South and triangular cooperation
Expected counterpart or related organizations	Counterpart: MITA Related Meetings: Steering Committee for ICT
Background of the Proposal	The Government of Malawi is implementing the digitization of public services with the support of the World Bank and other development partners. However, there exist numerous challenges that need to be addressed to accelerate the digitization of public services and improve access by its citizens. These challenges include the bridging the digital divide and mitigating the digital literacy, strengthening infrastructure, and increase digitized applications and public services, among the others. In order to mitigate these challenges, there is an urgent need to strengthen institutions that will lead the nation's digitization efforts. In this regard, it is most appropriate to strengthen the implementation and coordination capabilities of the newly established ICT agency, MITA (which will take over the functions of the current e-Government Department within three years and will also be responsible for regulation and supervision of the Government ICT initiatives).
Purpose of the proposed project	Strengthening MITA's capacity to implement policies and plans to accelerate the Government of Malawi's efforts for public service digitization. • Strengthen MITA's capacity to formulate and implement various policies and plans to promote the digitization of Malawi's government • Support public awareness activities to promote e-government and organizational reform
Beneficiaries	• MITA • Government of Malawi, Universities, Ministries and Agencies, Local Councils, Malawian Nationals
Related projects	• World Bank: Digital Malawi Project • UNDP: National ID Project, etc.
Contents of the Proposal Project	Support for organizational and human capacity building and awareness raising activities for MITA • Strengthen the capacity of ICT ministries and related agencies to formulate and implement policies and plans • Support MITA and related agencies in effectively utilizing data for policy formulation and implementation • Review common service system for the ICT professional • Strengthen Government - private sector - academia collaboration • Training in Japan (short-term) • Support domestic advocacy activities on public service digitalization, especially within Government agencies
Alignment with Country Assistance Policy for Respective Countries by GoJ / Priority of JICA	• ICT policy/strategy is not the area of Country Assistance Policy by GoJ. The proposal is made on the grounds that ICT-related policy/strategy formulation/implementation capacity strengthening among the Government institutions is needed in order to mainstream digital technologies in diverse fields,

	which was confirmed by this survey.
	• As for the capacity strengthening of government staff, it matches "Program of Capacity development of core government officials who play a key role in socio-economic development of Malawi", under "Priority Area (2): Fostering human resource for self-reliant development" of Country Development Cooperation Policy for the Republic of Malawi of GoJ/JICA.
Condition	• Close coordination with other donor supported projects • Assurance from MITA to retain trained officers to implement the ICT strategies and policies.
Digitalization / Utilized data	• When the policy to promote public digitalization is implemented, it is expected that the data held by ministries, agencies, and other relevant institutions will be opened and shared appropriately and used effectively in the public, private, and academic sectors. • When the policy to promote digitalization is implemented, it is expected that data held by ministries and agencies will be opened and shared appropriately and used effectively in the public, private, and academic sectors. Although MITA is not expected to directly manage government-related data, it will play an important role in regulating data use and protection.
Proposed methodology of JICA support	Expert Dispatch Training in Japan (short-term)
Term	Two years
Estimate cost	Max. JPY 100,000,000

Proposed project name	Support for building inter university remote lecture system
Aline with SDGs goal and target	GOAL 4: Quality Education GOAL 9: Industry, Innovation and Infrastructure
Expected counterpart or related organizations	Malawi's Research and Education Network (MAREN) National Universities
Background of the Proposal	MAREN is currently developing ICT infrastructure for academic institutions such as national universities and research institutes with the support of the World Bank. MAREN, as a public ISP (Internet Service Provider), has been developing the ICT infrastructure to provide Internet access to the universities. However, due to the effects of the COVID-19 pandemic, the universities are now required to switch from face-to-face lectures to remote lectures, which requires a significant increase in the communication infrastructure. However, MAREN is currently experiencing difficulties in securing a budget for infrastructure expansion. In particular, the communication line between each university and MAREN is very narrow and needs to be expanded most. This line is currently not the dedicated line owned by MAREN, but the leased line owned by a private communication company named OCL (Open Connect Limited) under a five-year lease contract. In order to increase the bandwidth of this line, the monthly usage fee would increase significantly, which is not sustainable. It was also confirmed that the enhancement of this line is currently outside the scope of the World Bank's support. In light of this situation, it is desired to develop ICT infrastructure using Japan's ODA, specifically, to build a dedicated optical communication network between each university and MAREN. In addition, MAREN has indicated that they would like to enhance the learning contents in the future when building the remote lecture system. Therefore, it is thought that there is a possibility to support the development and provision of educational contents as well as the development of ICT infrastructure.
Purpose of the proposed project	The purpose of this project is to provide support for the development and provision of ICT infrastructure and educational content necessary to realize university remote lectures.
Beneficiaries	University personnel (Teachers and students etc.)
Related projects	World Bank: Digital Malawi Program Phase I: Malawi Digital Foundations Project (2017-)

Contents of the Support	(1) ICT infrastructure development for the realization of remote lectures at universities (dedicated optical communication network between each university and MAREN) (2) Development and provision of educational contents that will contribute to future human resource development
Alignment with Country Assistance Policy for Respective Countries by GoJ / Priority of JICA	It is not mentioned in the country assistant policy, nor in the JICA cooperation priority areas. However, there is a need to support the expansion of communication networks in the educational sector. By providing this support, the project aims to support the promotion of digitalization in the education sector in the country and to encourage Japanese companies to enter the market.
Conditions	NA
Digitalization／Data	Digitalization of lecture data etc.
Proposed methodology of JICA support	Japanese Grant Aid Project
Term	2022-2025 (3 years)
Estimate cost	Approximately JPY 3 billion

COVID-19 Post-Pandemic Response

Proposed project name	MITA Policy Implementation Capacity Strengthening Project (Successor support to "MITA Capacity Development and Advocacy Support for ICT Policy Implementation"
Aline with SDGs goal and target	16.6: Develop effective, accountable and transparent institutions at all levels 17.7: Promote the development, transfer, dissemination and diffusion of environmentally sound technologies to developing countries on favourable terms, including on concessional and preferential terms, as mutually agreed 17.8: Fully operationalize the technology bank and science, technology and innovation capacity-building mechanism for least developed countries by 2017 and enhance the use of enabling technology, in particular information and communications technology 17.9: Enhance international support for implementing effective and targeted capacity-building in developing countries to support national plans to implement all the sustainable development goals, including through North-South, South-South and triangular cooperation
Expected counterpart or related organizations	Counterpart: MITA Related Meetings: Steering Committee for ICT Related Agencies: MDAs in charge of priority sectors for public service digitalization
Background of the proposal	• In order to institutionalize the capacity of MITA and related institutions to enact and enforce policies and plans, reformed ICT common service, and the capacity to utilize data, which must have been instilled by the predecessor support of "MITA Capacity Development and Advocacy Support for ICT Policy Implementation", it is ideal to apply those capacity to priority sectors.
Purpose of the proposed project	• Promoting further digitization of the public services • Leverage MITA's ICT policy planning and implementation capacity and MDA's data utilization capacity built through the predecessor support of "MITA Capacity Development and Advocacy Support for ICT Policy Implementation", and • Support digitalization of target priority sectors • Support for evidence-based planning through data utilization in target priority sectors
Beneficiaries	• Direct beneficiaries: MITA Officers, ICT Officers, sector officers, and planners in target priority sectors • Indirect beneficiaries: nationals and businesses
Related projects	• Digital Foundation Project under Digital Malawi Programme Phase 1 (World Bank)
Contents of the proposed project	• Strengthening MITA's policy implementation and enforcement capacity, coordination capacity and leadership

