

TC Document

I. Basic Information for TC

▪ Country/Region:	COLOMBIA
▪ TC Name:	Innovative Urban Storm Drainage Systems in Colombia: a differential approach to manage extreme events caused by climate change considering planning, gender, and sustainability aspects.
▪ TC Number:	CO-T1735
▪ Team Leader/Members:	Navarrete Jimenez, Manuel Jose (INE/WSA) Team Leader; Correal Sarmiento, Magda Carolina (INE/WSA) Alternate Team Leader; Barbosa Taves De Gouvea, Heleno (ORP/REM); Basani, Marcello (INE/WSA); Leticia Ortega (INE/WSA); Lopez, Liliana M. (INE/WSA); Machado, Kleber B. (INE/WSA); Maria Eugenia De La Pena (INE/WSA); Nalesso, Mauro (INE/WSA); Nicolas Moreno (ORP/GCM); Piamonte Velez Carolina (INE/WSA); Prehn Garces Claudia (INE/WSA); Rihm Silva, Juan Alfredo (INE/WSA); Vila Saint Etienne, Sara (LEG/SGO); Youngmin Oh (INE/WSA) Basani, Marcello (INE/WSA); Leticia Ortega (INE/WSA); Lopez, Liliana M. (INE/WSA); Machado, Kleber B. (INE/WSA); Maria Eugenia De La Pena (INE/WSA); Nalesso, Mauro (INE/WSA); Nicolas Moreno (ORP/GCM); Piamonte Velez Carolina (INE/WSA); Prehn Garces Claudia (INE/WSA); Rihm Silva, Juan Alfredo (INE/WSA); Vila Saint Etienne, Sara (LEG/SGO); Youngmin Oh (INE/WSA)
▪ Taxonomy:	Client Support
▪ Operation Supported by the TC:	
▪ Date of TC Abstract authorization:	.N/A
▪ Beneficiary ¹ :	National Planning Department of Colombia (DNP)
▪ Executing Agency and contact name:	Inter-American Development Bank
▪ Donors providing funding ² :	Cofinancing Special Grants(COF)
▪ IDB Funding Requested:	US\$300,000.00
▪ Local counterpart funding, if any:	US\$0
▪ Disbursement period (which includes Execution period):	Execution: 36 months Disbursement: 36 months
▪ Required start date:	December 2023
▪ Types of consultants:	Firm and Individual Consultants
▪ Prepared by Unit:	INE/WSA-Water & Sanitation
▪ Unit of Disbursement Responsibility:	CAN/CCO-Country Office Colombia
▪ TC included in Country Strategy (y/n):	Yes
▪ TC included in CPD (y/n):	No
▪ Alignment to the Update to the Institutional Strategy 2010-2020:	Productivity and innovation; Economic integration; Institutional capacity and rule of law; Environmental sustainability; Gender equality; Diversity

II. Objective and Justification

2.1 Context. In 2022 Colombia ranked among the rainiest countries in the world³, with extreme rain events affecting more than 90 thousand families⁴ due to floodings and

¹ The letter from the client is underway. The TC will not be executed unless the letter from the client is received by the Bank.

² The operation will be financed with resources from the "Source of Innovation" facility (RG-O1693).

³ The Colombian Pacific Coast is one of the places with the highest rainfall in the world, with sites of more than 8,000 mm per year.

inadequate urban drainage. The Colombian National Institute of Hydrology, Meteorology and Environmental (IDEAM) has highlighted that the country is not prepared for intense raining events that may increase due to climate change. Colombia faces high vulnerability to the impacts of climate change, which urges measures for adaptation and prevention in drainage systems. This is caused by the concentration of population in the Andes, a region which has increased precipitation variability. Also considering that, particularly in developing countries, the consequences of climate change impact in higher proportions women and children, a vision of gender in building climate resilient communities is vital⁵.

