Job 25-05897 (templates A, B and C completed by Ecuador for the mid-term review of the Space2030 Agenda)

Translated from Spanish

TEMPLATE A
RESPONSE FOR SOLUTIONS: "Space2030" Agenda Mid-term Review

For Member States

NOTE BY SECRETARIAT: the following template is designed to allow Member States of the United Nations and permanent observer organizations with COPUOS to provide standardized responses to any of the 4 Overarching Objectives, and showcase their space solutions

Overarching objective [1-4]	1.2
Country/Observer Organization	Ecuador – Military Geographical Institute
Project partners	– Ministry of Defence – Ministry of Foreign Affairs and Human Mobility
Short Project summary and goals	Ecuador does not have a specific regulatory framework in the space domain, a situation that hinders development of the country's space sector, as the obligations, duties and rights of the various actors involved in space-related activities have not been established. It is therefore essential for Ecuador to draw up a space policy as a development tool for transforming society, and to draft a national space law establishing the conditions in which space development activities are to be carried out.
Relevant SDGs	5, 8 and 9
Space/Satellite solution:	The development of a legal and policy framework will enable Ecuador to advance space-related development, chiefly for the purpose of exploiting space resources, such as satellite images, by implementing solutions that make it possible to mitigate damage caused by natural or human-caused disasters, through planning.
Project impact	National
Reference	Not applicable

Overarching objective [1-4]	1, 2, 3 and 4
Country/Observer Organization	Ecuador – Military Geographical Institute
Project partners	– Ministry of Defence – Ministry of Foreign Affairs and Human Mobility – Ministry of Telecommunications

	− Secretariat of Higher Education, Science, Technology and Innovation − National Secretariat of Planning − Telecommunications Regulation and Control Agency − National Geoinformatics Council − Aerospace Development Directorate of the Ecuadorian Air Force − Higher education institutions − Public institutions that generate geoinformation − Groups and private enterprises linked to the space domain
Short Project summary and goals	**National Space Plan** The overall objective is to advance, manage and coordinate activities relating to research, technological development, innovation and production in fulfilment of the space-related functions assigned and international commitments undertaken. The specific objectives are: (1) To expedite the creation and adoption of a national legal framework that covers both legal and technical aspects and regulates and enhances the space activities of public and private institutions, ensuring the inclusion and participation of all actors involved. (2) To strengthen national capacity for space activities relating to research, technological development, innovation and production, supported by national and international cooperation, with the aim of enhancing the supply of services. (3) To foster the design and implementation of collaborative projects and programmes between the State, academia and industry in the areas of research, technological development, innovation and production of space science and technology, thus making it possible to broaden knowledge about outer space and to address challenges of national concern. (4) To manage space-related information effectively for the purposes of the generation, use, exploitation and development of geospatial products and services with added value, with a view to addressing the main national challenges faced.
Relevant SDGs	1 to 17
Space/Satellite solution:	Ecuador is situated on the equator and on the Pacific Ring of Fire, where there is significant geological activity. The territory of Ecuador

	comprises a mainland area and the Galapagos archipelago. The Andean mountain range crosses the mainland from north to south, creating altitudinal variation and a range of landforms. The country is directly affected by the El Niño and La Niña phenomena, which bring about changes in climate. Moreover, Ecuador has a direct relationship with outer space, since the geostationary orbit is part of the planet's physical environment and is located above Ecuador. In that regard, the use of Earth observation satellites will increase national capacity for economic development, provide information of use in reducing the physical vulnerabilities of Ecuadorian territory, boost national pride and encourage new generations to participate in related activities. Within that framework, the use of space technology will make it possible to monitor more effectively the variables associated with productivity, land use, risk management and the monitoring of natural resources, as well as security and defence.
Project impact	– Strengthening of space governance by drawing up a national space law and a national space policy – Building of capacity for the implementation of projects relating to research, technological development and innovation in the space domain – Creation and implementation of space-related projects, drawing on national and international cooperation, to support the development of a national space industry – Management of space information for the purpose of supporting the creation of products with added value
Reference	Not applicable