	• Support for strengthening the capacity of ICT officers at MDAs in target priority sectors through MITA and the DHRMD • Strengthening the capacity of sector officers and planning officers to utilize data in the target priority sectors
Alignment with Country Assistance Policy for Respective Countries by GoJ / Priority of JICA	It matches "Program of Capacity development of core government officials who play a key role in socio-economic development of Malawi", under "Priority Area (2): Fostering human resource for self-reliant development" of Country Development Cooperation Policy for the Republic of Malawi of GoJ/JICA.
Conditions	To collaborate with other development partners and to avoid duplication with their supports. MITA may not be directly involved in data management, but it shall play an important role in regulating data utilization and protecting data security. Since it is expected that data utilization will become crucial in public sector reform, MITA shall play a central role in drafting basic policy for data utilization and its plan.
Digitalization / Utilized data	The target priority sectors of data utilization shall be agreed with GoM before the commencement of the project.
Proposed methodology of JICA support	In collaboration with World Bank and other development partners, identify the areas where supports are inadequate, JICA shall provide TA for institution building and capacity building of officers by sending 4 experts.
Term	2025 – 2027 (3 years)
Estimate cost	48 MM (Experts of ICT Policy, IT, Data Scientist, and ICT Human Resource Development)

Proposed project name	Capacity Development Project for the Digitalization of Public Services in Social Protection
Aline with SDGs goal and target	Target 1.3 of SDG Goal 1 aims at the inclusion of all citizens in social protection.
Expected counterpart or related organizations	Ministry of Economic Planning, Development and Public Sector Reforms (MOEPDPSR)
Background of the proposal	• The Malawi National Social Support Programme (MNSSP) has contributed to the improvement of the national social protection system. However, it has challenges in the operation of the Unified Beneficiary Registry (UBR) which is expected to reduce targeting errors for social cash transfers. • The quality of data is an issue to be addressed. Errors occur in the process of data collection and data entry into UBR. They are clearly attributable to the human errors. Therefore, there is a need to streamline the data management process to reduce such potential errors. • It is necessary to promote measures for the automation of UBR and its interoperability with other management information systems. • Although World Bank and other development partners are providing financial and technical assistance, the capacity gaps remain significantly to function UBR.
Purpose of the proposed project	• To enhance capacity development of the government for the smooth and effective utilization of UBR. • To improve the quality of data collection, monitoring and surveillance. • To facilitate the interoperability with other management information systems, including civil registration and national ID.
Beneficiaries	Official in the Ministry of Economic Planning, Development and Public Sector Reform as direct beneficiaries and citizens as indirect beneficiaries
Related Projects	• World Bank Malawi Social Support for Resilient Livelihoods Project, 2020-2024, US$125 million grant • GIZ Social Protection for the Poor in Malawi, 2018-2021, technical cooperation • EU Nutrition and Social Protection in Malawi, 2020, €0.39 million grant
Alignment with Country Assistance Policy for Respective Countries by GoJ	• Social protection is not included in the country assistance policy. On the other hand, it is highly relevant to supporting poor and vulnerable groups who are excluded from economic and social development which I one of the agenda in in

/ Priority of JICA	the policy. In this regard, it proposes the assistance for the post COVID-19 era.
Details of the proposed support	• Building analytical and technical capacity to utilize data for Evidence-Based Policy Making (EBPM) in social protection. • Improving the quality of data collection and monitoring and surveillance: (a) strengthen community outreach and awareness raising; (b) adjust the model for registration (interviews and data collection) by Area Executive Committees (AECs) and appoint and train more specialized teams; (c) standardize guidelines and checklists for oversight, monitoring and reporting (OMR) and strengthen supervision; and (d) formalize procedures for dealing with appeals and complaints. • Standardized reporting and analysis will be effective in the long term. An important aspect of a robust system is the flow of information across the horizontal and vertical levels of the UBR implementation channel. To enable this flow, the UBR management team will develop clear oversight, monitoring and reporting (OMR) guidelines at all existing levels of monitoring, and analyze household information stored in the UBR to provide real-time updates on data quality Develop a dashboard to. • Improved interoperability with other management information systems, such as civil registration and national ID.
Conditions	• Using administrative big data related to social protection, we can present solutions that lead to the planning of preventive measures required for each region and the effective allocation of resources, such as social cash transfers. • The strengthening of personal data protection laws for social protection and the development of laws and regulations to promote interoperability are required as conditions.
Digitalization / Utilized data	• Beneficiary data • Household data
Proposed methodology of JICA support	To promote universal coverage, technical cooperation on institution building and capacity development will be implemented through a collaborative approach among the Government, World Bank, and other development partners, focusing on the areas where the World Bank's support is not fully reaching.
Term	2022 - 2025 (3 years)
Estimate cost	60 MM

Proposed project name	Electronic integrated disease surveillance system (eIDSR) Project
Aline with SDGs goal and target	SDG 3 "Ensure healthy lives and promote well-being for all at all ages", Target 3.8 Achieving UHC
Expected counterpart or related organizations	Ministry of Health, Public Health Institute of Malawi
Background of the proposal	• Major causes of death are infectious diseases such as HIV/AIDS and lower respiratory tract infection. • While it is reported that the IDSR system is linked to DHIS2, the World Bank report on the infectious disease surveillance system (2021) states that the IDSR is still mainly a paper-based system. In addition, inadequate IDSR data completeness (40%) and timeliness (60%), lack of cooperation with laboratories, insufficient data analysis and utilization, disorganization of community-based surveillance, and lack of emergency response system have been pointed out. • Partners such as WHO who are supporting the IDSR system informed that the IDSR is a relatively new system and further support is needed.
Purpose of the proposed Project	The purpose is to strengthen the eIDSR system by restructuring the system including laboratory networking and improving the operational capacity
Beneficiaries	Health service providers and community members in the target area
Related projects	NA
Contents of the proposed project	• Study the current state of the eIDSR system and the gaps and challenges of its operation

|	
	• Support restructuring the mechanism of networking with laboratories and community-based surveillance system as necessary • Support strengthening the capacity of the district and the MoH for them to collect prompt and appropriate information of the outbreaks and implement the response and follow-up at each level. Regarding community-level capacity building, it will collaborate with the Integrated Community Health Information System (iCHIS) Project.
Alignment with Country Assistance Policy for Respective Countries by GoJ / Priority of JICA	• There is no statement about health in the Country Assistance Policy. • JICA Malawi Office mentioned that while there are many donors in the field of digital health in Malawi and it might be difficult to enter at this stage, they would like to consider the possibility.
Conditions	• Confirmation of support for promoting the implementation of IDSR guidelines planned by WHO • Confirmation of consistency with government policy • Confirmation of ICT infrastructure environment in the target area • Confirmation of compliance with data security and personal data protection law
Digitalization / Utilized data	Infectious disease incidence
Proposed methodology of JICA support	Technical cooperation project
Term	2024 – 2029 (5 years)
Estimate cost	80 MM

Futur Investment

Proposed project name	Agriculture ICT Project
Aline with SDGs goal and target	• 2.3 By 2030, double the agricultural productivity and incomes of small-scale food producers, in particular women, indigenous peoples, family farmers, pastoralists and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets and opportunities for value addition and non-farm employment. • 2.4 By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality. • 2.5 By 2020, maintain the genetic diversity of seeds, cultivated plants and farmed and domesticated animals and their related wild species, including through soundly managed and diversified seed and plant banks at the national, regional and international levels, and promote access to and fair and equitable sharing of benefits arising from the utilization of genetic resources and associated traditional knowledge, as internationally agreed. • 2.A Increase investment, including through enhanced international cooperation, in rural infrastructure, agricultural research and extension services, technology development and plant and livestock gene banks in order to enhance agricultural productive capacity in developing countries, in particular least developed countries. 9.B Support domestic technology development, research and innovation in developing countries, including by ensuring a conducive policy environment for, inter alia, industrial diversification and value addition to commodities.
Expected counterpart or related organizations	Ministry of Agriculture (MoA), Farmers Union of Malawi, JICA Experts for Agriculture
Background of the proposal	Malawi is ranked 174th in the UN Human Development Index ranking in 2020, making it one of the least developed of the 16 countries included in this study. In this context, agriculture is the mainstay of Malawi's industry, accounting for 1/3 of GDP and about 80% of exports. MoA is using ICT in the agricultural sector to increase the scale and productivity of