- 2.2 **Objective.** The objective of this TC is to address in an innovative manner the implementation of the Colombian Urban Stormwater Drainage Sector Strategic Plan (PESDU), developed in 2022⁶. The TC will be responsible for: (i) implement innovative tools and technologies in two municipalities to identify technologies for prevention, measurement and management of urban drainage; (ii) include new variables and sectors to be considered in the comprehensive management of urban storm drainage, such as climate change adaptation, urban and territorial planning, sustainable infrastructure and gender; (iii) align technical and regulatory aspects to promote the implementation of new technologies for urban drainage; and (iv) use of pilots and articulation with regulation at the national level, considering the approach of proven technologies and enabling conditions in the country.
- 2.3 Colombia has advanced significantly in the comprehensive management of water resources, along with a progressive development of policies and strategies associated with drainage systems as can be seen in the national development plans of the last decade. However, currently there is no clear route to advance in the development of technological, cost-effective, and integral and innovative measures to respond to the challenges of water drainage in cities⁷. This is relevant as Colombia is a highly urbanized country with high levels of economic and urban development⁸.
- 2.4 This vision requires a sustainability-focused approach to water management at the basin level, responsible for runoff production, sediment production, and watercourse quality. It is crucial for both urban planning and water bodies.
- 2.5 Due to their gender roles, women and girls are the main users of water for domestic consumption, subsistence agriculture, care work and household hygiene. In contexts of lack of safe and stable access to W&S services, the responsibility for carrying water falls 72% on women and girls and 28% on men and boys⁹. Furthermore, during the menstruation period, women, and girls face difficulties in attending to their menstrual hygiene, which affects their health and their participation in public spaces (such as school and work). This situation affects people with disabilities (PwD), especially women, girls and boys, as it contributes to their isolation and worsens their health and

⁴ <https://www.larepublica.co/economia/colombia-entre-los-paises-mas-lluviosos-hasta-enero-de-2023-con-intensidad-de-40-3474491>

⁵ [Five Reasons Why Climate Action Needs Women | UNFCCC](#).

⁶ <https://www.iadb.org/Document.cfm?id=EZSHARE-80964549-19>

⁷ The Strategic Sector Plan for Urban Stormwater Drainage in Colombia financed by the IDB in 2022.

⁸ It is worth noting the change experienced by the country in terms of urban population growth, from concentrating 30% of the total country in 1938 (with 2.5 million people) to 77% today, with almost 37 million people. Bogota DC it has around 8 million inhabitants, Medellín and Cali around 2.5 million, Barranquilla more than 1.2 million and Cartagena one million.

⁹ Monje, Andrea; Nuñez, Anamaría y Subiza, Dolores (2016). ¿Tiene género el agua? Infografía. Washington, DC: Banco Interamericano de Desarrollo, BID. Enlace.

poverty situation. For all these reasons, defining innovative urban drainage master plans without including the gender perspective and people with disabilities, would cause the inequalities that these vulnerable groups could be experiencing in their social contexts to deepen.

- 2.6 In Colombia, PESDU emerges as a key tool for mitigating stormwater management risks and identifying necessary adaptation measures during extreme rain. The PESDU uses a comprehensive and multisectoral approach, based on the different hydrological characteristics of the country and its response to the effects of climate change, establishes the mechanisms for an adequate management of rainwater, and the prevention and mitigation of risks in case of natural disasters, through the diagnosis and identification of strategies to face future challenges. The PESDU was formulated at the request of the National Government and underwent a participatory process for its validation, and defined the strategic lines that the country must tackle: (i) stormwater management; (ii) territorial planning; and (iii) stormwater and governance; and (iv) costs and implementation.
- 2.7 This TC aligns with the 2022-2026 National Development Plan¹⁰, emphasizing water as the pivotal component¹¹ and suggesting innovative land use strategies based on nature. The plan encourages disaster risk management improvement, ecosystem protection, and sustainable urban drainage. It also includes strategies to reduce water stress in areas with shortages¹².
- 2.8 **Justification.** In Colombia the coverage in terms of drainage infrastructure is mostly low and, in many municipalities, it is null, except for large cities which have a combined rainwater-sanitary systems. Moreover, information on urban storm drainage coverage in the country is scarce¹³. The former, combined with the increase of extreme weather events in the country, results in the country being exposed to high intensity raining and lack of adequate management which results in floodings, infrastructure damage, and loss of human lives. In this sense, the national government, through the National Planning Department - DNP, expresses its interest in working jointly with the Inter-American Development Bank from its Water and Sanitation Division, through the Source of Innovation initiative, in a technical cooperation that allows to advance in an integral management for the formulation of policies in the potable water and basic sanitation sector, in guaranteeing equitable and fair access to quality drinking water and basic sanitation services for all people, regardless of their economic condition, geographic location, gender, ethnicity or other characteristics, and in the need to prevent and prepare for future events through the implementation of the PESDU in Colombia, which includes innovative solutions and new technologies.

