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| About | This overview is part of a series prepared by the NAP Global Network Secretariat sharing analysis of the structures of national adaptation plan (NAP) documents.                                       |
|       | For more overviews of NAP documents, please visit the NAP Trends platform hosted by the NAP Global Network at: <a href="https://trends.napglobalnetwork.org/">https://trends.napglobalnetwork.org/</a> |
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| Document Title                       | Republica de Guatemala Plan de Acción Nacional de Cambio Climático - PANCC                                                                                  |
| Year of NAP submission to the UNFCCC | 2019                                                                                                                                                        |
| Version                              | 2                                                                                                                                                           |
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| Notes                                | This was translated using DeepL, so there may be minor grammatical and translation issues. This extraction does not include mitigation sectors and actions. |

| Level | Label                  | Content                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Parent Tag             | Page # |
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| 1     | Objectives             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                        |        |
|       |                        | The General Objective of the PANCC is to define, in a clear and orderly manner, the main actions and guidelines that government institutions and other State sectors should follow in order to effectively contribute to the reduction of the vulnerability of the majority of the national population, to increase the country's adaptive capacity and to reduce greenhouse gas emissions in the face of the threat of the effects of climate change and climate variability. |                        | 17     |
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|       | Objective 3.1          | Develop capacities to address the displacement of people due to the impacts of climate change.                                                                                                                                                                                                                                                                                                                                                                                 | Cross-cutting Sector 3 | 63     |
|       | Objective 4.1          | To increase the health system's capacity for care and prevention in the face of climate variability and change.                                                                                                                                                                                                                                                                                                                                                                | Adaptation Sector 4    | 72     |
|       | Objective 5.1          | To conserve, restore and manage in an integral and sustainable manner the resources of the country's Marine Coastal Zones, through the implementation of actions to reduce the vulnerability and adaptation of the population to the effects of climate change                                                                                                                                                                                                                 | Adaptation Sector 5    | 81     |
|       | Objective 6.1          | Increase food production (animal and vegetable) through the implementation of adaptation actions that will reduce the vulnerability of families affected by the effects of climate change and guarantee their food and nutritional security                                                                                                                                                                                                                                    | Adaptation Sector 6    | 103    |
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| 4     | Key Results            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                        |        |
|       | Key Result 1.1         | National Meteorological monitoring to evaluate trends and climate variability in order to identify adaptation strategies for meteorological and climatic conditions and climate change.                                                                                                                                                                                                                                                                                        | Cross-cutting Sector 1 | 47     |
|       | Key Result 1.2         | Generate studies and research related to meteorology, climatology, hydrology, variability and climate change to identify adaptation strategies                                                                                                                                                                                                                                                                                                                                 | Cross-cutting Sector 1 | 48     |
|       | Key Result 1.3         | Have systematized meteorological and hydrological information at the national level                                                                                                                                                                                                                                                                                                                                                                                            | Cross-cutting Sector 1 | 49     |
|       | Key Result 3.1         | The impacts of the climate change phenomenon on the displacement of people in Guatemala have been evidenced                                                                                                                                                                                                                                                                                                                                                                    | Cross-cutting Sector 3 | 63     |
|       | Key Result 4.1         | Coverage for health care and prevention in the face of climate variability and change has been improved and increased.                                                                                                                                                                                                                                                                                                                                                         | Adaptation Sector 4    | 72     |

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|   | Key Result 5.1 | The conservation, restoration, and management of ecosystems in Guatemala's marine-coastal zones have contributed to reducing vulnerability and helping populations adapt to the threats posed by climate change.                                 | Adaptation Sector 5 | 85  |
|   | Key Result 5.2 | Losses and damage to human life, productive infrastructure, and basic services located in marine and coastal areas have been reduced by the implementation of prevention, preparedness, and response actions.                                    | Adaptation Sector 5 | 95  |
|   | Key Result 6.1 | Food production (staple grains, traditional and non-traditional crops, livestock and livestock) has increased.                                                                                                                                   | Adaptation Sector 6 | 103 |
|   | Key Result 6.2 | Losses and damages caused by extreme weather events in the agricultural sector have been reduced.                                                                                                                                                | Adaptation Sector 6 | 108 |
|   | Key Result 6.3 | The percentage of national territory managed with a sustainable agroecological approach and adapted to climate variability has increased.                                                                                                        | Adaptation Sector 6 | 110 |
|   | Key Result 7.1 | Economic and environmental goods have been generated for the population, contributing to reducing vulnerability to climate change-induced threats                                                                                                | Adaptation Sector 7 | 117 |
|   | Key Result 8.1 | Socio-vital infrastructure has been built and improved considering climate change adaptation construction standards.                                                                                                                             | Adaptation Sector 8 | 133 |
|   | Key Result 9.1 | Water resources are managed sustainably through the implementation of integrated practices                                                                                                                                                       | Adaptation Sector 9 | 141 |
| 5 | <b>Actions</b> |                                                                                                                                                                                                                                                  |                     |     |
|   | Action 1       | Inform the population about the weather conditions in the next 24 hours.                                                                                                                                                                         | Key Result 1.1      | 47  |
|   | Action 2       | To alert the productive sectors and the population in general about hydrometeorological phenomena that will affect the country.                                                                                                                  | Key Result 1.1      | 47  |
|   | Action 3       | Inform the population about the weather conditions in the next 120 hours.                                                                                                                                                                        | Key Result 1.1      | 47  |
|   | Action 4       | To provide information on weather conditions and phenomena for the planning of the different sectors                                                                                                                                             | Key Result 1.1      | 47  |
|   | Action 5       | To provide information on climatic conditions and phenomena for the planning of the different sectors.                                                                                                                                           | Key Result 1.1      | 47  |
|   | Action 6       | Inform farmers about weather conditions for corn and bean crops.                                                                                                                                                                                 | Key Result 1.1      | 47  |
|   | Action 7       | Update the national climate atlas for decision making.                                                                                                                                                                                           | Key Result 1.2      | 48  |