	agriculture. This ICT development in agriculture is implemented on the basis of the following policies and plans; • The National Agriculture Policy, linked to The Malawi 2063 • The Agricultural Transformation Agenda 2016-2021 • The National Agriculture Investment Plan However, there are still many issues to be resolved, such as vulnerable ICT infrastructure in rural areas, low ICT literacy among farmers, and the prevalence of radio-based training. "The promotion of agriculture and industry" is also listed as a priority area in Japan's national development cooperation policy, and JICA Project for Market-Oriented Smallholder Horticulture Empowerment and Promotion (SHEP) is currently underway.
Purpose of the proposed Project	To create a comprehensive platform for all information related to agriculture, which can be used to improve the productivity of farmers and other stakeholders.
Beneficiaries	Farmers, Extension Workers, Cooperative, Farmers Union of Malawi, and MoA
Related projects	JICA SHEP
Contents of the proposed project	With the support of JICA, more than 1,000 agricultural extension workers in different parts of the country have been provided with tablets. The tablets, currently only used for training at SHEP, will be installed with a comprehensive support application covering all modules from agricultural production (technical support training, weather and disease/pest information) to market linkages (market information and matching services) and shipping (warehouse management, logistics and importer matching services). A comprehensive support application will be installed and used. In Malawi, several start-up enterprises have already built and tested agricultural platforms at the level of small-scale demonstrations. The decision on whether to use existing applications for the tablet or develop a completely original one will be decided in consultation with the relevant parties. (Please refer to the Figure below.)
Alignment with Country Assistance Policy for Respective Countries by GoJ / Priority of JICA	• "Promotion of industrialization of agriculture" is one of the priority areas (medium-term objectives) and supports the transformation of the economic structure through diversification, market orientation and industrialization of agriculture, and the fostering of the business mindset of human resources to support. Then, it is consistent with the proposed project. In addition, as a condition to improve for that, it is said that infrastructure development including irrigation and logistics will also be supported, and the proposed project will provide the indirect support in these areas. • In a meeting with the JICA Malawi office, taking up agriculture as a priority field was agreed. Furthermore, Ministry of Agriculture and other agriculture-related organizations in Malawi have also expressed their desire to support the digitization of agriculture.
Conditions	Among the issues mentioned in the "Background of the proposal", the difficulties in accessing the internet in rural areas due to vulnerable ICT infrastructure are particularly acute. Other issues to be considered include: • Low ICT literacy in rural areas. Many farmers are distrustful of the internet and mobile money. • Many farmers do not even have mobile phones, and communication via mobile phones is not easy in Malawi due to the relatively high cost of mobile telecoms and bundles. • There is a lack of ICT technicians in the relevant institutions. It would be necessary to conduct awareness raising activities on the usefulness of ICT before the project starts in order to eliminate the mistrust of digitalization among farmers in particular. It is also advisable to assign ICT technicians to the relevant institutions and provide them with prior training for the establishment of the platform. In addition, in the interviews, it was often mentioned that there is a lack of warehouses for storing agricultural products for shipment.
Digitalization / Utilized data	When farmers register on the app, the Malawi government has access to their personal data, which can be used by MoA to track agricultural production, shipments and

	exports, and finally to plan agricultural development.
Proposed methodology of JICA support	Technical Cooperation (The collaboration with the existing project shall be considered)
Term	3 to 4 years
Estimate cost	40 MM

Source: JICA Study Team

Figure 3.10.3   Conceptual diagram of the Agricultural Digitalization Project
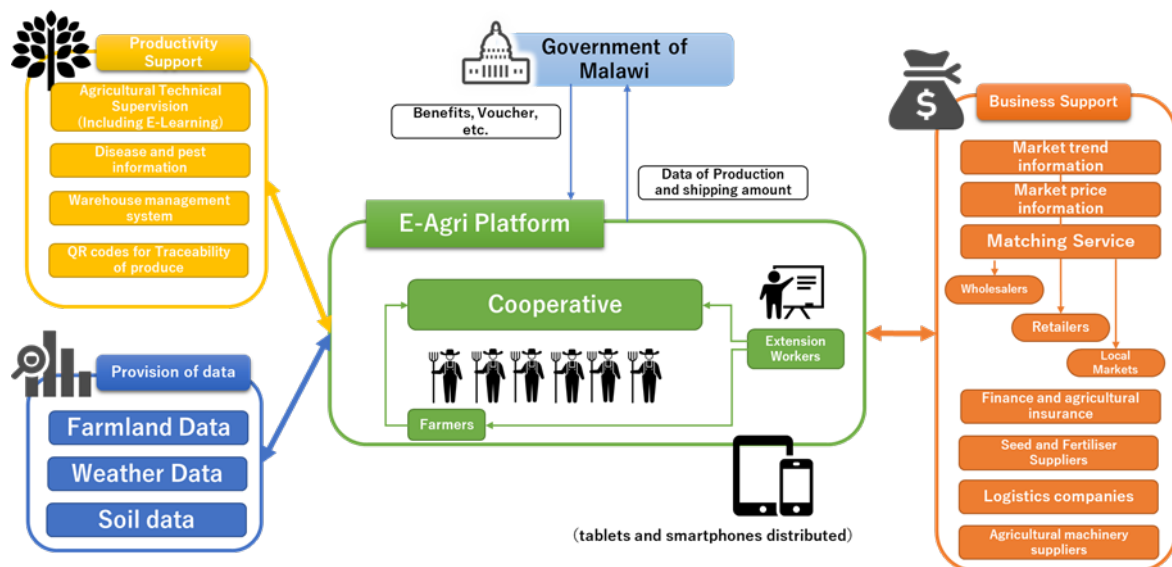
Source: JICA Study Team

3.11 Mauritius

3.11.3 Priority Issues and Approach for Potential Needs

Based on the analysis of the current situation and potential issues in the previous section, JICA Study Team evaluated the potential support needs for each sector from the viewpoint of consistency with the Country Assistance Policy, activities of other donors, measures taken by the target country, and possibility for effective use of data.

Table 3.11.4   Examination of Priority Issues (Mauritius)

Sector	CAP of Japan	Other Doners	Measures Taken	Data Use	Evaluation
Education	NA	NA	Connect both private and public schools to internet.	A	There is need to the improvement of internet connectivity for public schools.
Health	NA	NA	Health strategy 2024, measures for non-communicable diseases, ageing population.	A	There is no need for support, although there are issues for collaboration.
National ID	Trade investment field	Referred the case of Singapore	Prime Minister's Office is responsible for resident registration and national ID.	A	Almost 100% of population registered. Mauritius could be a model for other countries.
E-Gov.	Trade investment field	Signed MOUs with India, Estonia, etc.	Info-Highway and Mo-Kloud	A	99% of citizens pay their taxes online
Social Protection	NA	UNDP	SRM is under operation	A	There is need for improvement but can be done by the Government of Mauritius
ICT HRD	Trade investment field	NA	Human resources development is good enough		Small domestic market, need to expand into surrounding countries
ICT Policy	Trade investment field	NA	Digital strategy and e-government strategy are already developed		Policies and institutions of Mauritius can serve as a model for other countries
ICT Infra.	Trade investment field	NA (or through Private Sector)	More satellite network capacity on remote islands is needed		Consider the potential of LEOs and drones

Note: A: High potential, B: Potential, NA: Not applicable
Source: JICA Study Team

After all, JICA Study Team examined the roles that JICA can play, solution approaches, and entry points in the high-priority sectors based on the interim discussion with JICA Africa Department and Mauritius Office.

