



# GREEN GROWTH POLICY

CONPES DOCUMENT 3934 OF 2018

EXECUTIVE SUMMARY



El futuro  
es de todos

DNP  
Departamento  
Nacional de Planeación



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01

PREFACE



To contribute to the release of the CONPES Document 3934 "Green Growth Policy", the National Planning Department (DNP, for its acronym in Spanish) publishes this executive summary that presents a comprehensive look at the objectives, scope and the main strategies and actions of such policy, approved in July 2018. This document is the result of multiple technical studies, analysis and expert recommendations, performed under the Green Growth Mission lead by the DNP between 2016 and 2018.

The purpose of the Green Growth Policy is to drive a national climate-compatible increase in productivity and economic competitiveness by 2030, while assuring the sustainable use of the natural wealth and social inclusion. In this way, its strategies, actions and goals, are attuned to the "Pacto por la Sostenibilidad" (Sustainability Pact) contained in the National Development Plan (2018-2022) called "Pacto por Colombia, pacto por la equidad" (Pact for Colombia, pact for equality) that seeks to consolidate actions to achieve an equilibrium between conservation and production in such a way that the natural wealth is assumed as a strategic asset of the nation.

This policy document recognizes the importance of securing the commitment of production activities with sustainability, for the purpose of improving efficiency in the use of water, land, raw materials and power, therefore reducing environmental impacts and advancing towards mitigation of climate change. In the same manner, it supports the development of instruments to promote new economic opportunities based on richness of the natural capital that increases competitiveness and economic growth at a local and national level. These steps drive the movement towards the first premise of "produce by preserving and preserve by producing" set forth by the National Development Plan (PND, for its acronym in Spanish) and compliance with the Sustainable Development Goals.

Ensuring that national growth walks down a sustainable road, strategic courses of action have been prioritized which are in alignment with converting and developing efficient production processes in terms of resource use and low carbon yield. This approach therefore fosters a circular economy and promotes eco-consciousness among the sectors of agriculture, housing industry, non-conventional renewable energies and electric mobility transportation. The development of a forest economy based on the sustainable management of forests and forest plantations is also positioned in the action plan; the push to support a bioeconomy using knowledge on biodiversity, bioprospection and biotechnology; and the consolidation of green businesses for the generation of local economies.

The previous to be leveraged by the development of science, technology and innovation, strengthening of human capital, consolidation of financial instruments, generation of information and the implementation of inter-sectorial coordination mechanisms at a national and regional level.

Through this publication, the idea is also to come closer to all civil society stakeholders to encourage their participation in the implementation of green growth under the frame of a true Pact for Sustainability. This is how this document shall reach the private sector to improve the environmental performance of production activities; academia, in order to forward research and development of new knowledge needed to transition towards this sustainability model; the public sector, to develop instruments and mechanisms necessary to implement the policy; regional entities, to promote articulation of these guidelines within the regional planning instruments; and civil society organizations and the citizens in general, to promote change in the direction of sustainable consumption.

We firmly believe that the implementation of **this policy will make easier the transit of our country towards a more productive, diversified and equitable economy**, that assures sustainability and natural resources for our future generations, adapted from with the National Development Plan and the priorities of the National Government.



**Gloria Amparo Alonso Másmele**  
Director  
National Planning Department



# 02

INTRODUCTION

# 2.1

## Green Growth Policy Conpes Document 3934 Executive Summary

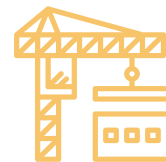
Colombia has performed well at a regional level in terms of economic growth. Regardless, it has characterized itself for its low economic diversification, a low productivity in resource utilization and significant environmental impact associated with degradation and depletion of natural resources<sup>1</sup>.

Although the country possesses a robust political framework to address the challenges associated to sustainable development, it has not been able to efficiently integrate environmental sustainability aspects within sectorial policies and economic growth strategies. In addition, a road map had not been previously defined to guide the long term and the transition process towards an economic model based on green growth.

Given the above the Green Growth Policy was drafted and approved on 10 July 2018 through CONPES document 3934.



The national economy had an average growth of 4.26 % between 2000 and 2015 (National Planning Department or DNP for its acronym in Spanish, Fedesarrollo, GGGI and UNEP, 2017)



Petrol and coal represented 50 % of exportations between 2002 and 2015 (DNP and GGGI, 2017)



The costs of environmental degradation and social impacts related to economic growth, have been valued at 2.08 % of the Gross Domestic Product (GDP) of 2015 (DNP, 2018)



CONPES 3934 defines that "green growth refers to those growth trajectories that ensure economic and social well-being of the population in the long term, assuring conservation of the natural capital and climate security"

1. This document consolidates, in a summarized manner, the main commitments that resulted from the Green Growth Policy drafting process. It does not intend to be a comprehensive document and, for this reason, if the reader requires further information, please refer to the complete document including its annexes published on the National Planning Department website: <https://www.dnp.gov.co/CONPES/documentos-conpes/Paginas/documentos-conpes.aspx>