|   | Action 8       | Elaborate studies on the climatic variability of Guatemala for the evaluation of changes in the climatic standards.                                                                                                                              | Key Result 1.2      | 48  |
|   | Action 9       | Elaborate a document with the climate change indexes                                                                                                                                                                                             | Key Result 1.2      | 48  |
|   | Action 10      | To quantify annually the potential availability of water resources by river basin.                                                                                                                                                               | Key Result 1.2      | 48  |
|   | Action 11      | Generate climate change scenarios through numerical modeling.                                                                                                                                                                                    | Key Result 1.2      | 48  |
|   | Action 12      | Develop research related to meteorology, climatology, hydrology, variability and climate change.                                                                                                                                                 | Key Result 1.2      | 48  |
|   | Action 13      | Identify institutions and organizations, both private and public, that have meteorological stations, and ask them to link their records to the INSIVUMEH network of stations, using the base format already generated by INSIVUMEH.              | Key Result 1.3      | 49  |
|   | Action 14      | Install new meteorological stations at sites with the greatest void of meteorological information or reactivate weather stations that have been abandoned.                                                                                       | Key Result 1.3      | 49  |
|   | Action 15      | Strengthen the network for monitoring water flow and water quality parameters in the country's water bodies.                                                                                                                                     | Key Result 1.3      | 49  |
|   | Action 16      | Create a groundwater monitoring network, starting with the metropolitan region of Guatemala and the area of influence.                                                                                                                           | Key Result 1.3      | 49  |
|   | Action 17      | Develop a statistical system The report also includes a report on climate displacement that takes into account the types of displacement resulting from climate change (forced movement, migration, etc.), planned relocation).                  | Key Result 3.1      | 63  |
|   | Action 18      | Develop and implement a training and awareness-raising program on impacts of climate change in the movement of people                                                                                                                            | Key Result 3.1      | 63  |
|   | Action 19      | Promote joint work among State institutions to incorporate aspects of displaced people due to climate change and their respective protection, through policies on this issue                                                                     | Key Result 3.1      | 63  |
|   | Action 20      | Enlarge y improve the care infrastructure in first, second and third-year third level in areas vulnerable to climate change                                                                                                                      | Key Result 4.1      | 72  |
|   | Action 21      | Timely supply of equipment and supplies to the different levels of health care, including traditional health systems, and the Traditional Medicine Program of the Public Health System, prioritizing municipalities vulnerable to climate change | Key Result 4.1      | 72  |
|   | Action 22      | Create mechanisms for risk transfer (insurance, reinsurance, bonds and payment for damages) that allow for financial availability to rehabilitate health infrastructure                                                                          | Key Result 4.1      | 73  |
|   | Action 23      | Identify mechanisms that to strengthen the emergency fund to mitigate damages caused by natural phenomena.(Governmental Agreement 105-2012)                                                                                                      | Key Result 4.1      | 73  |
|   | Action 24      | Training of personnel institutional considering cultural relevance in municipalities vulnerable to climate change in response and early warning systems, taking into account the knowledge of indigenous peoples and local communities           | Key Result 4.1      | 73  |
|   | Action 25      | Documenting care provided to people affected by illnesses caused by adverse weather events.                                                                                                                                                      | Key Result 4.1      | 73  |
|   | Action 26      | Coordinate actions between the institutions and the private sector to provide timely response to people affected by adverse events.                                                                                                              | Key Result 4.1      | 74  |
|   | Action 27      | Strengthen the program on traditional medicine, including prevention and care.                                                                                                                                                                   | Key Result 4.1      | 74  |
|   | Action 28      | Protect, conserve and strengthen the ancestral health system through the transfer of knowledge for the care of diseases linked to the                                                                                                            | Key Result 4.1      | 74  |
|   | Action 29      | Develop methodologies and implement assessments of the functioning of health care systems during adverse weather events (including sexual and reproductive health protocols).                                                                    | Key Result 4.1      | 74  |
|   | Action 30      | Strengthening the Alert System Early (epidemiological surveillance) to forecast the behavior of climate-related diseases in order to respond in a timely manner                                                                                  | Key Result 4.1      | 74  |
|   | Action 31      | Develop and implement a training and sensitization program for health personnel and civil society focused on climate change and human health. (taking into account traditional knowledge)                                                        | Key Result 4.1      | 75  |
|   | Action 32      | Increase the number of health care personnel in areas susceptible to climate change, taking into account cultural relevance.                                                                                                                     | Key Result 4.1      | 75  |
|   | Action 33      | To develop and implement a research program in the climate change and human health using culturally appropriate methodologies (also taking into consideration the issue of diseases).                                                            | Key Result 4.1      | 75  |

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|  | Action 34 | Prioritize and develop national actions to for implementation of the 2005-2014 Regional Agro-environmental and Health Strategy for Central America                                                                                                                                                                                                                                               | Key Result 4.1 | 75 |
|  | Action 35 | Update epidemiological surveillance protocols focused on climate change and human health                                                                                                                                                                                                                                                                                                         | Key Result 4.1 | 76 |
|  | Action 36 | Design and implement culturally adapted methodologies for the capture, measurement and analysis of human health vulnerabilities for the construction of adaptation and vulnerability indexes through the SNICC.                                                                                                                                                                                  | Key Result 4.1 | 76 |
|  | Action 37 | Develop mechanisms and protocols to systematize health investor information for the implementation of climate change adaptation measures                                                                                                                                                                                                                                                         | Key Result 4.1 | 76 |
|  | Action 38 | Design and implement programs for the implementation of safe water management, household hygiene and sanitation practices at the family and community level with a focus on climate change and human health.                                                                                                                                                                                     | Key Result 4.1 | 76 |
|  | Action 39 | Establish surveillance measures to ensure better attention to diseases related to climate change as well as monitoring the quality of water for human consumption                                                                                                                                                                                                                                | Key Result 4.1 | 77 |
|  | Action 40 | Coordinate the interventions of the first and second level health care system with the Development Council System (CONUSAN, CONRED, others).                                                                                                                                                                                                                                                     | Key Result 4.1 | 77 |
|  | Action 41 | To include the issue of adaptation to climate change in current public policies related to human health.                                                                                                                                                                                                                                                                                         | Key Result 4.1 | 77 |
|  | Action 42 | Socialize the Marine Coastal Zone Policy, the Framework Law on Climate Change, the Climate Change Policy, the PANK, the CBD Policy and Strategy and the National Strategy on the mangrove ecosystem and turtle conservation and other policy tools to civil society and institutional technical personnel located in the MCZs, with cultural relevance                                           | Key Result 5.1 | 85 |
|  | Action 43 | Elaborate a diagnosis and a plan for the reduction of vulnerability to climate change for the Caribbean coastal marine zone.                                                                                                                                                                                                                                                                     | Key Result 5.1 | 85 |