Overarching objective [1-4]	1, 2, 3 and 4
Country/Observer Organization	Ecuador – Military Geographical Institute
Project partners	- Ministry of Science, Technology and Innovation of the Federative Republic of Brazil - Brazilian Space Agency - National Institute for Space Research of Brazil
Short Project summary and goals	Inter-institutional memorandum of understanding between the Ministry of Science, Technology and Innovation of the Federative Republic of Brazil and the Ministry of Defence of Ecuador aimed at cooperation in building capacity relating to

	research, development and technological innovation in the space domain, and at fostering the development of aerospace vehicles and applications for peaceful purposes.
Relevant SDGs	9 and 17
Space/Satellite solution:	International cooperation in building capacity with respect to space infrastructure, innovation, technological development and research
Project impact	Programmes and/or projects of common interest will be pursued on the basis of the principles of equality, equity and mutual benefit. The memorandum of understanding will be implemented in accordance with the national laws and regulations of the parties and with current international space law. The parties will coordinate a space agenda that makes it possible to identify areas of mutual interest, and will endeavour to design cooperation programmes and/or projects to be implemented through joint efforts. It is proposed that such programmes and projects be jointly implemented in the following areas: – Space research – Spacecraft development – Launch of spacecraft into orbit – Use of infrastructure elements and facilities for space sector development; – Development of space applications – Participation of scientific, engineering and technical staff in projects – Threats originating in outer space (near-Earth objects; space weather; space debris) – Capacity for observation of the Earth's surface, monitoring and remote sensing – Grants enabling military and civilian personnel to pursue postgraduate studies relating to outer space – Training of military and civilian human resources (design of undergraduate and postgraduate curricula, accreditation, university exchanges (students and teachers), internships and the exchange of researchers and technicians) – Other forms of cooperation, to be agreed by the parties
Reference	Not applicable

Overarching objective [1-4]	2.1
Country/Observer Organization	Ecuador – Military Geographical Institute
Project partners	University of the Armed Forces
Short Project summary and goals	Circular depressed landforms are the result of the interaction of factors of natural origin associated with active and inactive geological processes; if those processes occur again, they will cause events that could pose a threat to the population, means of production and the environment. It is therefore necessary to identify, define and locate those structures spatially in the national territory. This study is a first step towards that goal through the identification of patterns of geometric signatures using the variables of gradient, texture, convexity, concavity, valley depth, convergence index and analytical shading in the SAGA 7.8.2 software. The procedure began with the surveying of elevated circular landforms, such as volcanic edifices, and their main characteristics (including drainage features, slopes, craters, vents, escarpments and erosion markings). That process made it possible to obtain information useful in defining circular depressed landforms and to delimit a large area of erosion in the north-eastern region under study. However, the need to establish an automated procedure for the identification of the target structures by means of geographic information systems has been identified.
Relevant SDGs	9 and 9.5
Space/Satellite solution:	The role of outer space in the project consists in satellite-based remote sensing, which makes it possible to identify and analyse circular depressed landforms using digital elevation models and images. In addition, comparative planetary geomorphology helps to interpret those structures in relation to observed geological processes on other celestial bodies. Meteorite strikes may be a key factor in the formation of some of these landforms; the use of satellite data is an effective means of improving the accuracy of the delimitation and analysis of those structures.
Project impact	– It is important to study landforms in order to understand how they are formed and thus to be able to determine whether the same processes of formation could pose a threat to the population, means of production or the environment in the future. – The application of this initial methodology in Pichincha Province has made it possible to detect vents in the craters of volcanic edifices

	and a large area of erosion with a depressed landform to the north-east of the inter-Andean valley. Further research is needed in order to determine the possible origin of that landform. – The need to define a procedure for the automated identification of the structures in question through the use of geographic information systems has been identified.
Reference	https://www.revistaterraaustralis.cl/index.php/rgch/article/view/190/97

Overarching objective [1-4]	1, 2 and 3
Country/Observer Organization	Ecuador – Military Geographical Institute
Project partners	– Ministry of Defence – Ministry of the Environment – SENAGUAS – General Secretariat for Risk Management – National Institute for Meteorology and Hydrology – SIAGRO – INEGEMM – Secretariat of Higher Education, Science, Technology and Innovation – National Secretariat of Planning – Higher education institutions – Public institutions that generate geoinformation – Groups and private enterprises linked to geoinformation projects
Short Project summary and goals	Reception of satellite images Since 1989, Ecuador has been able to use, at the Cotopaxi Station, technology enabling it to access satellite information that is fundamental for research on natural resources, the environment and national security. The overall objective is to enable public and private institutions to use and benefit from satellite images and data and to provide the knowledge that the State requires for decision-making, which will translate into the implementation of clear policies focused on those most in need and thus contribute to the economic and sustainable development that Ecuador needs. The specific objectives are: (1) To acquire multispectral information from satellites that provide high-resolution imagery;