Picture: Shutterstock // wk1003mike

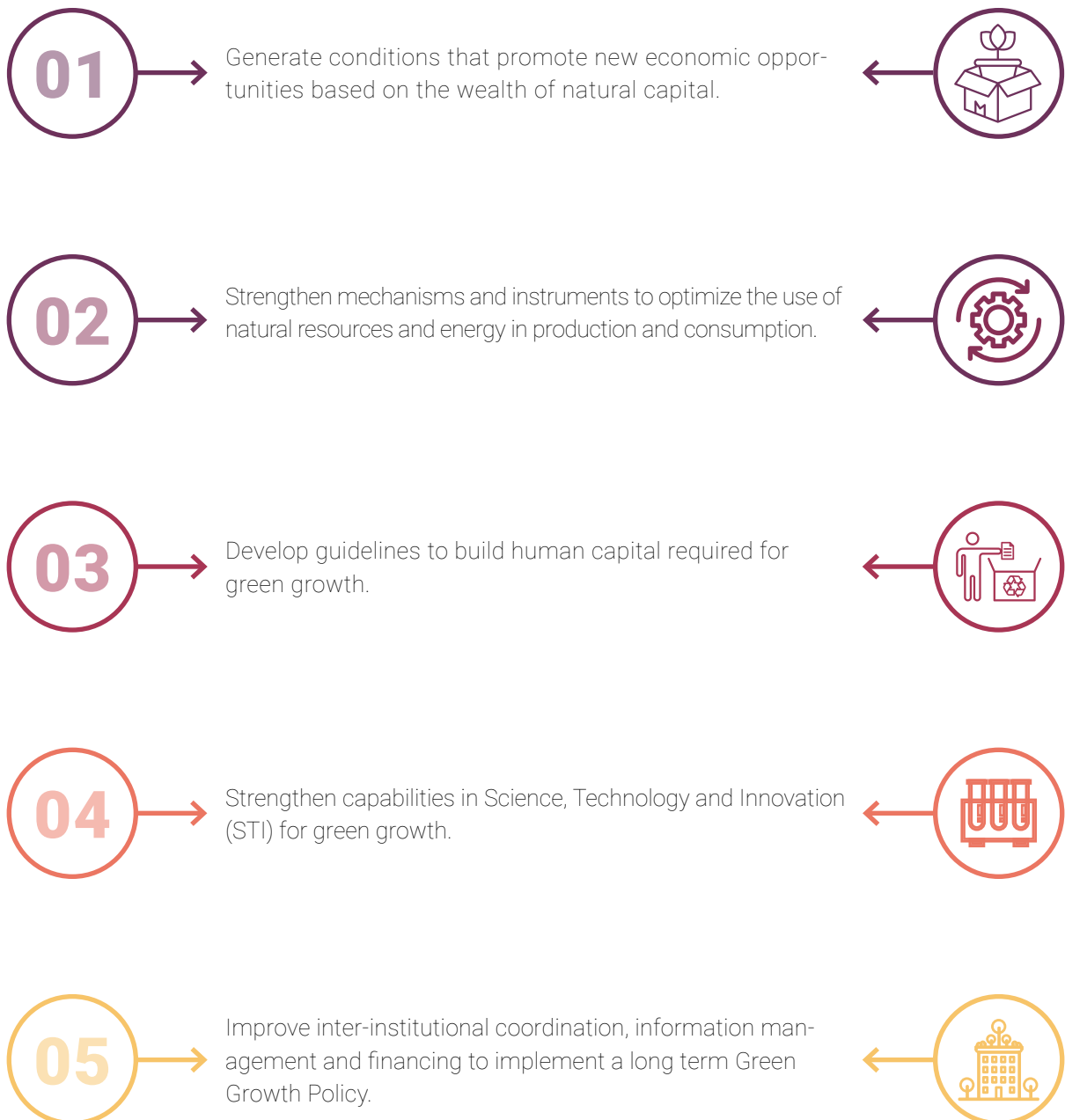
## OBJECTIVE OF THE GREEN GROWTH POLICY

Stimulate an **increase in productivity and economic competitiveness** by 2030; while assuring sustainable use of natural capital and social inclusion in a manner compatible with climate change.

For the aim of guiding the national economy along a path of green growth, the Policy sets forth 5 strategic pillars ( see Figure 1) with 155 actions to be implemented within a 13-year horizon (2018–2030), with the participation of 27 national bodies.

# The Green Growth Policy is composed of five main strategic pillars that correspond to five specific objectives.

**Figure 1 - Strategic Pillars of the Green Growth Policy**





## The Green Growth Policy was designed considering its synergy with international instruments such as:

- >> Agreement on Biological Diversity (1994).
- >> OECD Green Growth Strategy (2011).
- >> Paris Agreement on Climate Change (2015).
- >> OECD Declaration on Green Growth (2009).
- >> Rio + 20 Declaration (2012).
- >> Declaration towards a Green Growth platform by the Pacific Alliance (2016).