|  | Action 44 | Implement the Plan to reduce vulnerability to climate change for the Caribbean coastal marine zone.                                                                                                                                                                                                                                                                                              | Key Result 5.1 | 85 |
|  | Action 45 | Implement the actions, follow-up and monitoring of the Plan for the reduction of vulnerability to climate change in the MCZs of the Pacific Coast in systems prioritized for conservation (after environmental impact assessment, when appropriate).                                                                                                                                             | Key Result 5.1 | 86 |
|  | Action 46 | Develop a program to rescue and value local traditional and ancestral knowledge in order to implement actions to adapt to climate change (livelihoods, natural medicine, family gardens, cultivation of cynegetic species, etc.).                                                                                                                                                                | Key Result 5.1 | 86 |
|  | Action 47 | Develop a culturally relevant knowledge management program (local practices and technology transfer) for the implementation of conservation, restoration, management and sustainable use measures for the ecosystem resources of the MCZ zones.                                                                                                                                                  | Key Result 5.1 | 86 |
|  | Action 48 | Design, standardize and implement methodologies for measurement, data capture and vulnerability analysis of coastal marine ecosystems for the construction of vulnerability indices and adaptation plans, through the SNICC                                                                                                                                                                      | Key Result 5.1 | 86 |
|  | Action 49 | Design and establish a system for Monitoring, Reporting and Verification (MRV) of climate change behavior and its effects on actions for the protection, conservation and restoration of the MCZ ecosystems                                                                                                                                                                                      | Key Result 5.1 | 86 |
|  | Action 50 | Harmonize, design and/or implement strategic conservation plans for the reduction of vulnerability and adaptation to climate change of CMZ ecosystems, considering both the watershed and landscape approaches (regional plans, watershed management plans, master plans, land management plans, etc.).                                                                                          | Key Result 5.1 | 87 |
|  | Action 51 | Develop mechanisms to evaluate the effectiveness of the implementation of strategic conservation plans.                                                                                                                                                                                                                                                                                          | Key Result 5.1 | 87 |
|  | Action 52 | Create and strengthen the control mechanisms, as well as the application and updating of for the conservation, protection and restoration of CMZ ecosystems                                                                                                                                                                                                                                      | Key Result 5.1 | 87 |
|  | Action 53 | Develop a program to strengthen governance, awareness and environmental education (communities, local and key stakeholders of the territory), for the management of management, conservation and land use plans in the zHc                                                                                                                                                                       | Key Result 5.1 | 87 |
|  | Action 54 | Develop a program for capacity building in climate change adaptation in coastal marine areas targeting communities, spheres, key civil society organizations and institutional technical staff.                                                                                                                                                                                                  | Key Result 5.1 | 87 |
|  | Action 55 | Analyze and evaluate the establishment of watershed committees related to marine coastal zones to strengthen the integrated watershed management approach                                                                                                                                                                                                                                        | Key Result 5.1 | 88 |
|  | Action 56 | Establish technical guidelines to carry out the cadastral process, including the georeferenced real estate base, considering the declaration of zones in cadastral process in the MCZs.                                                                                                                                                                                                          | Key Result 5.1 | 88 |
|  | Action 57 | Encourage and develop climate-smart and locally appropriate production practices, with technical assistance and support.                                                                                                                                                                                                                                                                         | Key Result 5.1 | 88 |
|  | Action 58 | Develop a program of alternative economic activities (diversification) for the adaptation of the vulnerable population to climate change.                                                                                                                                                                                                                                                        | Key Result 5.1 | 88 |
|  | Action 59 | Promote mechanisms of ecological compensation in favor of the maintenance of ecosystem goods and services of coastal marine areas, involving companies extensive crop producers (banana, sugar cane, oil palm)                                                                                                                                                                                   | Key Result 5.1 | 88 |
|  | Action 60 | At the basin level, implement climate change on the basin adaptive technology (living barriers, green and gray infrastructure, dugouts, containment barriers, etc.) to reduce the impact of climate                                                                                                                                                                                              | Key Result 5.1 | 89 |
|  | Action 61 | Develop a research program in the areas of biological importance identified with predominant mangrove cover, including associated ecosystems to maintain their functionality and propose mechanisms for ecological restoration of the ecosystem.                                                                                                                                                 | Key Result 5.1 | 89 |
|  | Action 62 | Develop the technical studies and the procedures to access forestry incentives or other conservation mechanisms in the prioritized areas that promote the protection of the cover, sustainable management and revegetation/restoration as a measure to increase adaptive capacity. Ensure that in the process to access forestry incentives there is a minimum participation of 3 or 96 of women | Key Result 5.1 | 89 |
|  | Action 63 | Strengthen INAB, municipalities and local men's and women's organizations to access, implement and monitor incentives for conservation and restoration of mangrove, sea forest and gallery forests (Probosque) in the MCZs.                                                                                                                                                                      | Key Result 5.1 | 89 |
|  | Action 64 | Promote the preservation and restoration of tular carrizal wetland areas near the coastline in the ZMC.                                                                                                                                                                                                                                                                                          | Key Result 5.1 | 90 |
|  | Action 65 | Elaborate, approve and implement municipal land use plans with an ecosystem, watershed and local coastal marine management approach to climate change.                                                                                                                                                                                                                                           | Key Result 5.1 | 90 |

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|  | Action 66 | Elaborate rules and regulations for the implementation of land management plans in mangrove ecosystems, wetlands and beach areas of MCZs.                                                                                                                                                                                                                                                       | Key Result 5.1 | 90  |
|  | Action 67 | Implement strategic actions for the use, conservation, recovery and ecological restoration of mangrove areas and associated ecosystems in the zones marine-coastal, established in the POTs or in other plans.                                                                                                                                                                                  | Key Result 5.1 | 90  |
|  | Action 68 | Develop a research and monitoring program in the beach areas of the MCZs to prioritize beaches at high risk due to sea level rise in order to develop contingency plans                                                                                                                                                                                                                         | Key Result 5.1 | 90  |
|  | Action 69 | Maintain and strengthen the research program in the reefs of the MCZs (inventory of sites and species, impacts of degradation, recovery mechanisms and measures, among others).                                                                                                                                                                                                                 | Key Result 5.1 | 91  |
|  | Action 70 | Create and apply rules and regulations to promote sustainable activities: fishing, tourism, navigation or maritime transit, among others, that promote the conservation of reef areas in MCZs                                                                                                                                                                                                   | Key Result 5.1 | 91  |
|  | Action 71 | Develop strategic actions for the conservation and protection of reefs in MCZs (programs and projects, others).                                                                                                                                                                                                                                                                                 | Key Result 5.1 | 91  |