	(2) To acquire SAR information for applications relating to specific projects; (3) To manage satellite information effectively for the purposes of the generation, use, exploitation and development of geospatial products and services with added value, with the aim of addressing the main national challenges faced.
Relevant SDGs	1 to 9, 11 and 13
Space/Satellite solution:	The use of satellite imagery makes it possible to reach all levels of the productive sector, enabling the creation of practical and effective plans and projects that, when channelled through national, provincial and local institutions, achieve competitive advantages through the improved use and exploitation of land and natural resources. Together with technology, satellite imagery is a valuable tool for local governments, making it easier to reorganize land and obtain reliable and up-to-date information for the purpose of generating cadastral documents for both urban and rural areas so as to ensure that plans and programmes are in place for the smooth and rational exercise of their jurisdiction, and for the implementation of a policy for the collection of land and property tax in a fair and equitable manner. The information generated by the Military Geographical Institute through the Cotopaxi Station will be available to all Ecuadorian citizens on an equitable basis.
Project impact	− Building of capacity for the implementation of plans, programmes and projects involving application and research − Management of geoinformation for the purpose of supporting the creation of products with added value
Reference	Not applicable

Overarching objective [1-4]	2.2, 2.3 and 2.5
Country/Observer Organization	Ecuador – Military Geographical Institute
Project partners	– National Secretariat of Planning – National Secretariat for Risk Management – Municipalities
Short Project summary and goals	Determination of the territory's population capacity for the purposes of urban development through the generation of thematic geoinformation at a scale of 1:5000

	Generation of information relating to geomorphology, coverage and use, socioeconomics, population density, access to basic services, level of education, conflicts of use, physical suitability for construction, and population capacity – Analysis of multi-hazards: floods, landslides and volcanic eruptions – Generation of information to support planning and risk and disaster management – Data at a scale of 1:5000
Relevant SDGs	3, 8, 9, 10 and 11
Space/Satellite solution:	High-resolution satellite images are used for areas in which basic information obtained through aerial photogrammetric restitution, orthophoto generation, etc., is unavailable.
Project impact	Generation of detailed information that supports decision-making for the autonomous decentralized governments at the cantonal level and serves as input for land organization plans and land use and management plans.
Reference	www.geograficomilitar.gob.ec

Overarching objective [1-4]	2.3, 3.8, 4.5 and 4.10
Country/Observer Organization	Ecuador – Military Geographical Institute
Project partners	National Secretariat for Risk Management
Short Project summary and goals	The Military Geographical Institute and the Secretariat for Risk Management collaborate in the area of disaster risk reduction through the use of satellite images, activating the International Charter on Space and Major Disasters when the National Secretariat for Risk Management, as Authorized User, determines that there is an emergency in the national territory. The Military Geographical Institute acts as Project Manager, which enables it to efficiently manage the process of activation and the production and geoprocessing of satellite images from various providers, ensuring that value-added products are available to the End User (National Secretariat for Risk Management and municipalities). Using that information, end users analyse, map and evaluate the areas affected by the emergency. In addition, activities are coordinated with national and international institutions in order to provide accurate and timely information that facilitates decision-making in critical situations. This work strengthens Ecuador's leadership in the

	area of risk management and its commitment to the use of space technologies for disaster mitigation and response. The International Charter has been activated on four occasions since 2021: – Cyclone Yaku, March 2023 – Floods, June 2023 – Floods caused by the El Niño phenomenon, 20 February 2024 – Localized flooding, 31 January 2022
Relevant SDGs	11.5, 13.1, 15, 3 and target 3.d
Space/Satellite solution:	The International Charter is composed of space agencies and space system operators from around the world who work together to provide satellite imagery for disaster monitoring purposes. Its main objective is to support authorities in disaster management, enabling the rapid assessment of damage, response planning and risk mitigation.
Project impact	Through activation of the Charter: – It has been possible to receive critical satellite-based information and thus to save lives, protect infrastructure and facilitate recovery after a catastrophic event. – Coordination among State institutions has been strengthened. – A rapid damage assessment was carried out to facilitate early decision-making. – The decisions taken were based on up-to-date technical analyses. – The technical capacities of the competent institutions have been strengthened. – Means of identifying vulnerable areas and improving community resilience are available.
Reference	www.geograficomilitar.gob.ec