¹⁰ Plan Nacional de Desarrollo 2022 – 2026: Colombia Potencia Mundial de la Vida. Departamento Nacional de Planeación. <https://www.dnp.gov.co/plan-nacional-desarrollo/pnd-2022-2026>

¹¹ Land Management Around Water and Environmental Justice: If the territory around the water is not organized, human activity will not be sustainable. For this reason, respect for water, its cycles and ecosystems will lead us to make Colombia a territory better adapted to climate changes, with the provision of the necessary benefits for the well-being of the population and a prosperous economy.

¹² It proposes, among others, to implement innovative solutions in land use planning based on nature, taking advantage of natural or modified ecosystems and addressing all phases of the water cycle; improve disaster risk management (including anthropogenic events), adaptability to climate variability and change; protect ecosystem connections and strengthen territories around oceans and rivers; and implement sustainable drainage in cities, efficient irrigation districts and have strategies to reduce water stress and serve municipalities that suffer from shortages

¹³ The Strategic Sector Plan for Urban Stormwater Drainage in Colombia financed by the IDB in 2022 for the National Government of Colombia.

- 2.9 **Strategic alignment.** This technical cooperation (TC) is consistent with the Second Update of the IDB Institutional Strategy 2020-2023 (AB-3190-2), with the development challenges and to the indicators of the Corporate Results Framework (GN-2727-12) in: (i) Productivity and Innovation through the use of innovative solutions for drainage systems, enabling efficient and resilient public services, and (ii) Social Inclusion and Equality by supporting interventions that strengthen the infrastructure of essential services and prevent flood damages, related to human, environmental and economic losses.
- 2.10 It is also aligned with the cross-cutting areas of: (i) Climate Change and Environmental Sustainability by financing innovation solutions that will serve as adapting tools for climate change and extreme events; (ii) Institutional Capacity and Rule of Law financed activities that will strengthen capacity in the municipalities where technologies for prevention, measurement and management of urban drainage will be identified; in addition, coordination with national regulations will be carried out and regulatory aspects for the implementation of new technologies for urban drainage will be promoted; and (iii) Gender Equality and Diversity, by promoting women and diverse groups engagement and participation and consideration in policies and pilots, ensuring a fair representation in all activities, using an inclusive and non-sexist language, and using egalitarian images in all knowledge products, given the preponderant role of gender in adapting to climate change and extreme event.
- 2.11 The TC is aligned with the Bank's Country Strategy with Colombia GN-2972 ¹⁴ (2019-2022) in its third strategic area is social mobility and consolidation of the middle class which includes the universal coverage of water and sanitation, especially in rural areas and the Caribbean and Pacific regions. Requiring modernizing and updating management and governance systems of water utilities and service providers. Also, the strategy includes the support and continuity for climate change action by developing resilient infrastructure to reduce the impacts and costs of climate change, as well as disaster risk management.
- 2.12 Finally, the TC is aligned with the general objective of Source of Innovation Facility (RG-O1693)¹⁵, an alliance that fosters the development and integration of innovative solutions in the water, sanitation and waste sector that contribute to safely managed water, sanitation, and waste management services for all. Via Source of Innovation, the Bank, through the Water and Sanitation Division (INE/WSA), has developed tools such as HydroBID Flood, a combined hydrologic and hydraulic, mobile bed and pollutant transport finite-volume model for rivers, estuaries, and floodplains, among others that can be tested to modeling the path of waste into the water to identify critical point of discharge and potential flooding risks and impacts. In particular, the operation aligns with the specific innovation objectives: (i) pilot innovative cost-efficient technologies and approaches to prevent flood risks; (ii) enable a framework that facilitates the future incorporation of innovative technologies from the local market or from leading countries such as South Korea; (iii) strengthen the demand-side of innovative solutions and products, through the design of pilots and evidence generation; (iv) stimulate productive partnership between startups and entrepreneurs, service providers and investors, through knowledge sharing spaces between Colombia and South Korea relevant actors; and (v) promote a culture and an enabling environment for innovation in the sector, through the development and publication of

¹⁴ <https://www.iadb.org/en/who-we-are/institutional-strategy/country-strategies>

¹⁵ Facility that finances this Technical Cooperation (See Budget).

a knowledge products on innovative solutions for flooding prevention and adequate drainage.