|  | Action 72 | Strengthen the management of marine ecosystems, such as mangroves and reefs, to maintain the food chains that sustain fisheries and other marine hydrobiological product extraction activities.                                                                                                                                                                                                 | Key Result 5.1 | 91  |
|  | Action 73 | Validate and implement a climate and fisheries information and analysis system for the Pacific Coast and the Caribbean Sea that includes data capture and analysis of the relationship between fishing production activities, climate events and their effects on the oceans.                                                                                                                   | Key Result 5.1 | 91  |
|  | Action 74 | Establish the necessary conditions for the organization and improvement of fishery and hydrobiological resource value chains, related to the sustainable use of resources.marine-industry. It will include the participation of at least 30 women from the design and information gathering stages to the stages of establishing the value chains, mainly related to marketing and cold chains. | Key Result 5.1 | 92  |
|  | Action 75 | Develop participatory proposals for the sustainable use of fishery resources that include norms, regulations and economic alternatives, with technical criteria, and based on analysis of reproductive cycles, including the proposal of closed seasons for prioritized groups.                                                                                                                 | Key Result 5.1 | 92  |
|  | Action 76 | Strengthen DIPESCA and local institutions to establish governance processes and promote the ecosystem approach in the development of fishing regulations and processes.                                                                                                                                                                                                                         | Key Result 5.1 | 92  |
|  | Action 77 | Implement the regulations and monitor their effectiveness for the development of fisheries management with a systemic approach                                                                                                                                                                                                                                                                  | Key Result 5.1 | 92  |
|  | Action 78 | Evaluate and monitor the presence of residual pesticides in marine fauna present at the mouths of priority watersheds                                                                                                                                                                                                                                                                           | Key Result 5.1 | 93  |
|  | Action 79 | Design and implement fishery management plans, including the figure of fishery refuges as production and reserve zones for local fisheries, considering technical and scientific information and local governance mechanisms for their implementation                                                                                                                                           | Key Result 5.1 | 93  |
|  | Action 80 | Innovate and develop new fishing practices for underutilized fishery resources, which will make it possible to redistribute the fishing effort and generate new sources of employment and favor food and nutritional security.                                                                                                                                                                  | Key Result 5.1 | 93  |
|  | Action 81 | Develop and implement Regional Plans for the development of works and infrastructure (canals, ports and harbors), urbanization (housing occupation) and investments, in the face of climate change.                                                                                                                                                                                             | Key Result 5.1 | 93  |
|  | Action 82 | Conduct studies on dynamics, behavior and characterization of the mouths, in order to identify the possible degradation points, as well as the main aspects to develop and implement preventive and contingency plans                                                                                                                                                                           | Key Result 5.1 | 93  |
|  | Action 83 | Implement a program of incentives and regulations for the reduction of the use of plastic bags, disposable bags and other non-food pollutants biodegradables, on IOS Sites. The main tourist attractions of the coastal marine areas, mainly the beaches during the high tourist season.                                                                                                        | Key Result 5.1 | 94  |
|  | Action 84 | Readapt for the MCZs, the existing guidelines for the adequate management of waste and solid waste, in compliance with the stipulations of the National Policy on Waste and Solid Waste.                                                                                                                                                                                                        | Key Result 5.1 | 94  |
|  | Action 85 | Develop plans for the proper management and monitoring of municipal and industrial liquid wastes to reduce land-based sources of contamination of river and marine aquatic environments.                                                                                                                                                                                                        | Key Result 5.1 | 94  |
|  | Action 86 | Develop and implement Guatemalan regulations for the reception of solid and liquid wastes from ships and vessels docked on the coast in compliance with the NARPOL Convention.                                                                                                                                                                                                                  | Key Result 5.1 | 94  |
|  | Action 87 | Develop a program of contingency, based on science, which considers a) Vulnerability baseline in productive infrastructure, goods and services, livelihoods and basic services of the population b)R'std history by type of event to identify vulnerable areas, in the MCZs                                                                                                                     | Key Result 5.2 | 95  |
|  | Action 88 | Strengthen the implementation of instruments and mechanisms for better control and enforcement of rules and regulations regarding the use and development of productive and investment activities (public and private) in MCZ ecosystems.                                                                                                                                                       | Key Result 5.1 | 95  |
|  | Action 89 | Create and strengthen the system of disaster risk reduction coordinators at the local and municipal level, to prepare the population located in MCZs for the effects of events.                                                                                                                                                                                                                 | Key Result 5.1 | 95  |
|  | Action 90 | Design and strengthen Early Warning Systems (EWS), with cultural relevance, for the timely evacuation of the vulnerable population of the MCZs, in the presence of adverse events.                                                                                                                                                                                                              | Key Result 5.1 | 95  |
|  | Action 91 | Develop and strengthen early warning systems, specifically oriented to artisanal and small scale fishermen and reduce the risk of human losses in the face of extreme weather events                                                                                                                                                                                                            | Key Result 5.1 | 95  |
|  | Action 92 | Consolidate and maintain the monitoring network of meteorological variables to feed the climate models available for the pals, as well as the communication and dissemination of the information                                                                                                                                                                                                | Key Result 6.1 | 103 |
|  | Action 93 | Design and implement methodologies for measuring, capturing and analyzing information for the construction of indices of adaptive capacity and vulnerability to climate change, to employ strategies and prioritize vulnerable areas.                                                                                                                                                           | Key Result 6.1 | 103 |
|  | Action 94 | To regulate the participation and strengthen the Early Warning Systems for extreme weather events, food and nutritional insecurity, crop forecasting and for vulnerable agricultural areas, considering ancestral knowledge.                                                                                                                                                                    | Key Result 6.1 | 103 |

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|  | Action 95  | Conduct adaptation studies of the main crops (permanent and others), underutilized (traditional) crops, as well as those with adaptation potential, according to the local consumption culture, considering simulation models and climate scenarios available for the country, particularly those that generate jobs such as coffee.                              | Key Result 6.1 | 104 |
|  | Action 96  | Strengthen the organizational capacity of producers to prepare for and respond to agricultural emergencies in areas vulnerable to climate change                                                                                                                                                                                                                  | Key Result 6.1 | 104 |
|  | Action 97  | Provide technical assistance to agricultural and livestock producers for the implementation of adaptation practices, sustainable agriculture adapted to climate and water and soil conservation                                                                                                                                                                   | Key Result 6.1 | 104 |
|  | Action 98  | Provide technical assistance to agricultural and livestock producers for the implementation of phytosanitary and zoosanitary adaptation measures that consider traditional and ancestral knowledge practices in the face of climate change.                                                                                                                       | Key Result 6.1 | 104 |
|  | Action 99  | Strengthen the National Rural Extension System -SNER- in coordination with the System of Development Councils                                                                                                                                                                                                                                                     | Key Result 6.1 | 105 |
|  | Action 100 | Implement crop production programs, research and technology transfer in the use of indigenous, ancestral or other productive practices, native plants, food and medicinal plants tolerant to extreme conditions.                                                                                                                                                  | Key Result 6.1 | 105 |