Overarching objective [1-4]	1.2 and 2.7
Country/Observer Organization	Ecuador – National Institute of Cultural Heritage
Project partners	N/A
Short Project summary and goals	– Geocoding of archaeological heritage assets – Delimitation of 217 areas with archaeological geoforms inside and outside the current heritage protection zone – Geospatial Technical Report on the Expansion of the Heritage Zone of the Cerro de Hojas Jaboncillo Archaeological Site of the Cantons

	of Portoviejo, Montecristi and Jaramijó in Manabí Province – Geospatial Technical Report on the Expansion of the Heritage Zone of the Liguiqui Archaeological Site in Manta Canton, Manabí Province – Vulnerability mapping of heritage assets in Alausí Canton and the Qhapac Ñan Andean Road System with respect to natural hazards – Technical report on delimitation of the protection zone for archaeological and/or paleontological areas in the Tambo Blanco sector, Loja Canton – Technical report on delimitation of the protection zone for archaeological and/or paleontological areas of the Palanda sector, Zamora Chinchipe Province
Relevant SDGs	11.4
Space/Satellite solution:	Differential GPS, GPS navigator and orthophotography were used. – Use of LIDAR technology. Photointerpretation of archaeological geoforms present in LIDAR imagery. Use of WMS. – Geographic features (shapefiles).
Project impact	– Intensified efforts to protect and safeguard the world's cultural and natural heritage. – Adoption of measures to promote the role of culture in the restoration of historic centres.
Reference	https://www.patrimoniocultural.gob.ec/sistema-de-informacion-del-patrimonio-cultural-ecuatoriano-sipce/

Overarching objective [1-4]	1.1
Country/Observer Organization	Ecuador – Telecommunications Regulation Agency
Project partners	Telecommunications Regulation and Control Agency (ARCOTEL)
Short Project summary and goals	The role of ARCOTEL is to regulate the use of the radio frequency spectrum and telecommunications services in order to guarantee the right of access to good-quality, convergent services at fair prices and rates; to manage telecommunications resources through the transparent, equitable, efficient and environmentally sustainable allocation of those resources; to monitor the use of the radio frequency spectrum, and the provision of

	telecommunications services that offer quality, universality, accessibility, continuity and security in communications, through the Service for the Granting, Renewal, Administration and Termination of Authorizations for the Satellite-based Mobile Telecommunications Service, which provides end users of the service, through mobile terminal equipment, with means of communication for the transmission and receipt of voice signals, data or information of any kind, which reach the end user directly by means of satellite links, including communications established through the satellite system, between user terminals, as well as communications between users and other ground-based telecommunications equipment using the satellite system.
Relevant SDGs	9
Space/Satellite solution:	Space is the key physical and regulatory environment enabling satellite-based mobile telecommunications services to operate effectively, ensuring global connectivity in strategic sectors and in areas that are difficult to access in Ecuador.
Project impact	As at December 2024, 16 providers of satellite-based mobile telecommunications services were registered with ARCOTEL, representing a total of 1,360 subscribers and 4,426 terminals.
Reference	https://www.arcotel.gob.ec/abonados-y-terminales/

Overarching objective [1-4]	1.8
Country/Observer Organization	Ecuador – National Institute of Statistics and Censuses (INEC)
Project partners	– Governmental organizations – Academia – International bodies – Private sector
Short Project summary and goals	Updating of statistical mapping at the minimum mappable unit level, involving the georeferencing of data by a team in the field and an office-based team, which makes it possible to ensure up-to-date information on the basis of the INEC sampling framework for the various statistical operations involved. The objective is to improve the accuracy and coverage of geospatial information used in censuses and surveys.

	The process consists in collecting, verifying and updating cartographic and statistical data in the field, ensuring that the information accurately reflects the distribution of the population and its local characteristics.
Relevant SDGs	11.7.1, 11.2.1 and 11.3.1
Space/Satellite solution:	High spatial resolution satellite imagery
Project impact	Improvement of the statistical framework; linkage with the cadastre according to the level of disaggregation of data; delimitation of planning zones; localization of statistical data disseminated by INEC.
Reference	https://www.ecuadorencifras.gob.ec/documentos/web-inec/Geografia_Estadistica/Micrositio_geoportal/index.html