Green growth has a direct effect by fulfilling 9 Sustainable Development Goals and an indirect effect on 7 of them. It also promotes efforts associated to ensure that the commitments under the Paris Agreement are met.

## Green Growth Impact on Sustainable Development Objectives (SDO).

Figure 2 - Relationship of SDO to green growth

### Direct impacts



### Indirect impacts





# 03

POLICY  
OBJECTIVES,  
STRATEGIES AND  
COMMITMENTS



# 3.1

## Objective: Generate conditions that promote new economic opportunities based on the wealth of natural capital

### 3.1.1 Strategy: Drive bioeconomy as a strategic sector for the national economy

Despite its great biodiversity, bioeconomy has not enjoyed a main role in the economic development of the country as there are no figures about its contribution to the GDP or employment generation. Additionally, there is much unknown about species characterization, few bio-prospection processes and bio-innovative companies to seize the country's potential.

Considering this, the Policy prioritizes 4 causes for low performance in bioeconomy and establishes 5 courses of strategic action with 24 specific actions to develop by 2030. The main actions included in the Policy are included in Table 1.



Despite being a megadiverse country, very few businesses have been based on sustainable use of biodiversity.

In Colombia, **305** companies have strengthened their efforts towards developing bio-innovative products; which is only **0.5%** of companies with bioeconomic potential (Biointropic, 2018).



The country has **84** registered bioproducts and **429** verified green businesses (MinAmbiente, 2018).

**21** BIO Expeditions have been conducted with the aim of strengthening the country's knowledge on biodiversity. (COLCIENCIAS, 2018).



**Table 1 - Main Actions to Drive Bioeconomy**

 PROBLEM SOURCE	 STRATEGY	 MAIN POLICY COMMITMENTS
<p>Lack of a clear institutional leadership to guide bioeconomy.</p>	<p>Define a governance scheme that guarantees coordination of strategies and actions regarding bioeconomy.</p>	<ul style="list-style-type: none"> <li data-bbox="880 451 961 527"> Compose the Bioeconomy Interinstitutional Commission.</li> <li data-bbox="880 634 961 710"> Formulate a strategy to position bioeconomy within the framework of the National System for Competitiveness, Science, Technology and Innovation.</li> <li data-bbox="880 880 961 957"> Design the conceptual framework needed to establish a satellite account for bioeconomy so to incorporate the associated information on how a bioeconomy contributes to the national GDP.</li> </ul>
<p>Low levels of information generation and knowledge regarding bioeconomy.</p>	<p>Strengthen R&amp;D&amp;I capacities in bioeconomy and facilitate the transfer of knowledge and technology.</p>	<ul style="list-style-type: none"> <li data-bbox="880 1195 961 1272"> Conduct 100 field expeditions to characterize and assess biodiversity including possible bioprospecting research in continental and marine areas.</li> <li data-bbox="880 1464 961 1540"> Systematize information for biological specimens and all their derivatives deposited in biological collections, implementing good storage and handling practices.</li> <li data-bbox="880 1732 961 1808"> Develop a program that defines R&amp;D&amp;I projects and alliances to generate new knowledge and technological and biotechnological developments to generate 500 bioproducts by 2030.</li> </ul>





PROBLEM SOURCE



STRATEGY



MAIN POLICY COMMITMENTS

Low investment in R+D activities and deficiencies in financing instruments for bioeconomic development.

Leverage economic resources from the public and private sectors to boost bioeconomy in Colombia.



Establish a sub-account in the Francisco José de Caldas Fund for STI applied to bioeconomy and the Colombia BIO program.



Develop a proposal for the promotion and financing of conceptual trials, validation and up-scaling using existing instruments such as tax incentives.



Incorporate work lines to support bioeconomy development within the business development programs and instruments of the Ministry of Commerce, Industry and Tourism.

Develop the bioproduct market and improve competitiveness in sectors related to bioeconomy.



Build a national portfolio of bioproducts.



Support the development of regional scientific, nature-based tourism projects.



Generate a standard project that facilitates the financing of bioeconomy projects with resources from the STI fund of Colombia's general royalty system.

Despite the regulatory advances, there are still barriers and gaps related to bioeconomy regulation.

Develop adequate regulations to promote bioeconomy.



Submit a bill before the Congress of the Republic of Colombia therefore ratifying the Nagoya Protocol.

### 3.1.2 Strategy: Promote forestry sector development

Colombia has about 24.8 million hectares suitable for commercial forestry use and a wide potential for harnessing non-timber products thanks to the diversity of forests and ecosystems. However, the absence of an effective policy for the development of the forest sector, the weakness in managing the required information, the difficulties to attract investment, the scarce assistance for producers and the low levels of research, among others, limit its contribution to the GDP.

To promote forest development in the country by 2030, the Policy prioritizes 4 causes for its low development and presents 4 strategic courses of action with 21 specific actions. Table 2 presents the main actions established by the Policy.