|  | Action 101 | Encourage the use of native seeds and improved seeds for degraded soils and evaluate synergies                                                                                                                                                                                                                                                                    | Key Result 6.1 | 105 |
|  | Action 102 | Implement community seed banks ( corn, beans, others).                                                                                                                                                                                                                                                                                                            | Key Result 6.1 | 105 |
|  | Action 103 | Design and implement programs for the production of native and improved agricultural and livestock species tolerant to the effects of climate change with high nutritional value to be incorporated into the diet of families                                                                                                                                     | Key Result 6.1 | 105 |
|  | Action 104 | Develop agricultural and livestock management plans based on climatic and territorial dynamics aligned with existing land use planning processes, taking into account national models and scenarios.                                                                                                                                                              | Key Result 6.1 | 106 |
|  | Action 105 | Promote the establishment of agroforestry systems, mainly in areas recurrently affected by the effects of climate change.                                                                                                                                                                                                                                         | Key Result 6.1 | 106 |
|  | Action 106 | Develop efficient irrigation projects with solar and wind energy in areas with edaphic potential                                                                                                                                                                                                                                                                  | Key Result 6.1 | 106 |
|  | Action 107 | Conduct and update soil taxonomy and land use capacity studies.                                                                                                                                                                                                                                                                                                   | Key Result 6.1 | 106 |
|  | Action 108 | Create and establish mechanisms to ensure agricultural production. Create and establish mechanisms to ensure agricultural production, as well as investment programs for agricultural production and access to financing.                                                                                                                                         | Key Result 6.1 | 106 |
|  | Action 109 | Promote actions for access to land and its regularization for subsistence and subsistence farmers                                                                                                                                                                                                                                                                 | Key Result 6.1 | 106 |
|  | Action 110 | Establish incentive programs for soil conservation and protection and promote existing forestry programs (PIMPEP, PROBOSQUE)                                                                                                                                                                                                                                      | Key Result 6.1 | 107 |
|  | Action 111 | Establish sustainable artisanal fishing programs through the training and registration of pescadores                                                                                                                                                                                                                                                              | Key Result 6.1 | 107 |
|  | Action 112 | Implement climate-adapted, sustainable agricultural and manufacturing practices in agricultural production.                                                                                                                                                                                                                                                       | Key Result 6.1 | 107 |
|  | Action 113 | Implement good practices for pre- and post-harvest management (basic grains)                                                                                                                                                                                                                                                                                      | Key Result 6.2 | 108 |
|  | Action 114 | Identification and implementation of agricultural value chains that will enable the transition from subsistence agriculture to sustainable agriculture in traditional and non-traditional products                                                                                                                                                                | Key Result 6.2 | 108 |
|  | Action 115 | Strengthen the information monitoring system to capture and analyze losses and damages by type of hazard.                                                                                                                                                                                                                                                         | Key Result 6.2 | 108 |
|  | Action 116 | Promote agricultural diversification adapted to climate change and agroecological zones                                                                                                                                                                                                                                                                           | Key Result 6.2 | 108 |
|  | Action 117 | Implement reforestation programs with native species mainly in the upper parts of watersheds and in water recharge areas, for soil and water restoration and conservation                                                                                                                                                                                         | Key Result 6.2 | 109 |
|  | Action 118 | Implement adaptive technology related to water resources in response to climate change (rainwater harvesting, drainage systems in flood zones, etc.).                                                                                                                                                                                                             | Key Result 6.2 | 109 |
|  | Action 119 | Plant and/or recover gallery forests to reduce sedimentation, erosion and for flood prevention and protection in areas with agricultural or livestock potential.                                                                                                                                                                                                  | Key Result 6.2 | 109 |
|  | Action 120 | Develop contingency and prevention plans to minimize agricultural losses due to climate variability.                                                                                                                                                                                                                                                              | Key Result 6.2 | 109 |
|  | Action 121 | Promote culturally relevant actions to prevent and solve the food crisis during emergencies caused by events                                                                                                                                                                                                                                                      | Key Result 6.2 | 109 |
|  | Action 122 | Research, promote and encourage the establishment of sustainable agricultural production systems adapted to the climate, in traditional and non-traditional products that generate income for the Nation (coffee, rubber, cocoa, spices).                                                                                                                         | Key Result 6.3 | 110 |
|  | Action 123 | To build the baseline of agroecological production areas.                                                                                                                                                                                                                                                                                                         | Key Result 6.3 | 110 |
|  | Action 124 | Promote and establish the certification of productive agro-ecological farms                                                                                                                                                                                                                                                                                       | Key Result 6.3 | 110 |
|  | Action 125 | Create efficient inter-institutional coordination mechanisms, as well as improve and strengthen institutional capacities for the administration of forest resources                                                                                                                                                                                               | Key Result 7.1 | 117 |
|  | Action 126 | Strengthen the financial capacities of the institutions responsible for the administration of the country's forest resources, biodiversity and protected areas in accordance with related national goals                                                                                                                                                          | Key Result 7.1 | 117 |
|  | Action 127 | Create platforms to address gaps in national legislation on forestry, biodiversity and protected areas that involve efficient inter-institutional and inter-sectoral coordination mechanisms. In coordination with local organizations, networks and indigenous peoples.                                                                                          | Key Result 7.1 | 117 |
|  | Action 128 | Design and implement a capture and analysis of forest information for the construction of adaptation and vulnerability indexes.                                                                                                                                                                                                                                   | Key Result 7.1 | 118 |
|  | Action 129 | Implement a measurement, monitoring, reporting and verification system for forest resources, biological diversity including the main causes of deforestation and degradation (illegal logging, land use change, and reduction of forest fires, among others)                                                                                                      | Key Result 7.1 | 118 |
|  | Action 130 | Sustainable management of forest ecosystems to reduce vulnerability to climate change and improve carbon sequestration capacity. Taking into account the traditional governance system, i.e., own systems of management and administration of territories based on the traditional practices and ancestral knowledge of indigenous peoples and local communities. | Key Result 7.1 | 118 |