Overarching objective [1-4]	1.2, 1.7, 1.8, 2.2, 2.3 and 2.5
Country/Observer Organization	Ecuador – National Institute of Agricultural Research (INIAP)
Project partners	– German Agency for International Cooperation (GIZ) – National Institute of Agricultural Research (INIAP) – Agency for the Regulation and Control of Plant and Animal Health (AGROCALIDAD)
Project title	"Estamos Alerta**"** platform for the smart detection of disease in plants of the *Musaceae* family
Short Project summary and goals	"Estamos Alerta" provides a remote sensing solution involving low-cost platforms supported by a system for detection using convolutional neural network processes that make it possible to achieve high spatial resolution, complemented by band algebras that enable the convolutional neural network to identify disease by means of spectral responses, shape and position, accurately determining the extent to which the crop is affected. Such detection makes it possible to establish appropriate phytosanitary control measures, especially in the face of a major threat such as Fusarium oxysporum f. sp. cubense Tropical Race 4 (Foc TR4).
Relevant SDGs	1, 2, 8, 9, 15 and 17
Space/Satellite solution:	Use of systems for the comprehensive georeferencing of areas affected by the diseases studied to establish control, intervention and/or containment plans

Project impact	– Optimization, in terms of time and resources, of systems for the detection of phytosanitary problems in crops of social and economic importance in the country – Transfer of knowledge, including with regard to use of the platform and information-gathering procedures, to farmers and phytosanitary control personnel in Ecuador – Transfer of knowledge to agricultural and phytosanitary monitoring and research entities in the region
Reference	https://www.estamosalerta.com

Overarching objective [1-4]	1.2, 1.7, 1.8, 2.1, 2.2, 2.3, 2.5, 2.8 and 3.2
Country/Observer Organization	Ecuador – National Institute of Agricultural Research (INIAP)
Project partners	– National Institute of Agricultural Research (INIAP) – German Agency for International Cooperation (GIZ) – International Atomic Energy Agency (IAEA)
Project title	Establishment of a phytosanitary laboratory, and remote sensing
Short Project summary and goals	Demand for crop disease early warning systems has evidenced the need to collect spectral information using several sensors in controlled conditions in order to identify stress factors, the extent of disease in crops, resistance conditions and normal conditions. The information obtained will be structured and made easily accessible in order to enhance effective multi-user remote sensing systems for detecting crop management determinants.
Relevant SDGs	1, 2, 9, 15 and 17
Space/Satellite solution:	Generation of information through the use of aerial or satellite remote sensing technologies for disease and stress detection in crops.
Project impact	– Generation of basic spectral information for advanced detection systems – Specialized infrastructure for controlled conditions and biosafety
Reference	https://www.facebook.com/story.php/?story_fbid=964673332372379&id=100064891625895&_rdr

Overarching objective [1-4]	1.2, 1.7, 1.8, 2.2, 2.3 and 2.5
Country/Observer Organization	Ecuador – National Institute of Agricultural Research (INIAP)
Project partners	– Bioversity International – International Center for Tropical Agriculture (CIAT) – German Agency for International Cooperation (GIZ) – National Institute of Agricultural Research (INIAP), Ministry of Agriculture and Livestock of Ecuador – Latin American and Caribbean Network for Musaceae Research and Development (MUSALAC) – Ministries – Ecuadorian research centres and universities – Colombia – Peru
Project title	Innovations for the Prevention and Management of Foc TR4 in South America (ALER4TA)
Short Project summary and goals	Bananas are critical to food security, employment and exports in Latin America and around the world. The reappearance of Fusarium Race 4 wilt poses a serious threat to world banana production. The project is focused on building the capacity of actors in the banana value chain to use preventive tools to detect and manage TR4; building capacity to apply best practices in the integrated management of Fusarium TR4 wilt; and enriching banana cultivar diversity with TR4-resistant or TR4-tolerant cultivars.
Relevant SDGs	1, 2, 8, 9, 15 and 17
Space/Satellite solution:	– Use of georeferencing systems for Foc TR4 detection – Generation of models and maps for intervention using satellite and georeferenced information on the region
Project impact	– Development of an AI model based on deep learning for the detection of Fusarium wilt – Integration of the AI application with PestDisPlace in order to create maps – Development of epidemiological models for Foc TR4 dispersion according to farmer typology with a view to providing guidance on management tactics

	– Introduction, evaluation and selection of available Foc TR4-tolerant/-resistant cultivars
Reference	https://www.giz.de/en/downloads/giz2023-en-i4Ag-ALER4TA.pdf