Table 3.11.5   Approaches for Potential Needs (Mauritius)

| Sector	Roles of ICA	Solution Approaches	Entry Points
Health	• The Ninja Cup has some start-up companies that are proposing to use IT to improve healthcare services (e.g., telemedicine, reducing waiting times, e-prescriptions, etc.), and there is a strong base in the digital health sector. However, as Mauritius is a middle to high income country, it is difficult to provide large ODA support.	• Support will be considered for start-ups in the digital health sector that were selected at the Ninja Cup. In the longer term, this could lead to lateral expansion into the African region.	• Support for private sector

Source: JICA Study Team

3.11.4 Proposed Roadmap and Support Programs

The table below summarizes the proposed support programs according to COVID-19 crisis response (short-term), COVID-19 post-pandemic response (medium-term), and future investment (long-term), keeping in mind the solution approach to the potential needs in the previous section.

This section explains the outlines of proposed support programs according to three phases. As for the technical and financial cooperation of JICA, detailed programs will be presented in the next section.

Figure 3.11.3   Roadmap od Support Programs (Mauritius)
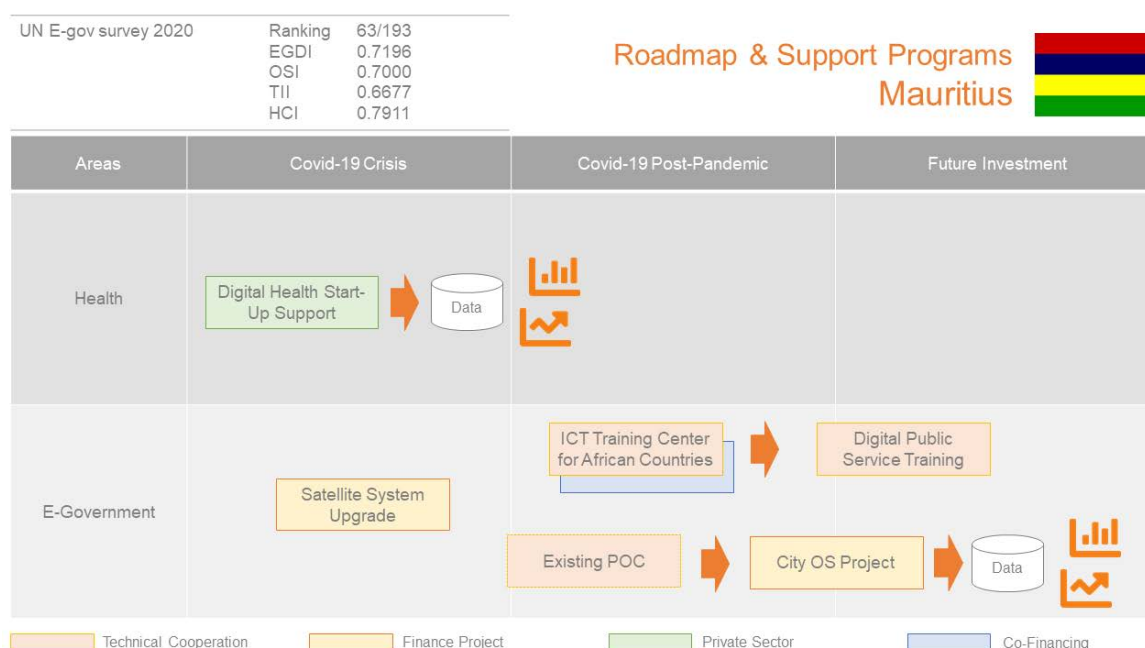
Source: JICA Study Team

Table 3.11.6   Proposed Support Programs (Mauritius)

COVID-19 Crisis Response

Sector	Programs	Needs, Effect, Conditions, etc.	Approaches
ICT Infrastructure	Assistance for renewal of satellite communication system for isolated island (Yen loan: 20 billion yen)	• For the remote islands in the north of Mauritius, the problem is that the internet is provided via satellite and the bandwidth is limited, however, the enhancement of the internet capacity is under consideration. • By supporting the upgrading of satellite communication facilities, Japanese companies could be encouraged to participate in the telecommunication sector and export their technology to Mauritius. • It is important to be involved from the planning stage of the Mauritius side.	• Financial Cooperation
Digital Health	Promoting telemedicine/diagnosis in the digital health by supporting start-ups (SDGs business (public-private partnerships): 30	• Fostering the need for responding to COVID-19; at the Ninja Cup, there are start-up companies proposing to use IT to improve medical services (telemedicine, reducing waiting times, electronic prescriptions, etc.), and there is a strong base in the digital health sector. • The promotion of public-private partnerships, the	• Support for private sector (private sector collaboration, SDG business)

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		encouragement of Japanese companies to provide services (matching) and, in the long term, lateral expansion to the African region is expected. • The existence of Japanese companies to be matched, their commitment, and the status of legislation on telemedicine and diagnosis need to be confirmed.	

COVID-19 Post-Pandemic Response

Sector	Programs	Needs, Effect, Conditions, etc.	Approaches
E-Government	Supporting Africa through the Digital Industry Academy (DIA) (Technical Corporation 48MM)	• Mauritius has been receiving many visits from African countries on digitization of public services and is providing support through SADEC, COMESA, Indian Ocean Organization, etc.; Mauritius has signed an MOU with the E-Governance Academy, a joint initiative of Estonia and UNDP, but it has not progressed due to financial problems. • ICT human resource development in African countries by providing a forum (both physical and online) to share good practices from different countries. • Ensure the sustainability of the management organization; building new school facilities would result in huge operation and maintenance costs, which would hinder the financial sustainability of the project, so use existing facilities and combine online classes to make the project sustainable.	• Technical cooperation for ICT environment development

Further Investment

Sector	Programs	Needs, Effect, Conditions, etc.	Approaches
Human Resource Development	Assistance for the deployment of human resources development support for the digitalization of public services in third countries (Training in third countries)	• Mauritius is more advanced in digitalization in public services than its neighboring countries and can serve as a model for other countries. • Invite officials in charge of digitalization of public services from neighboring countries to share the experiences and knowledge on digitalization of public services in Mauritius. • It is necessary to confirm whether the government of Mauritius is willing and interested to conduct third country training (South-South cooperation).	• Technical cooperation for ICT environment development
City OS	Deployment of City OS use cases to other countries	• JICA's STI/DX Office is conducting a pilot project to apply City OS to Mauritius, focusing on the disaster management sector, based on Japanese expertise in Aizu Wakamatsu and other cities. • In addition to disaster management, City OS can be applied to other services such as tourism, public facilities, transport, waste management and recycling, education, environment, etc., and can contribute to solving urban problems in Africa. • In common with railways and urban transport projects, it is essential to establish a system of promotion through public-private partnerships at the Japanese side.	• Financial cooperation (including overseas investment and loans)

Source: JICA Study Team

3.11.5 Details of Proposed Support Programs

COVID-19 Crisis Response

Proposed project name	Assistance for renewal of satellite communication system for isolated island
Aline with SDGs goal and target	Goal: 9 Build resilient infrastructure, promote sustainable industrialization and foster innovation, Target: 9.c
Expected counterpart or related organizations	The Ministry of Information Technology, Communication and Innovation (MITCI)
Background of the proposal	At present, the Internet connection on the isolated island (Agalega Island) located in the north of Mauritius is connected at about 10 Mbps using satellite communication system. According to MITCI, it is inevitable that internet traffic will increase in the future, and they mention that this communication system needs to be strengthened.
Purpose of the proposal Project	To encourage Japanese companies to participate in the telecommunications sector in Mauritius by supporting the upgrading of satellite communication system. It will also encourage Japanese companies to enter the market and export their technologies to Mauritius.
Beneficiaries	Residents of isolated island
Related projects	• The project to develop a mobile communication network (4G) within the island of Agalega is being carried out by Emtel using USF funds. • A nano-satellite project is undergoing for the purpose of collecting oceanographic data and other data.
Contents of the proposed project	• Survey the capacity of communication required and coverage area for satellite communication system on Agalega Island. Confirm the necessity of updating the satellite communication system. Examine the communication method, considering the use of low earth orbit satellite communication. Support the preparation of the implementation plan. • Conduct the project based on the implementation plan
Alignment with Country Assistance Policy for Respective Countries by GoJ / Priority of JICA	It is not mentioned in the country assistant policy, nor in the Priority of JICA. However, there is a need to support the implementation of communication network in rural areas. The project aims to encourage Japanese companies to enter the market by providing this assistance.
Conditions	It is necessary to confirm relation with scope of this project and scope of telecommunication companies.
Digitalization / Utilized data	N/A
Proposed methodology of JICA support	Feasibility Study, ODA Loan
Term	Support of planning is 1 year, the period of implementation will be studied by the planning.
Estimate cost	Support of planning is 30 MM; the cost of implementation will be studied by the planning.