Despite being a country rich in forests, the national economic contribution by the forestry sector remains low.

Although, by **2015** **21.7%** of the national territory was suitable for forestry, only **1.8%** (450,000 hectares) had commercial forestry plantations (UPRA, 2018).



In **2007** it is estimated that the use of non-timber products could add up to **3.2** million dollars with at least **1,500** species (ONF Andina, 2018).

In Colombia, the forestry sector only contributed **0.79%** to the GDP for **2017** (DANE, 2018).





**Table 2 - Main Actions to Promote the Forestry Sector**

 PROBLEM SOURCE	 STRATEGY	 MAIN POLICY COMMITMENTS
<p>A lack of a unified vision for the exploitation of forests (native and commercial) and a comprehensive regulatory framework, therefore obstructing the implementation of strategies for sector development.</p>	<p>Develop policy and regulatory modifications.</p>	<ul style="list-style-type: none"> <li data-bbox="881 549 954 623"> Draft the Forestry Law project to ensure submission before congress throughout the year 2019.</li> <li data-bbox="881 874 954 949"> Update the formula used to calculate and assign the forestry use fee for timber products.</li> </ul>
<p>Fragmentation and institutional weakness within forestry sector administration that prevents sector consolidation.</p>	<p>Strengthen institutional capacities to consolidate the forestry sector.</p>	<ul style="list-style-type: none"> <li data-bbox="881 1293 954 1368"> Activate the Forestry Policy Advisory Committee to coordinate the execution of policies related to the forestry subsector.</li> <li data-bbox="881 1576 954 1651"> Regulate and implement the National Forestry Service, as a coordination mechanism for planning, control and surveillance, technical assistance and forest information.</li> <li data-bbox="881 1810 954 1885"> Develop the National Forestry Inventory.</li> </ul>



## PROBLEM CAUSE



## STRATEGY



## MAIN POLICY COMMITMENTS

Difficulties in price formation, meaning that many products are over-priced in comparison to other countries, in addition to the absence of incentives needed to drive sector growth.

Establish economic and financial instruments to support forestry sector development.



Formulate a comprehensive financing strategy for forest management.



Create specific financing instruments for small and medium enterprises in forestry clusters.



Reform the forestry incentive certificate (CIF for its acronym in Spanish) by means of an administrative act, in order to improve the allocation criteria and the technical support capacity.

Shortcomings in the forestry extension service and there are no systematic R+D processes that allow the development of adequate local technological models.

Promote research, innovation, education and training in the forestry sector.



Develop a program to strengthen the technical capacities of agricultural extension agents, applied to the potential forestry clusters.



Incorporate support actions for the Agriculture and Livestock Extension Subsystem for agroforestry, aimed at improving the capacities, tools and instruments required for the agricultural and livestock extension service.

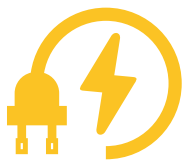


Incorporate green growth criteria into the dynamic agricultural research agenda.

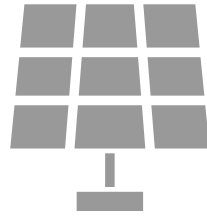
### 3.1.3 Strategy: Promote conditions that allow a greater penetration of renewable energy

There is great interest from the Colombian public and private sector, in structuring projects with non-conventional renewable power sources ("FNCER", for its acronym in Spanish) owing to the vulnerability of hydropower generation on account of extreme weather phenomena, the growth in power demand that is expected to be around 51.2% by 2030 (DNP, 2017) and the decreasing trend in power generation costs using FNCER in recent years. Although the country has been structuring policy guidelines focused on harnessing the potential of FNCER, there has been no significant development of these.

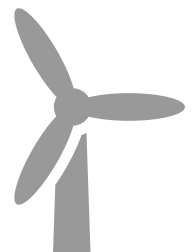
With the purpose of generating conditions that allow for a greater penetration of renewable energies grid, the Policy prioritizes 3 causes that have made this process cumbersome and sets forth 3 strategic courses of action with 8 specific actions. Table 3 presents the main actions established by the Policy.



There is a low diversification of the electricity grid.



Despite the high potential of non-conventional renewable resources in the country, the non-conventional renewable power sources (FNCER, for its acronym in Spanish) only represent **2%** of the grid (PARATEC, 2018).



Wind power only represents **0.1%** of the Colombian electricity grid, while in Mexico, Peru and Chile it amounts to **1.3%, 1.7%** and **4.5%** respectively. (OLADE, 2017).

2. Law 1715 of 2014 "Hereby regulating the integration of non-conventional energies to the national power system" states that biomass, small hydro-electric harnessing, wind energy, geo-thermal, solar and seas are considered as "FNCER".