Overarching objective [1-4]	1.1, 1.2, 1.7, 1.8, 2.1, 2.2, 2.3, 2.5, 3.4 and 3.6
Country/Observer Organization	Ecuador – National Institute of Agricultural Research (INIAP)
Project partners	– National Emergency Operations Committee (COE) – National Institute of Agricultural Research (INIAP)
Project title	Development of Agrotechnologies as a Strategy for Countering the Threat of Diseases Affecting Musaceae Production in Ecuador (DAPME)
Short Project summary and goals	The general objective is to generate and implement innovative technologies in the cultivation of musaceae in Ecuador as a prevention plan, given the threat of the introduction of Foc TR4 and other phytosanitary problems. The project is also aimed at the selection of highest-quality materials, with a focus on obtaining materials that exhibit outstanding characteristics in producers' fields at the national level, as well as the introduction of materials from abroad that are reported to be Foc TR4-resistant or -tolerant. – Evaluation of microorganisms as potential agents in the biological control of disease-causing pathogens. – Development of applied technologies for banana, plantain and other musaceae on the basis of the principles of Agriculture 4.0. in order to identify diseases at an early stage and detect nutritional and water deficiencies in crops. The outcome of this objective will be a modular AI application for identifying anomalies in musaceae. – Development of production processes with the aim of making plants of high quality and biocontrol technologies available. – Improvement and updating of plans for outreach and training on sustainable agrotechnologies in musaceae production.
Relevant SDGs	1, 2, 8, 9 and 15

Space/Satellite solution:	– Use of georeferencing systems for Foc TR4 detection – Generation of models and maps, using satellite and georeferenced information on the region, for monitoring risks of introduction of the disease. – Generation of spectral information to be used in remote sensing for surveillance and monitoring. – Generation of Foc TR4 zoning, risk and dispersion maps with geoinformation. – Generation of a platform for early detection using smart analysis.
Project impact	– Generation of solutions for the control and containment of, or increased resilience to the introduction of, Foc TR4 – Development of a platform for the early detection of disease – Generation of information enabling the management, control and detection of the disease
Reference	https://repositorio.iniap.gob.ec/handle/41000/6357

Overarching objective [1-4]	1.1, 1.2, 1.7, 1.8, 2.1, 2.2, 3.2, 3.4, 3.6 and 4.3
Country/Observer Organization	Ecuador – National Institute of Agricultural Research (INIAP)
Project partners	– Ministry of Foreign Affairs and Human Mobility – National Institute of Agricultural Research (INIAP) – Planning and Programming Secretariat of the Office of the President of the Republic of Guatemala and Ministry of Agriculture, Livestock and Food of Guatemala (MAGA)
Project title	Pilot plan for the use of geospatial data cubes to identify agricultural crops of interest to Ecuador and Guatemala
Short Project summary and goals	– To contribute to the identification of agricultural crops of interest to Ecuador and Guatemala through the implementation of two pilot plans that use state-of-the-art technology – To characterize the areas of Ecuador and Guatemala under study on the basis of biophysical parameters that make it possible to define clearly the areas in which the pilot

	plans are to be implemented, taking into account agricultural crops of national interest – To structure sources of primary and secondary information for the construction of geodata cubes – To review the outputs of the proposed models
Relevant SDGs	1, 2, 3, 8, 9, 15 and 17
Space/Satellite solution:	Use of satellite data to generate information enabling appropriate decision-making in order to improve food security
Project impact	– Collection of secondary information – Generation of proposals for identification models – Methods of generating geoinformation proposed
Reference	https://agn.gt/fortaleciendo-la-agricultura-a-traves-del-intercambio-de-conocimientos/

Overarching objective [1-4]	1.1, 1.2, 1.7, 1.8, 2.1, 2.2, 3.4 and 3.6
Country/Observer Organization	Ecuador – National Institute of Agricultural Research (INIAP)
Project partners	National Institute of Agricultural Research (INIAP); University of the Armed Forces (ESPE); Central University of Ecuador (UCE); San Francisco University
Project title	Spectral studies on pastures in the Ecuadorian highlands
Short Project summary and goals	Generation of basic information from the spectral responses of various sensors with regard to pasture types, their forage mixes and their different phenological stages with a view to enhancing related research by means of remote sensing
Relevant SDGs	1, 2, 3, 8, 9, 15 and 17
Space/Satellite solution:	– Use of precision geopositioning systems (GNSS) – Generation of information for the identification of spectral response segments
Project impact	Generation of information for the identification of spectral response segments in respect of pastures to be used subsequently in sustainable and smart management
Reference	https://repositorio.iniap.gob.ec/jspui/bitstream/41000/6042/1/informe_anual_a%C3%91o_2021_ganader%C3%8Da_final.pdf