Proposed project name	Promoting telemedicine/diagnosis in the digital health by supporting start-ups
Aline with SDGs goal and target	3.4 By 2030, reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being.
Expected counterpart or related organizations	Ministry of Health
Background of the proposal	• The need for COVID-19 In Ninjya Cup, there are start-up companies proposing to use IT to improve health care services (telemedicine, reduction of waiting times, electronic prescriptions, etc.) and there is also a strong background in the field of digital health
Purpose of the proposal Project	• Promoting public-private partnerships • Boosting the services of Japanese companies (matching) • In the short term, provide safe and speedy services to reduce risks (for tourists and residents) by centralizing the management of reservations and reports for Covid-

	19 negative certification, PCR and antigen tests • In the long term, the project will be extended to the African region.
Beneficiaries	Patients and families with telemedical/diagnosable diseases, anxious citizens and tourists in Covid-19
Related projects	Ninjya Cup
Contents of the proposed project	By contributing to the promotion of public-private partnerships and the encouragement of Japanese companies to provide services (matching), the project will in the long-term lead to lateral expansion into the African region.
Alignment with Country Assistance Policy for Respective Countries by GoJ / Priority of JICA	In the health sector, there is no mention in the Country Assistance Policy for Mauritius.
Conditions	• The existence of a matching Japanese company • The commitment of the company Legislation for telemedicine/diagnosis
Digitalization / Utilized data	NA
Proposed methodology of JICA support	SDGs business (public-private partnerships)
Term	1 year
Estimate cost	JPY 30,000,000

COVID-19 Post-Pandemic Response

Proposed project name	Supporting Africa through the Digital Industry Academy (DIA)
Aline with SDGs goal and target	SDG 9: 9-b
Expected counterpart or related organizations	Ministry of IT, Communications and Innovations Central Information Systems Division (CISD)
Background of the proposal	• Mauritius has an MOU with the E-Governance Academy, which was established by Estonia in cooperation with UNDP. But it has not progressed due to financial problems. The E-Governance Academy has received support from the Indian Ocean Commission and IUC (International Urban Cooperation, I assume), but there are some challenges in establishing E-Governance Academy in Mauritius, such as funding. • The need for support for the scoping of the E-Governance Academy in Mauritius and preparations for its establishment was identified. • The government approved a budget to establish a human resources development academy called the Digital Industry Academy (DIA) in July 2021. It oriented towards the ICT sector (especially those with a STEM (science, technology, engineering and mathematics) base and people who lost their jobs due to COVID 19. • There have been many visits from African countries on the digitization of public services, including visits from Seychelles, Ghana, Afghanistan, etc. on how to verify registered voters using SMS services and on the digitization of postal services. The government provides support through SADEC, COMESA, Indian Ocean Organization, etc. • Countries that have MOUs with Mauritius: Seychelles, Botswana, Ghana, South Africa, and Mali.
Purpose of the proposed Project	ICT human resource development in African countries including Mauritius
Beneficiaries	Civil servants in African countries
Related projects	E-Governance Academy
Contents of the proposed project	• Provide a place (both face to face and online) to share good practices from different countries. • In addition to the case study of Mauritius, examples from other countries are collected to create a benchmark, from which a curriculum is developed to suit the

	context of each country.
	• Since the e-Governance Academy in Estonia is implementing cooperation for several countries in Africa, it is possible that they have some kind of curriculum that is customized for each country with different given conditions to some extent, and it would be good if they could cooperate with this organization to implement it.
Alignment with Country Assistance Policy for Respective Countries by GoJ / Priority of JICA	ODA basis policy Support for sustainable development and economic growth
Conditions	• In order to ensure the sustainability of the project, it is recommended to utilize existing facilities (e.g., existing facilities in Mauritius, JICA's past assets = vocational training school) and online classes. • Starting the project in a small scale and raise funds, while seeking funds from private companies engaged in ICT, etc.
Digitalization / Utilized data	NA
Proposed methodology of JICA support	Technical Cooperation
Term	5 years
Estimate cost	NA

Further Investment

Proposed project name	Assistance for the deployment of human resources development support for the digitalization of public services in third countries
Aline with SDGs goal and target	16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels 16.6 Develop effective, accountable and transparent institutions at all levels
Expected counterpart or related organizations	Implementation Agency: Civil Service College Mauritius (CSCM) Related Agency: Ministry of Public Service, Administrative and Institutional Reforms
Background of the proposal	• Mauritius has made a certain degree of progress in the digitalization of public services compared to its neighboring countries and can serve as a model for other countries to follow in digitalization of their public services. • It may be possible to invite civil servants in charge of digitalization of public services in neighboring countries to share their experiences and knowledge of digitalization of public services in Mauritius. CSCM is currently collaborating with Madagascar and Egypt and is willing to share its knowledge with other countries.
Purpose of the proposed Project	To support CSCM in the development of human resource development support for the digitalization of public services in third countries by providing support for the design and management of the necessary structures and training programmes, thereby contributing to the digitalization of public services in neighboring African countries.
Beneficiaries	• CSCM Civil servants promoting the digitalization of public services in third countries
Related projects	JICA's thematic training in Japan "Capacity Building for ICT Project Planning (ex. e-government, e-education, e-health, e-agriculture, etc.)"
Contents of the proposed project	• Setting up the necessary structures for the CSCM to support the development of human resources for the digitalization of public services in third countries Support in the design and management of training programmes
Alignment with Country Assistance Policy for Respective Countries by GoJ / Priority of JICA	• GoJ's Country Assistance Policy and Development Cooperation Plan for Mauritius does not mention the cooperation in the digital sector and human resource development of civil servants. • On the other hand, as mentioned in the　Country Assistance Policy, Mauritius is

	not only classified as an upper-middle income country by DAC standards, but also has a small but developed economy with stable governance and good investment environment among African countries. In terms of the digitalization of public services, the study confirms that Mauritius has made some progress compared to its neighbors and has the potential to become a model for other countries. In order to promote the digitalization of public services, it is essential to develop the human resources of public servants who are in charge of public services, and from this point of view, it would be beneficial to invite public servants in charge of digitalization of public services from neighboring countries to share their experiences and knowledge of digitalization of public services in Mauritius.
Conditions	It is necessary to confirm whether the government of Mauritius is willing and interested in developing third country training (South-South cooperation).
Digitalization / Utilized data	NA
Proposed methodology of JICA support	Third Country Training
Term	NA
Estimate cost	NA

Source:　JICA Study Team

3.12   Zambia

3.12.3 Priority Issues and Approach for Potential Needs

Based on the analysis of the current situation and potential issues in the previous section, JICA Study Team evaluated the potential support needs for each sector from the viewpoint of consistency with the Country Assistance Policy, activities of other donors, measures taken by the target country, and possibility for effective use of data.