- 2.13 **South Korea as a relevant player:** The rapid industrialization and urban population growth in Korea brought about by the first and second five-year economic development plans led to an increase in the amount of wastewater, which caused the problem of river pollution and, as a consequence, the interest in the construction of a sewerage system. For the city of Busan, a sewerage master plan was established in 1974 with technical support from the West German government, and sewage treatment plants were planned in the Suyeong, Nambu, Bansong, Haewundae and Songjeong regions, and in the Jangrim, Jungang Yeongdo, Gangdong Region, Jisa, Myeongji, Noksan and Gadeok regions. Subsequently, to achieve water quality control of public water, the Korean government implemented a policy of distribution and expansion of the sewerage system, investing 26.1 trillion won in the sewerage project, which accounted for 91% of the total investment amount for the water quality control project. That cost 287 trillion won from 1993 to 2005. As a result, the sewerage penetration rate increased from 45.5% in 1995 to 83.5% in 2005. Thus, thanks to a policy of constant expansion of sewerage facilities, the sewerage penetration rate reached 90.1% in 2010, which is the level of advanced countries, in a very short period of time.
- 2.14 The Republic of Korea has achieved remarkable success in recent decades by combining rapid economic growth with significant poverty reduction, with real gross domestic product (GDP) growing by an average of 4.9% per year between 1988 and 2022. Korea's current experience offers lessons for developing countries on sustainable development, provision of infrastructure and better services to improve people's lives, and how to transition to a dynamic knowledge economy.
- 2.15 In addition, under the Source of Innovation INE/WSA, the Regional Cooperation RG-T3244 - "Update of Sectoral Strategic Plans for the Achievement of the ODS" was executed, which helped in the preparation of sectoral strategic plans (SP) for water and sanitation with solutions to the challenges of the sector. The IDB also financed Cooperation RG-T3375-Urban Water Management and Sustainable Urban Drainage Systems, which supported the development of strategies to manage urban water more efficiently, design projects for sustainable urban drainage systems for flood control and capacity building, resulting in the presentation of a Strategic Sector Plan for Urban Stormwater Drainage in Colombia. Therefore, the bank being the executor of the previous cooperations, has sufficient expertise, centralization of information, to give an adequate execution of the present TC, which is the continuity of the work done previously.

III. Description of activities and outputs

- 3.1 **Component 1. Innovative tools and technologies for urban drainage.** The purpose of this component is to develop innovative tools and technologies in two (2) Colombian municipalities to prevent and mitigate flooding caused by inadequate urban drainage. The pilots will provide inputs to design a municipal master plan for urban drainage management with a novel approach, based on urban development, the needs, challenges of modern cities and the socio-economic impact on communities. The output of this component will be the results of the pilots and the proposed design of innovative urban drainage master plans.
- 3.2 The innovative tools and technologies should evaluate, amongst other, the reduction of runoff, the superficial retention of excess water, the collection and transport excess

water,¹⁶ flood mitigation, the current infrastructure, and a new definition of service level. Also, it should include the hydrology, geomorphology and hydraulic studies of the urban watercourses, and the general functioning of the drainage system in the current urban zone.¹⁷ This exercise will be coordinated with the master plans for drinking water supply, wastewater, waste management, and climate change mitigation in the municipalities.