Overarching objective [1-4]	1.7, 2.1, 2.2, 2.4 and 3.4
Country/Observer Organization	Ecuador – National Institute of Agricultural Research (INIAP)
Project partners	National Institute of Agricultural Research (INIAP)
Project title	INIAP data
Short Project summary and goals	Platform for the management of projects and research generated by INIAP. The platform makes it possible to visualize and tailor the studies carried out with a view to structuring the information and being able to analyse impacts and extrapolate results.
Relevant SDGs	1, 2, 3, 8, 9, 15 and 17
Space/Satellite solution:	Use of geopositioning systems
Project impact	– Structuring of research information – Impact analysis and extrapolation of results
Reference	Internal use

Overarching objective [1-4]	1.1, 1.2, 1.7, 1.8, 2.2, 2.7, 2.8, 3.1, 3.2, 3.4 and 3.6
Country/Observer Organization	Ecuador – National Institute of Agricultural Research (INIAP)
Project partners	Ministry of Agriculture and Livestock (MAG); National Institute of Agricultural Research (INIAP); German Agency for International Cooperation (GIZ); private enterprise
Project title	Rural Youth Strategy
Short Project summary and goals	The goal of the Rural Youth Strategy is to promote the development of rural youth entrepreneurship through the incorporation of new technologies and the training of young people living in rural areas.
Relevant SDGs	1, 2, 4, 8, 9, 10 and 17
Space/Satellite solution:	– Training on satellite and aerial imagery processing and applications – Knowledge of various uses of space technologies in innovation and entrepreneurship processes
Project impact	More than 10,000 young people have been trained through the Rural Youth Entrepreneurship Schools, an initiative of the Ministry of Agriculture and Livestock of Ecuador. That training includes topics such as entrepreneurship,

	financial education, renewable technology and more.
Reference	https://www.agricultura.gob.ec/mag-inicia-la-quinta-escuela-de-emprendimiento-jovenes-rurales/

Overarching objective [1-4]	1.1, 1.2, 1.7, 1.8, 2.1, 2.2, 2.3, 2.5, 3.4 and 3.6
Country/Observer Organization	Ecuador – National Institute of Agricultural Research (INIAP)
Project partners	– National Institute of Meteorology and Hydrology (INAMHI) – Ministry of Agriculture and Livestock (MAGAP), through the General Coordination Office for National Agricultural Information (CGINA) – National Institute of Agricultural Research (INIAP)
Project title	Agroclimatic Hazard Forecast Bulletin
Short Project summary and goals	Creation of an interactive bulletin on agroclimatic hazards containing information on monthly precipitation forecasts, precipitation anomalies and the area threatened by floods or droughts, for the agricultural sector
Relevant SDGs	1, 2, 8, 9, 15 and 17
Space/Satellite solution:	– Use of INAMHI precipitation forecasts – GIS cartographic models for geoprocessing – Satellite imagery for the detection of drought and floods – Algorithm for identifying areas with excessive or insufficient rainfall
Project impact	– Development of methodologies for the identification of areas threatened by floods or droughts at the national level and by crop – Development of a code in the Python language for the determination of areas where excess or insufficient rainfall is forecast – Development of methodologies for the detection of droughts or floods in the agricultural sector – Design of a bulletin containing all available information on weather conditions, area of crops affected and impacts on crops that would be affected by climate conditions
Reference	http://geoportal.agricultura.gob.ec/index.php/pronostico-amenaza

Overarching objective [1-4]	1.1, 1.2, 1.7, 1.8, 2.1, 2.2, 2.3, 2.5, 3.4 and 3.6
Country/Observer Organization	Ecuador – National Institute of Agricultural Research (INIAP)
Project partners	National Institute of Agricultural Research (INIAP); Horizon 2020 Framework Programme of the European Union
Project title	Conservation Areas for 25 Andean Crops in Ecuador
Short Project summary and goals	Information on the georeferencing of collections of the 25 crops in the ECUCOL passport database of the INIAP Gene Bank, to determine conservation areas for groups of crops that share agroecosystems. Group 1, Andean highland root vegetables, consisted of achira, jícama, miso and white carrot; group 2, Andean highland tubers: potato, oca, melloco and mashua; group 3, Andean highland grains: black amaranth, chocho, kidney beans, broad beans, quinoa and corn; group 4, Andean highland fruit trees: capulí cherry, chirimoya, tamarillo and goldenberry; and group 5, tropical crops: achiote, sweet potato, peanut and cassava. For chili, passionflower and naranjilla.
Relevant SDGs	1, 2, 8, 9, 15 and 17
Space/Satellite solution:	– Conservation area studies – Contributions to the gene bank
Project impact	Conservation areas for the establishment of environmental and social management plans
Reference	https://repositorio.iniap.gob.ec/handle/41000/6155