Table 3.12.4   Examination of Priority Issues (Zambia)

Sector	CAP of Japan	Other Doners	Measures Taken	Data Use	Evaluation
Education	Improvement of social services	World Bank, UNICEF, UNESCO, etc,	Online learning, OLC maintenance, teaching materials	A	Consider use of cooperative assets.
Health	Improvement of social services	USAID, WHO, UNICEF, World Bank	Target to achieve UHC, DHIS2 and IDSR operation	A	Consider surveillance system and CRVS
National ID	Improvement of social services	NA	The Ministry of Interior is implementing the INRIS project.	A	Full-scale digitization and collaboration with other services
E-Gov.	Industrial revitalization	EU, FAO	Agriculture ZIAMIS, Public Service ZamPortal	A	Dissemination and roll out of ZamPort and ZIAMIS
Social Protection	Reducing Disparities	World Bank, UNICER, FAO, GIZ	An integrated social security system is being developed and deployed.	A	Donor coordination needed, but support needs exist
ICT HRD	Industrial revitalization	NA	Provide specialized ICT courses and vocational training.		Strengthen training for civil servants
ICT Policy	Industrial revitalization	NA	Revised ICT-related laws in 2021.		Ability to implement e-government and to maintain security.
ICT Infra.	Infrastructure for economic activities	China	China exerts a strong influence on infrastructure development		There is little room for intervention.

Note: A: High potential, B: Potential, NA: Not applicable
Source: JICA Study Team

After all, JICA Study Team examined the roles that JICA can play, solution approaches, and entry points in the high-priority sectors based on the interim discussion with JICA Africa Department and Zambia Office.

Table 3.12.5   Approaches for Potential Needs (Zambia)

| Sector	Roles of ICA	Solution Approaches	Entry Points
e-Government	Support for building an interactive e-extension service on ZIAMIS	• Technical Cooperation for ICT development (Dispatch Experts and Technical Cooperation projects) • Grants	• Ministry of Agriculture • Smart Zambia Institute
Social Protection	Support for the effective operation of the Zambia Intergrated Social Protection Information System (ZISPIS)	• Starting from assisting individual sectors	• Ministry of Community Development and Social Services (MCDSS)

Source: JICA Study Team

3.12.4 Proposed Roadmap and Support Programs

The table below summarizes the proposed support programs according to COVID-19 crisis response (short-term), COVID-19 post-pandemic response (medium-term), and future investment (long-term), keeping in mind the solution approach to the potential needs in the previous section.

This section outlines the proposed support program for the three phases, and a more detailed program sheets for JICA's technical and financial cooperation are presented in the next section.

Figure 3.12.2   Roadmap od Support Programs (Zambia)
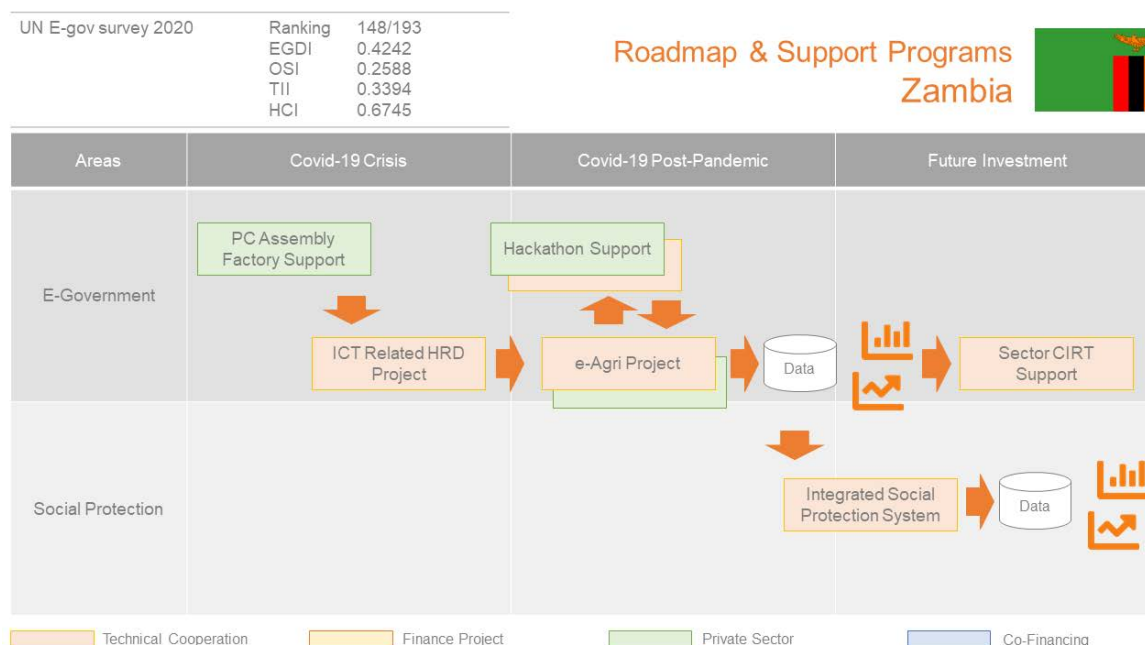
Source: JICA Study Team

Table 3.12.6   Proposed Support Programs (Zambia)

COVID-19 Crisis Response

Sector	Programs	Needs, Effect, Conditions, etc.	Approaches
ICT human resource development	Project to strengthen the capacity building of civil servants for the digitalization of public services 【Technical Cooperation 36MM】	• Though it is necessary for civil servants to acquire basic technical ICT skills such as email and Word/Excel usage, in addition to them, civil servants also need to understand the direction of Smart Zambia and e-government to be able to develop policies and institutions that will promote the digitization of public services. • To develop civil servants who can formulate and design policies and systems using ICT by providing PSMD with support for the formulation of human resource development and training plans for civil servants that will contribute to the realization of a Smart Zambia, support for the development of training curricula and teaching materials, training of trainers, and support for the introduction of learning support systems and e-learning systems. To develop civil servants who can plan and design policies and systems using ICT. • PSMD's current Public Service Training and	• Technical cooperation for ICT environment development

		Development Policy does not meet the needs of civil servants in the ICT/digital generation and needs to be updated, but PSMD's resources are not sufficient to meet this need.	

COVID-19 Post-Pandemic Response

Sector	Programs	Needs, Effect, Conditions, etc.	Approaches
e-Government	Support for building two-way e-extension service function on ZIAMIS [Technical Cooperation. 24MM].	• Need a two-way system for feedback on services provided and what is happening on the field; Ministry of Agriculture was looking for a collaborative partner to develop and enhance modules to enable feedback. • Both farmers and extension workers at the community level can receive feedback from the Ministry of Agriculture to facilitate production planning; the Ministry of Agriculture can use indigenous knowledge from different regions for research and policy making. Policy formulation can be based on farmers' agricultural engagement in each season. Farmers' income will increase and they will be able to graduate from FISP. • Information sharing and collaboration with the ongoing EU/FAO Sustainable Intensification of Smallholder Farming Systems in Zambia (SIFAZ) project.	• Technical cooperation for ICT environment development • Public-Private Partnerships
ICT Infrastructure	Conducting a digitization of public service contest 【9MM】	• Zambia has few local software developers and low capacity to increase the speed of public service digitization. • The goal is to train software developers to support the digitalization of public services in Zambia. • To foster the ability to propose ideas on how to solve problems in Zambia by digitalizing public services with what functions, and to actually implement the proposed software to solve the problems.	• Technical Cooperation • Public-Private Partnerships