**Table 3 - Main Actions to Promote Renewable Energy**

 PROBLEM SOURCE	 STRATEGY	 MAIN POLICY COMMITMENTS
<p>Difficulties in funding and developing power generation projects where non-conventional renewable resources are concerned.</p>	<p>Promote investment in FNCER (non-conventional renewable power sources, FNCER for its acronym in Spanish) generation projects.</p>	<p> Regulate Decree 0570 of 2018, in order to define the competitive mechanism that promotes the long-term contracting of electric power generation projects.</p> <p> Adjust Decree 1076 of 2015, in order to not require the environmental alternatives diagnosis studies on the licensing process for projects concerning exploration and use of non-conventional sources of renewable energy such as solar, wind and geothermal energy.</p> <p> Implement price mechanisms associated with CO2 emissions from the use of fossil fuels.</p>
<p>Absence of guidelines and technical tools required to ensure the integration of the FNCER into the power market.</p>	<p>Promotion of the FNCER integration into the energy market.</p>	<p> Establish the guidelines to promote and incorporate power storage systems in the national electricity system.</p> <p> Implement the integrated climate change management plan for the mining and energy sector.</p> <p> Strengthen climate services in the energy sector to mitigate climatic effects in prioritized areas of the country.</p>
<p>Absence of issuing regulations which harmonize new market-based mechanisms with existing rules in the wholesale energy market (MEM for its acronym in Spanish).</p>	<p>Invigorate of the regulatory agenda.</p>	<p> Include the following topics in the regulatory agenda for the power sector:            (i) definition of the methodology for FNCER compensation in the MEM;            (ii) regulation of complementary services associated with the FNCER plants;            (iii) implementation of the internal day market scheme;            (iv) network code document update;            (v) contract standarization.</p> <p> Include in the regulatory local agenda, long-term regulations of power storage systems and studies on the feasibility of MEM modernization mechanisms, such as a possible multimodal pricing system and deep transmission connection.</p>

### 3.1.4 Strategy: Promote Green and Sustainable Businesses (“NVS”, for its acronym in Spanish) as a profitable business model in the country

Colombia has the potential to develop and consolidate NVS, ranging from those that require greater technological advancement to those where knowledge transfer has a more significant role. Regardless, according to the Green Business National Plan (MADS, 2014), NVS have been limited by: (i) poorly developed local markets for these products and services; (ii) little knowledge transfer regarding NVS; (iii) low capacities for project formulation and management along with low association between NVS and scarce financing; and (iv) low institutional organization and articulation for the promotion of NVS.

In this regard, the Green Growth Policy seeks to provide continuity and solidify the Green Business National Plan led by the Ministry of Environment and Sustainable Development, through a strategic course of action with 4 specific actions summarized here in Table 4.



The country is currently at the beginnings of developing green and sustainable businesses (‘NVS’).

Some **800** green enterprises have been identified between **2014 and 2016** within the framework of the Regional Green Business Programs (“PRNV”, for its acronym in Spanish) (MADS, 2018).



In **2016** only **8%** of companies under the category of sustainable eco-products received consultancy and **0%** under the Carbon market category (MADS, 2016).

**Table 4 - Main Actions to Position NVS**

 PROBLEM SOURCE	 STRATEGY	 MAIN POLICY COMMITMENTS
<p>(i) poorly developed local markets;                      (ii) little knowledge transfer;                      (iii) low project initiation and management capacities; and                      (iv) poor institutional organization and articulation.</p>	<p>Promote NVS.</p>	<p>  Design a training strategy on NVS.                     </p> <p>  Prepare a diagnosis and propose instruments for NVS promotion.                     </p> <p>  Update the verification tool that defines the criteria under which it is possible to identify if a business can be classified as an NVS, in this sense it should review and adjust the NVS criteria introduced in the National Green Business Plan.                     </p> <p>  Promote the formation of 12,630 verified NVS, which will be accompanied by the verification tool and supported by an improvement plan by means of technical assistance.                     </p>



# 3.2

## Objective: Strengthen mechanisms and instruments in order to optimize the use of natural resources and energy in production and consumption

### 3.2.1 Strategy: Implement guidelines that enable performance improvements in the agricultural sector

According to the Food and Agriculture Organization of the United Nations (FAO), the growth in global food demand and its market can be economic growth drivers for the country. However, Colombia presents lower yields in various agricultural products compared to similar countries, resulting in a low efficiency in land use. This low efficiency is caused among others things, by the excessive use of chemical inputs to fertilize or protect crops and by giving uses to land, different to its purposeful one, all of which have a high impact on ecosystems and their related services.

In Colombia, it is expected that the agricultural sector grows in average **2.5%** per year in the next fifteen years, and that the amount of hectares down increase in **43.8%** in comparison to year **2015** (DNP, 2017).



Low productivity in land use and poor environmental performance of the agricultural/livestock sector.



During year **2013**, Colombia produced **33,200** dollars per km<sup>2</sup> of arable land, equivalent to **19%** of the productivity of the countries' land belonging to the OECD (DNP, Fedesarrollo, GGGI y PNUMA, 2017).

Focusing on improving land-use productivity, therefore having a knock-on effect on the agricultural and livestock sector performance, the Green Growth Policy prioritizes 3 causes for low performance and establishes 4 courses of action with 14 specific commitments. Table 5 introduces the main actions presented in the Policy.