- 3.3 The innovative tools and technologies will allow the implementation, verification and adaptation of the products and recommendations of the public policy instruments and norms designed with the TC. In the technical aspects, it will allow the formulation of: (i) a master plan of rainfall surpluses (with the concept of system separation), as complementary instruments to territorial ordering plans; and (ii) an in situ design of proven and innovative technologies that can be applied in the region and scaled up nationally: intervention typologies, drainage waste management, urban stormwater risk atlas, online drainage measurement and monitoring schemes such as early alerts.
- 3.4 The project could include the following activities: (i) an analysis of the different technologies for flood forecasting, warning systems and disaster mitigation, to select those that are best suited to the context of the pilot municipalities, as well as a cost-benefit analysis, as part of the process; (ii) pilot activities for training, support, performance monitoring and sustainability; (iii) training in methodologies for the inclusion of the gender perspective and persons with disabilities (PwD) in the solutions (policies, plans, programs, etc.) generated from the use of innovative tools and technologies; and (iv) a report with results and recommendations will be delivered to the municipalities. In all processes where computer systems are used, the Integrity, Availability, Privacy, Control and Authenticity of the information handled shall be maintained.
- 3.5 **Component 2. Enabling policies for innovative urban drainage.** The purpose of this component is to address the lack of guidelines and policies in integral urban drainage at national, regional, and local levels. As public policy, regulations, and instruments require a uniform and coherent innovative conceptual framework and understanding of drainage, interacting with current governance involving gender, inclusion of PwD, and sustainability. As part of this regulatory analysis work, international best practices will be used as references, including those existing in South Korea.
- 3.6 This component will produce a proposal to enable, strengthen, and harmonize the technologies and tools applied in Component 1 with the current policy framework for instance the: (i) municipal and metropolitan land use plans (POT¹⁸ in Spanish)¹⁹; (ii) sectoral planning instruments; (iii) environmental planning and management; (iv) intermediate or territorial planning instruments and mechanisms; and (v) master plan or specific director of excess stormwater and water runoff. The proposal will be evaluated and discussed at the local level in the municipalities to evaluate the link

¹⁶ A relationship must be generated between the grey infrastructure and the blue and green infrastructure Urban systems of sustainable drainage - SUDS.

¹⁷ Identification of the characteristics of the city in terms of the behavior of excess water from rainfall, through satellite technologies and other innovative methods and detailed hydrology analysis.

¹⁸ Depending on whether it is land delimited by the POT in urban renewal treatments, historical conservation and patrimonial, integral improvement and development and urban consolidation.

¹⁹ Urban Planning Plan, acronym in Spanish (Plan de Ordenamiento Urbano).

between the tools and technologies with the required policies²⁰. In all these processes, the participation of women and PwD will be ensured, as well as the gender and inclusion perspective.

- 3.7 **Component 3. Action plan for innovative urban drainage and knowledge sharing.** This component will produce a proposal (at the national level) based on the results of the innovative tools and technologies and the enabling policies to implement the innovative urban drainage in line with the PESDU. The main activities include: (i) developing a national proposal based on the context and the solutions tested in the cities (including them as pilots) with a clear actions in the short, medium and long term, which guarantees the sustainability of the actions, replicability and scalability in the territory taking into account the regional and geographical diversity, including gender perspective and inclusion of PwD; (ii) Analysis of the current situation of the sector, environment and opportunities according to the viability of the sector, which allows the search for a new business model with the territorial entities and a long-term vision of territorial planning and management of urban drainage, and its sustainability; (iii) generate spaces for the exchange of knowledge and publications of the results and experience in Colombia and South Korea. The main product of this component is the roadmap in line with the PESDU, and space for the exchange of knowledge of tools and technologies for urban drainage in the light of an integral approach based in the South Korean experience, and the publication of the pilots.

- 3.8 **Budget:** The total amount of this TC is US\$300,000, which will be financed with the resources of Source Innovation Facility (RG-O1693)²¹. There will be no local counterpart financing. The distribution of resources is as follows:

Indicative Budget (in US\$)

Activity	Description	IDB/Fund Funding	Total Funding
Component 1	Innovative tools and technologies for urban drainage, with a gender focus and inclusion of PwD.	150,000	150,000
Component 2	Enabling policies for innovative urban drainage, with a gender focus and inclusion of PwD	100,000	100,000
Component 3	Action plan for innovative urban drainage and knowledge sharing, with a gender focus and inclusion of PwD.	50,000	50,000
Total			300,000

- 3.9 The resources for this project have already been received from the donors of the RG-O1693 through a Project Specific Grant (PSG). A PSG is administered by the Bank according to the "Report on COFABS, Ad-Hocs and CLFGS and a proposal to unify them as Project Specific Grants (PSGs)" (Document SC-114).

IV. Executing agency and execution structure

²⁰ The PESDU, which was formulated at the request of the National Government and had a participatory process for its validation, and defined the strategic lines that the country must address: (i) stormwater management; (ii) territorial planning; (iii) stormwater and governance; as well as costs and implementation.

²¹ Facility donors: Government of Switzerland, through the State Secretariat for Economic Affairs and/or FEMSA Foundation.