Further Investment

Sector	Programs	Needs, Effect, Conditions, etc.	Approaches
ICT Policy	Support for setting up sector CIRTs 【Dispatch of Technical Cooperation Expert 96MM】	• With regard to cybersecurity, there are national CIRTs, but no sectoral CIRTs; therefore, it is not possible to promptly respond to cyber-attacks against each sector; the Ministry of Transport and Communications is considering developing these sectoral CIRTs; the national CIRT is a regulatory authority. It is under ZICTA, but needs to be reviewed on how to support the development of sector CIRTs, including their composition, types of skills, and improving capabilities and reporting. • Establish sector CIRTs as a framework for inter-sectoral reporting in order to respond quickly and appropriately to cyber-attacks on each sector; various organizations and processes, including national CIRTs, need to be coordinated and technical capabilities need to be developed in order to respond appropriately; to implement and enforce these measures, capacity building and organization are urgently needed; tools to improve operations are also needed. • Need to work with ZICTA and National CIRT.	• Technical cooperation for ICT environment development

| Social Protection | Capacity Development Project for the Digitalization of Public Services in Social Protection [Technique Pro 60MM]. | • In order to improve social protection services, the quality of the Zambia Integrated Social Security Information System (ZISPIS) including household data collection and analysis, pyroxamine's testing, and oversight, monitoring and reporting (OMR) needs to be improved.
• Support for the operation of the Zambia Integrated Social Security Information System (ZISPIS), improved interoperability, and the digitization of cash benefits will improve the targeting of poor and vulnerable households, reduce administrative processing costs, and promote capacity building of government officials; these will enable the rapid delivery of equitable social security services to the public.
• Leadership and cooperation of the Ministry of Community Development and Social Services (MCDSS) and harmonization with other donors such as the World Bank are required. | • Technical cooperation in the field of social security
• Public-Private Partnerships
• |

Source: JICA Study Team

3.12.5 Details of Proposed Support Programs

COVID-19 Crisis Response

Proposed project name	Project to strengthen the capacity building of civil servants for the digitalization of public services
Aline with SDGs goal and target	16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels 16.6 Develop effective, accountable and transparent institutions at all levels
Expected counterpart or related organizations	Implementation Agency: Public Service Management Division (PSMD) Related Agency: National Institute of Public Administration (NIPA) Smart Zambia Institute
Background of the proposal	• Though it is necessary for civil servants to acquire basic technical ICT skills such as email and Word/Excel usage, in addition to them, civil servants also need to understand the direction of Smart Zambia and e-government to be able to develop policies and institutions that will promote the digitization of public services. • Currently, ICT technical staff are being seconded from Smart Zambia Institute to various ministries and agencies to promote digitalization of public services. On the other hand, the PSMD, which is in charge of recruitment, transfer and training of the entire civil service, is not necessarily clear on what role it is expected to play in promoting Smart Zambia and e-government, and the demarcation between the PSMD and Smart Zambia Institute on promoting ICT skills among civil servants. • PSMD's current Public Service Training and Development Policy does not meet the needs of civil servants in the ICT/digital age and needs to be updated. The PSMD's resources are not sufficient to meet this need. • By revising Public Service Training and Development Policy to meet the needs of the civil service in the ICT/digital age and providing training to civil servants in line with the revised policy, Smart Zambia initiative can be further promoted.
Purpose of the proposed Project	• To develop public servants who are capable of planning and designing policies and systems for digitalization of public services to realize Smart Zambia by providing support to PSMD in formulating a human resource development and training plan for civil servants as well as support for the development of training curricula and training materials, training of trainers (ToT), and introduction of learning management systems (LMS) and e-learning systems.
Beneficiaries	• Short-term: PSMD (formulation (revision) of the Public Service Training and Development Policy), NIPA (support for the development of training curricula and training materials, training of trainers (ToT), introduction of learning management systems (LMS) and e-learning systems) • Medium-term: Public servants in general (ICT capacity building based on the formulated (revised) "Public Service Training and Development Policy") • Long-term: General public (realization of Smart Zambia through the expansion of digitalization of public services)
Related projects	• JICA's thematic training in Japan "Capacity Building for ICT Project Planning (ex. e-government, e-education, e-health, e-agriculture, etc.)"
Contents of the proposed project	• Formulation (revision) of Public Service Training and Development Policy for civil servants • Development of training curriculum and training in accordance with the formulated (revised) Public Service Training and Development Policy • Provision of ToT of NIPA trainers in relation to the above • Introduction of a Learning Management System (LMS) for efficient training operation • Introduction of an e-learning system to enable remote training
Alignment with Country	• GoJ's Country Assistance Policy and Development Cooperation Plan for Zambia

Assistance Policy for Respective Countries by GoJ / Priority of JICA	does not mention the cooperation in the digital sector and human resource development of civil servants. • On the other hand, the SMART Zambia e-Government Master Plan sets out a vision to "transform Zambia into an information and knowledge-based society and economy by 2030 through consistent and widespread use of ICTs by all citizens". Supporting the Smart Zambia initiative will also help to "improve social services as a basis for economic growth in Zambia" as stated in the Country Development Cooperation Policy. • It is obvious that strengthening the capacity of public servants, who are responsible for public services, is essential for the realization of Smart Zambia. • PSMD expressed strong expectations for GoJ's cooperation to support for the realization Smart Zambia through capacity building of civil servants.
Conditions	• There is a need to establish appropriate linkages with the Smart Zambia Institute and, with reference to the "Public Service ICT Human Capital Development", to identify the skill sets required by civil servants to achieve a Smart Zambia and to design a training curriculum. Inviting lecturers from the Smart Zambia Institute to serve as NIPA lecturers should also be considered.
Digitalization / Utilized data	NA
Proposed methodology of JICA support	Technical Assistance Project
Term	5 years
Estimate cost	36 MM

COVID-19 Post-Pandemic Response

Proposed project name	Support for building bi-directional e-extension service function on ZIAMIS
Aline with SDGs goal and target	SDG Goal 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture. 2.1: By 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round.
Expected counterpart or related organizations	Ministry of Agriculture Smart Zambia
Background of the proposal	• The e-extension service currently provided on ZIAMIS is one-way (ZIAMIS to extension agents/farmers) and does not have a feedback function from (1) extension agents/farmers to ZIAMIS and (2) agricultural extension agents to ZIAMIS-registered private businesses such as agricultural input dealers/dealers. • The government believes that ZIAMIS needs a two-way system to provide feedback on what is happening in the field, and has asked for assistance in developing and strengthening a model to enable feedback (requested by Ministry of Agriculture). • Digital devises associated with providing e-extension services and receiving them are: lack of ownership of devices, low digital literacy, unstable power supply, high Internet connection fees, etc..
Purpose of the proposed Project	A feedback function will be built into the e-extension service module of ZIAMIS to (1) reflect the situation on the ground when formulating agricultural policies, and (2) provide better services to farmers, agricultural input dealers, and dealers registered with ZIAMIS.
Beneficiaries	Ministry of Agriculture Agricultural extension worker Farmers Private e-extension service providers
Related projects	• EU/FAO: Sustainable Intensification of Smallholder Farming Systems in Zambia(SIFAZ): €12 million (currently under implementation). This project, funded by the European Union and FAO, will collect and provide various market prices information to 16,000 farmers in 27 districts to support their production and

	purchasing decisions. • EU: PEP program (terminated): 800 tablets were provided to facilitate training of facilitators for the farmer registration process. • FAO: Supported the Farmer Input Support Program (FISP). • JICA: Support for a number of staff training programs in the form of master's and doctoral scholarships and a number of short courses; Moridep Project -support for a rice project for farmers and extension workers in Luapula Province (in progress).
Contents of the proposed project	• Long-term experts will be dispatched to the e-extension service module of ZIAMIS to build a "two-way function" that enables feedback from (1) extension agents/farmers to ZIAMIS; and (2) extension agents to a wide range of private businesses, such as agricultural input dealers and dealers. • The long-term experts will conduct a POC study and develop a system for the provision of e-extension services by agricultural input companies, checking the following four items: 1) to 4). In the process of implementing the POC, tablets and PCs will be provided to extension agents and farmers (cost sharing method like FISP needs to be considered) and digital literacy training will also be provided. 1)　Who is currently using the system and how? The sub-modules of the current ZIAMIS system are: i) Setup dashboard showing the complete picture of the system; ii) Farmer registration; iii) Farmer Input Support Program (FISP); iv) e-extension service; v) Market information; vi) Various monitoring tools and vii) Real integration. Structurally, it is designed to integrate not only the current subsystems but also all other subsystems that have been developed earlier or will be developed in the future. Investigating who is using these systems and how they are using them. 2)　Other than the lack of a two-way feedback function, what are the other issues in the system? 3)　Scope of system development, definition of requirements (what kind of business flow, what functions are required) 4)　Schedule, cost, scope (training, equipment, etc.) for technical cooperation projects.
Alignment with Country Assistance Policy for Respective Countries by GoJ / Priority of JICA	The enhancing the agricultural platform through this project is highly consistent with the priority area of the Country Assistance Policy, which is "to contribute to the revitalization of industry by providing support in the agricultural sector based on technical cooperation.
Conditions	ZIAMIS representative from the Ministry of Agriculture states the followings on the proposed support. • It is possible for JICA to come in and support the analysis of requirements on functionalities of e-extension module. • The part of outsourcing to local software developers will need to be done in cooperation with Smart Zambia staff, as Smart Zambia is required to supervise the software development through its own staff sent to each ministry. • It could be developed by the Smart Zambia team, or by a company that Smart Zambia outsources to. • It is necessary to take into account of the implementation status of the following ongoing project implemented by EU/FAO: Sustainable Intensification of Smallholder Farming Systems in Zambia (SIFAZ)
Digitalization / Utilized data	Data related to agricultural extension services
Proposed methodology of JICA support	• Technical cooperation for ICT environment development (long-term expert dispatch) • Public-Private Partnerships
Term	2 years
Estimate cost	NA