**Table 5 – Main Actions to Improve Performance of the Agriculture and Livestock Sector**

 PROBLEM SOURCE	 STRATEGY	 MAIN POLICY COMMITMENTS
<p>Low coverage in the agricultural and livestock extension process as well as a general lack of integrating elements of environmental management.</p>	<p>Strengthen the agricultural/livestock productive management capacities and sustainable agricultural/livestock production.</p>	<ul style="list-style-type: none"> <li data-bbox="889 666 1528 761">  Strengthen the environmental focus of the agricultural extension service within the framework of Law 1876 of 2017.                             </li> <li data-bbox="889 953 1528 1091">  Create a network model of productive units which incorporate good practice and technologies oriented towards green growth productive systems.                             </li> </ul>
	<p>Technology management and transfer for sustainable agricultural and livestock production.</p>	<ul style="list-style-type: none"> <li data-bbox="889 1304 1528 1410">  Develop productive models for production systems that promote Green Growth and climate-smart agriculture.                             </li> <li data-bbox="889 1549 1528 1613">  Formulate public policy for ecological and agroecological agriculture promotion.                             </li> <li data-bbox="889 1730 1528 1868">  Incorporate sustainable land management approaches and agroecological practices in the development of new technological offers.                             </li> </ul>

 PROBLEM SOURCE

 STRATEGY

 MAIN POLICY COMMITMENTS

Low access to credit and lack of sufficient financial incentives needed to implement technologies which require a degree of financing.

Development of a strategy aimed at financing sustainable agricultural and livestock projects.



Reformation of financing instruments and conditions to access credit and sustainable project assurance.



Analyze the feasibility of incorporating environmental performance criteria into the co-financing evaluation of integral rural agricultural development projects (PIDAR, for its acronym in Spanish).



Evaluate the current fiscal instruments to incorporate green growth criteria that encourage a better land use and a sustainable performance by the agricultural sector.

A lack of clear differentiating mechanism for producers who adopt better environmental practices, or effective incentives to adopt such practices.

Strengthening the market to stimulate companies and products that leverage green growth.



Define strategies that stimulate the creation of companies focused on green growth, including Peasant, Family and Community Agriculture (ACFC, for its acronym in Spanish), in the Agricultural/Livestock Extension Departmental Plans.



Increase, through the Sustainable Agricultural/livestock Production System Support Program, the number of producers that adopt good agricultural/livestock practices, to cover a total of 156,000 hectares.



Develop a prioritized agricultural activities accreditation program that incorporates good practices and technologies aimed at green growth.

### 3.2.2 Strategy: Improve water use efficiency

Low water productivity in the country leads us to conclude that despite an abundance of water resources, this does not necessarily equate to a good use under its economic production capacity. In addition, high levels of contamination are present in Colombian water resources.

Causes for Colombia's low performance regarding efficiency in water use and wastewater treatment are very varied and in many cases correspond to sectorial factors. With the purpose of promoting improvements regarding water productivity, the Green Growth Policy prioritizes 5 causes of low performance and establishes 7 courses of action with 15 specific actions. Table 6 sets out the main actions outlined in the Policy.



Inefficient use of water resources and low gray water and rainwater reuse levels.

Colombia produces **18.9** dollars per m<sup>3</sup> of extracted water, while, on average, the upper middle income countries produce **27** dollars per m<sup>3</sup> (DNP, Fedesarrollo, GGGI y PNUMA, 2017).



Water availability per person in Colombia has decreased by about **31%** between **1992-2014** (World Bank, 2018).

It is expected that by **2030**, water consumption by economic sectors will increase by at least **64.5%** (DNP, 2017).





**Table 6 - Main Actions to Improve Water Use Efficiency**

 PROBLEM SOURCE	 STRATEGY	 MAIN POLICY COMMITMENTS
<p>Absence of information availability for decision making and low capacity of environmental authorities.</p>	<p>Strengthening water resources management in the agricultural sector.</p>	 <p>Develop a technological strengthening strategy directed to the regional environmental corporations (CARs, for its acronym in Spanish), based on information tools to improve the management of water resources.</p>
	<p>Develop tools for water monitoring in mining zones.</p>	 <p>Strengthen monitoring in prioritized concentration areas of mining districts.</p>
<p>A deficiency in technical support at the national level to aqueduct and sewerage services.</p>	<p>Develop tools to strengthen the the drinking water management and sanitation sector, at the regional level.</p>	 <p>Incorporate guidelines of new wastewater treatment technologies and the use of by-products and energy into the Technical Regulations of the Drinking Water and Basic Sanitation Sector.</p>
		 <p>The issue of a specific regulation to facilitate vertical disintegration within water, sewer and sanitation systems, as well as one which permits the development of regional markets for wastewater treatment systems.</p>



PROBLEM SOURCE



STRATEGY



MAIN POLICY COMMITMENTS

Lack of economic instruments that generate enough incentives towards technology adoption and good practices.