Overarching objective [1-4]	1.1, 1.2, 1.7, 1.8, 2.1, 2.2, 2.3, 2.5, 3.4 and 3.6
Country/Observer Organization	Ecuador – National Institute of Agricultural Research (INIAP)
Project partners	Ministry of Agriculture and Livestock (MAGAP), through the General Coordination Office for National Agricultural Information (CGINA); National Institute of Agricultural Research (INIAP)
Project title	Agroecological zoning of various crops
Short Project summary and goals	Agroecological zoning to identify potential areas for various crops with the aim of contributing to appropriate decision-making by public and private institutions, authorities, seed producers and farmers, enabling rational planning and appropriate use of land. Specific objectives: (1) Collect, store and systematize thematic

	geoinformation; (2) elaborate a script using the edaphic and climatic variables that are necessary for agroecological zoning and that enable the geolocation and delimitation of suitable, moderately suitable, marginally suitable and unsuitable zones for the establishment of the crop under natural conditions; and (3) generate agroecological zoning maps.
Relevant SDGs	1, 2, 8, 9, 15 and 17
Space/Satellite solution:	Climatological satellite information; spatialized physical and social information for zoning
Project impact	– Studies of agroecological zones – Open geoinformation
Reference	http://geoportal.agricultura.gob.ec/

Overarching objective [1-4]	1.1, 1.2, 1.7, 1.8, 2.1, 2.2, 2.3, 2.5, 3.4 and 3.6
Country/Observer Organization	Ecuador – National Institute of Agricultural Research (INIAP)
Project partners	National Institute of Agricultural Research (INIAP); Quevedo State Technical University (UTEQ); Manabí Agricultural Polytechnic (ESPAM); Cotopaxi Technical University (UTC)
Project title	Generation of climate-smart strategies for the production of forage biomass and its conversion into animal protein in the coastal region of Ecuador
Short Project summary and goals	To determine forage production and storage capacity in the form of the silaging of INIAP commercial maize materials
Relevant SDGs	1, 2, 8, 9, 15 and 17
Space/Satellite solution:	– Use of precision geopositioning systems (GNSS) – Generation of information for the identification of spectral response segments
Project impact	– Phenology and phenometry in varieties and hybrids of *Zea mays* for forage at different sowing densities in the town of Mocache, Los Ríos Province – AI in prediction models for maize for forage purposes
Reference	https://repositorio.iniap.gob.ec/handle/41000/6062#:~:text=El%20presente%20documento%20resume%20los%20componentes%20y%20actividades,desarrollado%20en%20la%20Estaci%C3%B3n%20Experimental%20Tropical%20Pichilingue%20de

Overarching objective [1-4]	1.1, 1.2, 1.7, 1.8, 2.1, 2.2, 2.3, 2.5, 3.4 and 3.6
Country/Observer Organization	Ecuador – National Institute of Agricultural Research (INIAP)
Project partners	Food and Agriculture Organization of the United Nations (FAO); National Institute of Agricultural Research (INIAP); Ministry of Agriculture of Ecuador; ministries, research centres and academia of Latin America and the Caribbean
Project title	Platform of Latin America and the Caribbean for Climate Action on Agriculture
Short Project summary and goals	The Platform of Latin America and the Caribbean for Climate Action on Agriculture (PLACA), launched at COP25, was created in response to the need of the ministries of agriculture for a regional mechanism for strengthening institutional capacities in relation to the effects of climate change on agriculture. It is focused on: Fostering a collaborative network of shared knowledge Building capacity to support ministries of agriculture in bolstering climate action in implementation of their commitments under the Paris Agreement. The Platform considers social, environmental and economic dimensions with a view to seeking synergies with major environmental agreements, such as the Climate Change Convention, the 2030 Agenda, the Sendai Framework for Disaster Risk Reduction 2015–2030, and the conventions on biological diversity and the combating of desertification and drought.
Relevant SDGs	1, 2, 4, 8, 9, 15, 16 and 17
Space/Satellite solution:	Use of technological innovation to support monitoring, resilience, mitigation and adaptation in relation to climate change in agriculture
Project impact	– Development of a space for cooperation in the exchange and co-creation of knowledge and technologies, the creation and strengthening of capacities, and support for national governance – Access to financing, and support with respect to cooperation – Institutional management and policy management support
Reference	https://accionclimaticaplaca.org