Proposed project name	Conducting a digitization of public service contest
Aline with SDGs goal and	17.8 Fully operationalize the technology bank and science, technology and innovation

target	capacity-building mechanism for least developed countries by 2017 and enhance the use of enabling technology, in particular information and communications technology.
Expected counterpart or related organizations	Smart Zambia
Background of the proposal	Zambia has a small number of local software developers and their ICT capacity is low to increase the speed of digitalization of public services.
Purpose of the proposal Project	The objective of this project is to train software developers to support the digitization of public services in Zambia. Ability of the software developers to propose ideas on how to digitalize public services and what functions they should have in order to solve problems in Zambia, and to actually implement the proposed software to solve problems will be strengthened.
Beneficiaries	Private software development companies, Smart Zambia, Zambian citizen
Related projects	NA
Contents of the related project	In order to develop software developers who can support the digitization of public services, the project will invite software developers to submit their ideas on how the digitization of public services can help solve problems in each sector. The selected software developers will be funded to develop the proposed software and implement it in their services.
Alignment with Country Assistance Policy for Respective Countries by GoJ / Priority of JICA	• This is not mentioned in the Country Assistance Policy. • Although this is not a priority area in JICA, this is proposed because the capacity of local software developers is important to promote digitalization of public services in the priority sector from the results of this study.
Conditions	Technical Cooperation Project
Digitalization / Utilized data	NA
Proposed methodology of JICA support	Technical Cooperation Public Private Partnership
Term	2 years
Estimate cost	9 MM

Investment for the Future

Proposed project name	Support for setting up sector CIRTs
Aline with SDGs goal and target	17.8 Fully operationalize the technology bank and science, technology and innovation capacity-building mechanism for least developed countries by 2017 and enhance the use of enabling technology, in particular information and communications technology.
Expected counterpart or related organizations	Ministry of Transport and Communications
Background of the proposal	In terms of cyber security, there are national CIRTs, but no sector CIRTs, which means that cyber-attacks against each sector cannot be dealt with promptly. The Ministry of Transport and Communications is considering the development of these sector CIRTs. In addition, the national CIRTs are under the regulatory authority, ZICTA, which needs to review how to support the development of sector CIRTs, including their organizations, types of skills, and improved capabilities and reporting.
Purpose of the proposed project	Introduction of sector CIRTs (Sector Cyber Incident Response Teams) as a framework for inter-sectoral reporting in order to respond quickly and appropriately to cyber-attacks on each sector is proposed. To ensure appropriate response, various organizations and processes, including National CIRT, need to be coordinated and technical capabilities developed. In order to implement and enforce these measures, capacity development and organization building are urgently needed. Furthermore, tools to improve operations are also necessary.
Beneficiaries	Ministry of Transport and Communications, Zambian citizen, Each sector
Related projects	National CIRT
Contents of the proposed project	Sector CIRTs will be introduced to define collaboration with National CIRTs, and business demarcation to deal with cyber incidents quickly and appropriately. Tools for detecting cyber-attacks will also be introduced, and training will be provided to

	strengthen capabilities. The project will create a system to collect the latest information related to cyber incidents occurring in the world.
Alignment with Country Assistance Policy for Respective Countries by GoJ / Priority of JICA	• This is not mentioned in the Country Assistance Policy. • Although this is not a priority area in JICA, this is proposed on the grounds that this can serve as a basis for promoting digitalization in the priority sectors in the future by utilizing the results of this study.
Conditions	Collaboration with National CIRT is necessary.
Digitalization / Utilized data	NA
Proposed methodology of JICA support	Technical cooperation project
Term	4 years
Estimate cost	96 MM

Proposed project name	Capacity Development Project for the Digitalization of Public Services in Social Protection
Aline with SDGs goal and target	Target 1.3 of SDG Goal 1 aims at the inclusion of all citizens in social protection.
Expected counterpart or related organizations	Ministry of Community Development and Social Services (MCDSS)
Background of the proposal	• National social protection policies and programs have contributed to the improvement of Zambia's national social protection system. However,), it has challenges in the operation of the Zambia Integrated Social Protection Information System (ZISPIS). • It has not been able to collect comprehensive household data and its update. There is also a need to improve targeting errors through improved quality of the proxy mines testing. • The establishment of a monitoring and evaluation framework is required as soon as possible to realize future impact evaluation and the Evidence-Based Policy Making (EBPM). • Measures to improve the interoperability of ZISPIS with other management information systems are required. • Although the World Bank, UNICEF and other development partners are providing financial and technical assistance, the capacity gap for the effective operation of ZISPIS remains significant.
Purpose of the proposed project	• To develop the capacity of the government to ensure smooth and effective utilization of ZISPIS and to link data to broader social policy formulation. • To improve the quality of data collection and the proxy means testing. • To establish a monitoring and evaluation framework and conduct an impact evaluation. • To resolve for functioning interoperability with other management information systems, including civil registration and national ID.
Beneficiaries	MCDSS official as direct beneficiaries and citizens as indirect beneficiaries
Related projects	• World Bank (2015-2020) GIRLS' EDUCATION AND WOMEN'S EMPOWERMENT AND LIVELIHOOD PROJECT (GEWEL) US$207 million • UNICEF (2020) Zambia Integrated Social Protection Information System (ZISPIS) Pilot Program Assessment
Contents of the proposed project	• Social protection is not included in the country assistance policy. On the other hand, UHC and refugee assistance are priority areas which are highly relevant to social protection. In this regard, it proposes the assistance for the post COVID-19 era.
Alignment with Country Assistance Policy for Respective Countries by GoJ / Priority of JICA	• Building analytical and technical capacity to utilize data for Evidence-Based Policy Making (EBPM) in social protection. • Strengthen methods for comprehensive data collection on households, promote its interoperability with other management information systems to shorten the data update period, improve geographic targeting, community-based targeting,

	categorical targeting, and the quality of the proxy means test.
	• To develop a monitoring and evaluation framework for unconditional and conditional post-cash transfers, establish data collection methods, conduct impact evaluations, and promote EBPM.
	• Improved interoperability with other management information systems, such as civil registration and national ID.
Conditions	• Using administrative big data related to social protection, we can present solutions that lead to the planning of preventive measures required for each region and the effective allocation of resources, such as social cash transfers.
	• The strengthening of personal data protection laws for social protection and the development of laws and regulations to promote interoperability are required as conditions.
Digitalization / Utilized data	• Beneficiary data
	• Household data
Proposed methodology of JICA support	• To promote universal coverage, technical cooperation on institution building and capacity development will be implemented through a collaborative approach among the Government, World Bank, and other development partners, focusing on the areas where the World Bank's support is not fully reaching.
Term	2025 - 2028 (3 years)
Estimate cost	60 MM

Source: JICA Study Team