- 4.1 In accordance with Appendix 10 of the Operational Guidelines for Technical Cooperation Products, as modified by Annex II of document OP-619-4: (i) the Bank possesses the knowledge and experience in the subjects covered by the TC. The Client's Request states that the Bank will execute this technical cooperation. The Water and Sanitation Division (INE/WSA), will be responsible for all aspects of this TC, including disbursements. Also, in its numeral 4.2 Executing Agencies, it qualifies INE/WSA as one of the possible executing agencies of the facility, in accordance with IDB policies.
- 4.2 The project team will be responsible for the preparation and submission to the donor of the project reporting in compliance with the stipulation of the Administration Agreement. If at the end of execution, the project was closed with a positive uncommitted and unspent balance, the project team will be responsible for informing ORP/GCM to transfer the unspent balance as agreed to by the donor and the Bank pursuant to the terms of the Administration Agreement.
- 4.3 The Bank will hire consulting firms and individual consultants in accordance with the Bank's current procurement policies and procedures. For the hiring of consulting firms, the consultant selection policies (GN-2765-4) and operational guidelines (OP-1155-4) shall apply, for the hiring of individual consultants, the human resources policies (AM-650) shall apply, and for expenditures related to services other than consulting, the corporate procurement policies (GN-2303-28) shall apply. Procurement shall be reflected and carried out in accordance with the provisions of the Procurement Plan. For financial management, the Financial Management Guide for IDB Financed Projects (OP-273 in effect) will apply.
- 4.4 Rapid industrialization and urban population growth brought about by the first and second five-year economic development plans led to an increase in the amount of wastewater, which led to the problem of river pollution and, as a result, interest in the construction of a sewerage system.
- 4.5 For the city of Busan, a sewerage master plan was established in 1974 with technical support from the West German government, and sewage treatment plants were planned in the Suyeong, Nambu, Bansong, Haewundae and Songjeong regions, and in the Jangrim, Jungang Yeongdo, Gangdong Region, Jisa, Myeongji, Noksan and Gadeok regions.
- 4.6 Subsequently, to achieve water quality control of public water, the Korean government implemented a policy of distribution and expansion of the sewerage system, investing 26.1 trillion won in the sewerage project, which accounted for 91% of the total investment amount for the water quality control project. that cost 287 trillion won, from 1993 to 2005. As a result, the sewerage penetration rate increased from 45.5% in 1995 to 83.5% in 2005. Thus, thanks to a policy of constant expansion of sewerage facilities, the sewerage penetration rate reached 90.1% in 2010, which is the level of advanced countries, in a very short period of time.
- 4.7 The IDB will contract through an independent third party an overall mid-term and final evaluation of all projects financed and co-financed by the facility, which will incorporate inputs from monitoring reports conducted at the project level.

V. Major issues

- 5.1 The main risks associated with this TC are: (i) low institutional capacity of the country in urban drainage management; (ii) low participation of local governments in project

implementation; and (iii) low sustainability of the results by the government and municipalities (iv) lack of availability of data and information needed to conduct the studies. To mitigate, it is foreseen to disseminate knowledge for ownership, ensure participation among the main authorities of the sector and to duly inform key decision makers, including those outside the sector.

- 5.2 A working group will be created to share products and training products will be developed, appropriate consultants will be selected to carry out this type of work, which requires not only technical expertise, but also a good sense of the policies involved, and the ability to reach and attract the attention of key stakeholders. The Bank has a base of consultants who have provided good results in previous studies. Terms of reference of previous studies will be reviewed and will serve as a basis for clearly defining the objectives and scope of work.

VI. Intellectual property rights

- 6.1 All knowledge products derived from this Technical Cooperation will be the Bank's intellectual property.
- 6.2 Integrity clauses and special intellectual property agreements that need to be included in TC agreement, if any, should be specified.

VII. Exceptions to Bank policy

- 7.1 This Technical Cooperation is not intended to finance pre-feasibility or feasibility studies for specific investment projects or associated environmental and social studies; therefore, this TC does not meet the applicable requirements of the Bank's Environmental and Social Policy Framework (ESPF).

Required Annexes:

[Request from the Client_21879.pdf](#)

[Results Matrix_54413.pdf](#)

[Terms of Reference_39940.pdf](#)

[Procurement Plan_37028.pdf](#)