Formulate strategies for financing and development of integrated water resources management projects (IWRM), according to the National Research Program for IWRM.



Facilitate, within the framework of the IWRM Thematic Network, the formulation and implementation of projects regarding water use efficiency and the transfer of good practices.



Implement the National Research Program for IWRM, which establishes the thematic priorities on water supply knowledge and technologies to improve quality and demand management.

Evaluate and update existing economic instruments.



Evaluate and propose adjustments to the retributive rate on wastewater discharge points.



Develop a module in the Water Resources Information System, to follow up the application of the retributive rate and water usage rate.

Low implementation level of water reuse projects.

Promote treated wastewater reuse.



Execute a regulatory adjustment of Resolution 1207 of 2014.



Design a document which gathers good water reuse practices.



Strengthen the capacities of environmental authorities in terms of water reuse promotion and monitoring.

Absence of a long-term financing scheme for the Water Resources Information System.

Strengthening in information management.



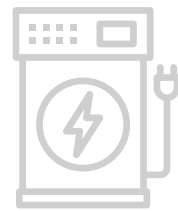
Define a financial and administrative sustainability strategy for the National Water Resources Monitoring Program.

### 3.2.3 Strategy: Promote conditions that lead to the adoption of technologies for the efficient management of energy and sustainable mobility

Although Colombia has a lower energy intensity than other reference countries, there are sectors which have a significantly greater energy intensity. Those sectors with higher consumption, like transport, industry, and residential sectors, have substantial opportunities for improvement through technological advances.

The Green Growth Policy prioritizes 3 causes that contribute to the low transition towards technologies which improve national energy efficiency and establishes 3 strategic lines with 18 specific actions. Table 7 portrays the main actions developed in the Policy.

The average power intensity in Colombia is **2.4 MJ** per dollar (DNP, Fedesarrollo, GGGI and UNEP, 2017).



The manufacturing industry presents a energy intensity of **15 MJ** per dollar while the transport sector has **11 MJ** per dollar (Enersinc, 2018).



There are technological and financial entry barriers for efficient energy management and sustainable mobility.

An electric bus increases travel distances by **85%** using a unit equivalent to a barrel of oil, compared to a diesel bus (Enersinc, 2018).



**Table 7 - Main Actions to Promote Power Efficiency and Sustainable Mobility**

 PROBLEM SOURCE	 STRATEGY	 MAIN POLICY COMMITMENTS
<p>Gaps in instruments and financial barriers to foster active participation in the energy chain.</p>	<p>Promote efficient demand management in the energy market.</p>	<ul style="list-style-type: none"> <li>                      Develop a road map to ensure the technological deployment of advanced metering infrastructure as well as its interoperability, cyber-security and data governance.                 </li> <li>                      Stimulate the regulatory agenda of the CREG (Power and Gas Regulation Commission, for its acronym in Spanish) in order to push for efficient energy demand management.                 </li> <li>                      Extend energy efficiency labelling to all equipment used by all branches of the national economy, update regulations and labeling schemes in order to enable users to make informed decisions.                 </li> <li>                      Lay down the guidelines of active participation from various actors of the energy service/utility sector in the energy efficiency market.                 </li> </ul>
<p>Deficiencies in the follow-up and monitoring of national and sectoral goals and absence of a baseline for energy and environmental purposes.</p>	<p>Develop strategies for institutional strengthening and information management in the energy industry.</p>	<ul style="list-style-type: none"> <li>                      Create the Energy Observatory as a consolidation and information analysis platform with regards to energy offer and demand.                 </li> <li>                      Evaluate the creation of a energy efficiency manager with the purpose of having more precise information about the consumption and opportunities to introduce efficient technologies.                 </li> </ul>





PROBLEM SOURCE



STRATEGY



MAIN POLICY COMMITMENTS

Absence of a comprehensive policy promoting the electrifying of the transport sector.

Develop a national electrification program for transport.



Formulate the Electrical Mobility Program in Colombia.



Formulate the basis for a technological replacement program for national fleet.



Develop an incentives proposal for the penetration of freight, public and private passenger electric vehicles.



Develop a strategic proposal for the shift to electric taxi cabs.



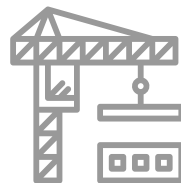
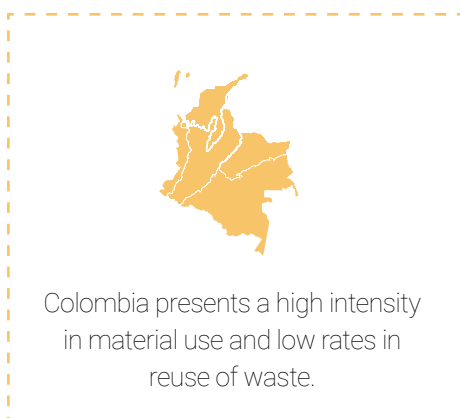
Accompany the evaluation process for alternatives aimed at the integration of electric vehicles to the Integrated Mass Transport System (SITM, for its acronym in Spanish) and the Strategic Public Transportation Systems (SETP, for its acronym in Spanish).