|  | Action 131 | Strengthen community forest concessions and promote the organization and participation of local communities and indigenous peoples in sustainable forest management activities                                                                                                                                                                                    | Key Result 7.1 | 118 |
|  | Action 132 | Strengthen and implement forest ashing schemes.                                                                                                                                                                                                                                                                                                                   | Key Result 7.1 | 119 |

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|  | Action 133 | Strengthen and implement incentive schemes aimed at the conservation, protection, restoration and management of forest resources and biodiversity.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Key Result 7.1 | 119 |
|  | Action 134 | Implement mechanisms for the strategic valuation of biodiversity.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Key Result 7.1 | 119 |
|  | Action 135 | Elaborate and implement efficient mechanisms for local governance.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Key Result 7.1 | 119 |
|  | Action 136 | Develop lines of research with reference to priorities established in planning instruments related to the topic, for example: National Forestry Research Program; National Biological Diversity Policy and Strategy; Institutional Agenda for the Reduction of Forest Deforestation and Forest Degradation; National Forestry Policy and Strategy; National Forestry Policy and Strategy for Biological Diversity; National Forestry Policy and Strategy for the Reduction of Forest Deforestation and Forest Degradation; National Forestry Policy and Strategy for the Reduction of Forest Degradation; National Forestry Policy and Strategy for the Reduction of Forest Degradation. vulnerability, adaptation and Mitigation of climate change 2016-2020; National Development Plan (CONADUR, 2014) Second National Communication on Climate Change - (MéRN, | Key Result 7.1 | 119 |
|  | Action 137 | Implement forest landscape restoration projects considering forest management guidelines, land use capacity, social, economic and financial aspects, the national strategy for forest landscape restoration, the national biodiversity policy and strategy, among others                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Key Result 7.1 | 120 |
|  | Action 138 | Promote restoration through forest plantations for production purposes, prioritizing lands with this use capacity. Considering the environmental and social risks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Key Result 7.1 | 120 |
|  | Action 139 | Implement forestry incentive projects for the establishment of plantations for production purposes, involving organized groups at the community level AND indigenous peoples                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Key Result 7.1 | 120 |
|  | Action 140 | Establish forestry plantations for energy purposes in highly developed sites to increase the supply of fuelwood, according to socioeconomic aspects of the population. Considering environmental and social safeguards                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Key Result 7.1 | 120 |
|  | Action 141 | Update and implement the national strategy for the management and conservation of natural resources on land.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Key Result 7.1 | 120 |
|  | Action 142 | Strengthen the processes related to the legal certainty of communal lands.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Key Result 7.1 | 121 |
|  | Action 143 | Implement mechanisms that promote, develop and intergenerationally transfer scientific and traditional collective knowledge (Mayan, Garffuna, Xinka and Mestizo peoples) associated with biological diversity.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Key Result 7.1 | 121 |
|  | Action 144 | Recognize, promote and apply customary rights and practices in the management of natural resources and biological diversity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Key Result 7.1 | 121 |
|  | Action 145 | Identify and apply ancestral knowledge of indigenous peoples in adaptation practices in the agricultural sector and conservation of ecosystems and diversity.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Key Result 7.1 | 121 |
|  | Action 146 | Promote and implement restoration and management actions with an ecosystem approach, aimed at restoring and improving ecosystem services as a means of livelihood for communities.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Key Result 7.1 | 121 |
|  | Action 147 | Create and apply mechanisms that allow research, promotion, respect and protection of traditional and ancestral knowledge of indigenous peoples related to biological diversity to improve adaptation to climate change                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Key Result 7.1 | 122 |
|  | Action 148 | Strengthen and implement the Interinstitutional Strategy to Combat Illegal Logging.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Key Result 7.1 | 122 |
|  | Action 149 | Strengthen the process of updating and implementing the Guatemalan Endangered Species List.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Key Result 7.1 | 122 |
|  | Action 150 | Develop and implement lines of research on priority species to establish their conservation status, allowing decisions to be made on their management and also for the development and implementation of conservation strategies.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Key Result 7.1 | 122 |
|  | Action 151 | Ex situ conservation of fauna and flora which are vulnerable and threatened by climate change                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Key Result 7.1 | 122 |
|  | Action 152 | Strengthen and implement the National Fire Management Strategy.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Key Result 7.1 | 123 |
|  | Action 153 | Strengthen financial, management and coordination capacities for the prevention and control of forest fires in Guatemala                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Key Result 7.1 | 123 |
|  | Action 154 | Establish and implement an early warning system to detect and control forest fires in a timely manner, with the participation and coordination of organized groups in the communities and municipalities                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Key Result 7.1 | 123 |
|  | Action 155 | Identify, promote and implement alternatives to slash-and-burn agriculture to avoid forest fires, ecosystem degradation, loss of biological diversity and deterioration of natural resources due to human activity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Key Result 7.1 | 123 |
|  | Action 156 | Define and implement the National Forest Health Strategy                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Key Result 7.1 | 123 |
|  | Action 157 | Increase the extension and number of protected areas, prioritizing ecosystems scarcely represented in the SIGAP, prioritizing those ecosystems scarcely represented in the SIGAÜ and promote the inclusion of new management categories of 'collective management areas from the cosmovision of indigenous peoples and local communities                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Key Result 7.1 | 124 |
|  | Action 158 | Implement biological corridors for the establishment of escape areas that include biodiversity conservation, restoration and management                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Key Result 7.1 | 124 |
|  | Action 159 | Carry out ecological restoration processes in forest and non-forest ecosystems, aimed at restoring and improving the provision of ecosystem goods and services, thus promoting the mitigation and adaptation of biological diversity and Guatemalan society to climate change                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Key Result 7.1 | 124 |
|  | Action 160 | Increase investment (public and private) by at least 50 percent to improve the management and conservation effectiveness of protected areas                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Key Result 7.1 | 124 |
|  | Action 161 | Elaborate land management plans that consider the integrated management of watersheds, the productive landscape and biological corridors, respecting customary rights, with the full and effective participation of indigenous peoples and local communities.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Key Result 7.1 | 125 |
|  | Action 162 | Participation of municipalities and indigenous authorities, where they exist, in the co-administration                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Key Result 7.1 | 125 |
|  | Action 163 | Strengthen the systems of conservation of plant germplasm as an adaptation strategy and identification of promising varieties for adaptation to climate change.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Key Result 7.1 | 125 |
|  | Action 164 | Identification of indicator species vulnerable to the current/projected effects of climate change, taking into account the diversity of ecosystems present in Guatemala.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Key Result 7.1 | 125 |

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|  | Action 165 | Elaborate geographic distribution baselines of populations of flora and fauna indicator species that allow monitoring of biodiversity behavior (movement of flora and fauna populations, including pests and diseases).                                                                                                                                                                                                                                                                       | Key Result 7.1 | 125 |
|  | Action 166 | Establish and execute monitoring strategies and programs for the control and eradication of invasive exotic species already established in the Guatemalan territory and that are favored by climate change.                                                                                                                                                                                                                                                                                   | Key Result 7.1 | 126 |
|  | Action 167 | Establish and implement instruments and strategies that minimize the opportunities for the introduction and adaptation of exotic species to ecosystems.                                                                                                                                                                                                                                                                                                                                       | Key Result 7.1 | 126 |
|  | Action 168 | Analyze and update management instruments in the SIGAP areas to strengthen the gaps in climate change planning.                                                                                                                                                                                                                                                                                                                                                                               | Key Result 7.1 | 126 |
|  | Action 169 | Create spaces for training and permanent dialogue and mechanisms for participation in land management and decision making to ensure the governance of protected areas.                                                                                                                                                                                                                                                                                                                        | Key Result 7.1 | 126 |
|  | Action 170 | Updating and applying construction standards and regulations, and socio-vital and strategic infrastructure, also considering toponymies, and culturally appropriate local and local construction systems.                                                                                                                                                                                                                                                                                     | Key Result 8.1 | 133 |
|  | Action 171 | Develop mechanisms to verify the inclusion of strategic socio-vital infrastructure construction standards in the project cycle (pre-investment, investment, post-investment).                                                                                                                                                                                                                                                                                                                 | Key Result 8.1 | 133 |
|  | Action 172 | Revise or update Municipal Construction Regulations.                                                                                                                                                                                                                                                                                                                                                                                                                                          | Key Result 8.1 | 133 |
|  | Action 173 | Develop methodologies and apply damage and loss assessments in the event of adverse events affecting the socio-vital and strategic infrastructure.                                                                                                                                                                                                                                                                                                                                            | Key Result 8.1 | 133 |
|  | Action 174 | Implement mechanisms for verification of compliance with environmental compliance in social and vital infrastructure                                                                                                                                                                                                                                                                                                                                                                          | Key Result 8.1 | 134 |
|  | Action 175 | Develop and implement a system of Monitoring, Reporting and Verification -MRV- of the behavior of the threats affecting the socio-vital infrastructure and strategy                                                                                                                                                                                                                                                                                                                           | Key Result 8.1 | 134 |
|  | Action 176 | Design and implement methodologies for capturing, measuring and analyzing vulnerability of socio-vital and strategic infrastructure for the construction of indicators for adaptation and vulnerability through the SNICC.                                                                                                                                                                                                                                                                    | Key Result 8.1 | 134 |
|  | Action 177 | Develop inventories of social-vital and strategic infrastructure                                                                                                                                                                                                                                                                                                                                                                                                                              | Key Result 8.1 | 134 |
|  | Action 178 | Develop and implement contingency plans for each type of extreme event focused on the social vital infrastructure                                                                                                                                                                                                                                                                                                                                                                             | Key Result 8.1 | 134 |
|  | Action 179 | Strengthen and expand early warning systems in areas at high risk of events hydro-meteorological extremes                                                                                                                                                                                                                                                                                                                                                                                     | Key Result 8.1 | 134 |
|  | Action 180 | Strengthening assistance programs to rural community roads after climatic events                                                                                                                                                                                                                                                                                                                                                                                                              | Key Result 8.1 | 135 |
|  | Action 181 | Development of a risk transfer mechanism for socially important and strategic infrastructure (insurance, reinsurance, bonds, and debt payments) that will make financing available to rehabilitate health infrastructure                                                                                                                                                                                                                                                                      | Key Result 8.1 | 135 |
|  | Action 182 | Mapping of high-risk areas with recurrent disasters.                                                                                                                                                                                                                                                                                                                                                                                                                                          | Key Result 8.1 | 135 |
|  | Action 183 | Create and strengthen national and municipal regulations for the conservation, protection and efficient and sustainable use of water resources with cultural relevance and a gender perspective.                                                                                                                                                                                                                                                                                              | Key Result 9.1 | 141 |
|  | Action 184 | Develop a set of regulations and technical standards to effectively and efficiently implement the law at the national and municipal levels.                                                                                                                                                                                                                                                                                                                                                   | Key Result 9.1 | 141 |
|  | Action 185 | Formulate the National Water Policy and its respective planning tools to comply with the objectives set forth in the law.                                                                                                                                                                                                                                                                                                                                                                     | Key Result 9.1 | 141 |
|  | Action 186 | Elaborate the National Hydrological Plan for the Water Management and Regulation Systems, including the elements prioritized in the Policy.                                                                                                                                                                                                                                                                                                                                                   | Key Result 9.1 | 141 |
|  | Action 187 | Create a governing body or institution for water resource management and administration                                                                                                                                                                                                                                                                                                                                                                                                       | Key Result 9.1 | 142 |
|  | Action 188 | Create and maintain the national water information, knowledge and valuation system;                                                                                                                                                                                                                                                                                                                                                                                                           | Key Result 9.1 | 142 |
|  | Action 189 | Establish the water inventory, the cadastre of uses and the water rights registry;                                                                                                                                                                                                                                                                                                                                                                                                            | Key Result 9.1 | 142 |
|  | Action 190 | Study on the value of water for national development, expressed in economic units, differentiating what it represents for society, the economy and the environment.                                                                                                                                                                                                                                                                                                                           | Key Result 9.1 | 142 |
|  | Action 191 | Estimate the public investment required for regulation works of public interest.                                                                                                                                                                                                                                                                                                                                                                                                              | Key Result 9.1 | 142 |
|  | Action 192 | Estimate the cost of water management.                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Key Result 9.1 | 142 |
|  | Action 193 | Elaborate and implement the National Water Supply Works Program, giving priority to areas where natural vulnerability is combined with poverty                                                                                                                                                                                                                                                                                                                                                | Key Result 9.1 | 143 |
|  | Action 194 | Elaborate and implement sectoral plans for the use and water use (domestic, agricultural, industrial, energy, tourism, etc.).                                                                                                                                                                                                                                                                                                                                                                 | Key Result 9.1 | 143 |
|  | Action 195 | Determine at the national level the priority sites for the hydrological regulation, considering the socioeconomic context of the existing population and organization.                                                                                                                                                                                                                                                                                                                        | Key Result 9.1 | 143 |
|  | Action 196 | Establish a system for registering and controlling the use of surface and groundwater to determine the real demand and the behavior of the sources for management, use and protection standards                                                                                                                                                                                                                                                                                               | Key Result 9.1 | 143 |
|  | Action 197 | Design and implement economic instruments and financial mechanisms for payment for water use and the provision of ecosystem services to finance the National Plan and watershed management plans, or landowners with forests, CONAP and INAB, for the integrated management of water resources to meet general development objectives                                                                                                                                                         | Key Result 9.1 | 143 |
|  | Action 198 | Develop and update, in a participatory manner, the instruments for the integrated management of the basin approach and climate change, gender equity and cultural relevance, transparency and integrity (basin management plans for territorial planning can basin approach, municipal plans for adaptation to climate change, guidelines for the development of integrated management plans for micro-basins can basin approach). a climate change adaptation and participatory management). | Key Result 9.1 | 144 |
|  | Action 199 | Form and follow up on the interinstitutional technical roundtables for the resolution of water use conflicts at the request of society and its institutions                                                                                                                                                                                                                                                                                                                                   | Key Result 9.1 | 144 |
|  | Action 200 | Develop methodological guidelines to standardize the preparation of water quality and quantity indices, as well as a centralized database for a unified registry.                                                                                                                                                                                                                                                                                                                             | Key Result 9.1 | 144 |
|  | Action 201 | Identification of areas most vulnerable to the occurrence of droughts (water deficit) and extension of the dry season.                                                                                                                                                                                                                                                                                                                                                                        | Key Result 9.1 | 144 |

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|  | Action 202 | Design and implement research programs on water resources (water balance, water flow regimes, water quality indices, vulnerability index, groundwater levels, society's relationship with water , etc.).                                                                                                                  | Key Result 9.1 | 144 |
|  | Action 203 | Design and implement a program to expand and modernize the national hydrometeorological measurement system with emphasis on vulnerability to climate change.                                                                                                                                                              | Key Result 9.1 | 145 |
|  | Action 204 | Identification and feasibility analysis of actions to adapt to the problem of water scarcity caused by climate change, for example: water transfer from one basin to another, rainwater harvesting systems, water decontamination, reduction of water consumption, recharge of aquifers, reorganization of the territory. | Key Result 9.1 | 145 |
|  | Action 205 | Promote technologies to increase the volume of water storage.                                                                                                                                                                                                                                                             | Key Result 9.1 | 145 |
|  | Action 206 | Strengthen the network for monitoring water flow and water quality parameters in the country's water bodies.                                                                                                                                                                                                              | Key Result 9.1 | 145 |
|  | Action 207 | Create a groundwater monitoring network, starting with the metropolitan region of Guatemala and the area of influence, and then prioritize the nodes or systems of intermediate cities defined in the National Development Plan K'atun Nuestra Guatemala 2032.                                                            | Key Result 9.1 | 145 |
|  | Action 208 | Prioritize field actions to mobilize financial resources to contribute to achieving the National River Restoration and Cuergos de Agua.                                                                                                                                                                                   | Key Result 9.1 | 145 |
|  | Action 209 | Creating a Water Regulatory Body                                                                                                                                                                                                                                                                                          | Key Result 9.1 | 145 |
|  | Action 210 | Maintain, expand and improve water infrastructure for human consumption and sanitation.                                                                                                                                                                                                                                   | Key Result 9.1 | 146 |
|  | Action 211 | Design and construction of water catchment works both at the subregional level and community level)                                                                                                                                                                                                                       | Key Result 9.1 | 146 |
|  | Action 212 | Ensure water potabilization                                                                                                                                                                                                                                                                                               | Key Result 9.1 | 146 |
|  | Action 213 | Implement education programs for the efficient use                                                                                                                                                                                                                                                                        | Key Result 9.1 | 146 |
|  | Action 214 | Establish and maintain drinking water treatment plants in the following locations                                                                                                                                                                                                                                         | Key Result 9.1 | 146 |
|  | Action 215 | Modify the municipal regulatory framework, so that the Municipal Code indicates that the municipalities must have a specific unit for the provision of water and sanitation services.                                                                                                                                     | Key Result 9.1 | 146 |
|  | Action 216 | Develop a specific municipal program for water regulation works, to ensure water catchment, by hydrographic units, and at the municipal, community and family levels.                                                                                                                                                     | Key Result 9.1 | 146 |
|  | Action 217 | Plan and develop of in sanitation structure and wastewater treatment plants in urban and rural areas according to the biophysical and                                                                                                                                                                                     | Key Result 9.1 | 147 |
|  | Action 218 | Treat 100 percent of wastewater from industry (especially those related to the mining, agro-industrial, chemical, food, hospital and tourism sectors, as well as those related to the African palm, coffee and sugar, textile, agricultural, chemical, food, hospital and tourism).                                       | Key Result 9.1 | 147 |
|  | Action 219 | Develop and implement a program of awareness, education and training in climate change adaptation measures, focused on the integrated management of the river basin resources with principles of gender equity, individual responsibility and multiculturalism.                                                           | Key Result 9.1 | 147 |
|  | Action 220 | Incorporate at the primary, secondary and diversified levels the topics of climate change, integrated management of micro watersheds, and integrated management of waste and waste                                                                                                                                        | Key Result 9.1 | 147 |
|  | Action 221 | Improve or expand the curricula of the different university careers related to the water sector, training more students in the following areas hydrogeologists and hydraulic engineers specializing in wastewater treatment plants, for example. T fddo courses related to hydrology,hydrogeology, among others).         | Key Result 9.1 | 147 |
|  | Action 222 | Encourage the organization of the company offers integrated water resources training to professionals in various fields, through diploma courses and certifications                                                                                                                                                       | Key Result 9.1 | 148 |