### 3.2.4 Strategy: Define the road map for the transition towards a circular economy

Despite having a Sustainable Production and Consumption Policy along with the CONPES document 3874 of 2016; National Policy for the Comprehensive Management of Solid Waste, the domestic demand for materials in the country has grown rapidly while material return and recovery from post-consumption into the manufacturing processes is insufficient.

The Policy prioritizes 4 barriers for the transition towards a circular economy and establishes 4 lines of strategic action with 9 specific actions. Table 8 outlines the main actions established by the Policy.

In **2012**, Colombia used **2.28 kg** of materials to generate 1 dollar of GDP. This is **2.8** times higher than the OECD average (DNP, UNEP, GGGI, 2017).



The country has recycling rates of **2%** for construction materials and **20%** for plastic, compared to international potential recycling rates of **50%** and **40%**, respectively (Tecnalia, 2017).

**Table 8 – Main Actions to Promote the Transition to a Circular Economy**

 PROBLEM SOURCE	 STRATEGY	 MAIN POLICY COMMITMENTS
<p>Weak institutional coordination.</p>	<p>Develop planning and technical instruments for a circular economy.</p>	<ul style="list-style-type: none"> <li> Present a legal bill project to consolidate the policy on the integral management of solid waste with a focus on the transition towards circular economy.</li> <li> Define the national strategy for a long-term circular economy and its integral action plan, directed to the private sector.</li> </ul>
<p>Absence of guidelines for the eco-efficient design of products in the production chain.</p>	<p>Promotion of a responsible and sustainable consumption.</p>	<ul style="list-style-type: none"> <li> Update the National Policy for Sustainable Production and Consumption.</li> <li> Publish a Guide for Public Purchases with sustainability criteria.</li> <li> Include sustainability criteria in new framework agreements or instruments for demand aggregation, provided for public purchases.</li> </ul>
<p>Lack of information instruments to describe material consumption and waste generation.</p>	<p>Strengthening knowledge management.</p>	<ul style="list-style-type: none"> <li> Formulate a methodological proposal for the implementation of a material flow account.</li> </ul>
<p>The lack of infrastructure for waste treatment and the lack of incentives for the private investment in infrastructure and material recovery logistics.</p>	<p>Develop infrastructure and logistic instruments.</p>	<ul style="list-style-type: none"> <li> Develop a technical document that contains guidelines and criteria for the location of storage infrastructure and treatment of priority waste.</li> <li> Define protocols for separation at the source, recollection and transport for materials and products in the circular economy framework.</li> <li> Design “framework” projects for the infrastructure of solid waste treatment.</li> </ul>

# 3.3

## Objective: Developing guidelines to build the human capital needed for Green Growth

A transition towards green growth implies profound changes in the labor market, that have the potential to generate new job opportunities and new requirements in the productive sector concerning human capital competences. Not complying with these training expectations may deeply affect the transition process towards green growth.

The Policy prioritizes two causes for gaps in human capital management for green growth, and establishes two strategic courses of action with 5 specific actions. Table 9 presents the main actions established in this document.



For every million dollars invested in clean energy **37** jobs were created in Brazil, **10** in Germany, **100** in Indonesia, **70** in South Africa and **15** in the Republic of Korea (GGGI y UNIDO, 2015).



There are weaknesses in the human capital required for a transition towards Green Growth.

Human capital scarcity is one of the main limitations in the sophistication and diversification process towards green growth (Hausmann R., 2006) (Rodrik, 2004).





**Table 9– Main Actions to Build Human Capital for Green Growth**

 PROBLEM SOURCE	 STRATEGY	 MAIN POLICY COMMITMENTS
<p>Voids exist in the process of identifying and measuring gaps in human capital.</p>	<p>Solve labor market failures that limit human capital development required for green growth.</p>	<ul style="list-style-type: none"> <li data-bbox="883 500 1526 659">  Provide appropriate guidance in the interest of generating a methodology on identifying and measuring the gaps in human capital for green growth.                             </li> <li data-bbox="883 798 1526 872">  Develop a strategy to close the gaps in human capital for green growth.                             </li> <li data-bbox="883 1053 1526 1149">  Suggest guidelines for development, adoption, consolidation, and updating of labor competences for workers.                             </li> <li data-bbox="883 1287 1526 1468">  Foster training in specific areas according to the opportunities to close gaps identified previously, through Learning Vocational Units (UVAE, for its acronym in Spanish).                             </li> </ul>
<p>Shortcomings in the collection of information regarding green jobs.</p>	<p>Estimate green job generation.</p>	<ul style="list-style-type: none"> <li data-bbox="883 1691 1526 1798">  Establish a strategy aimed at estimating green job generation and improving information sources in this area.                             </li> </ul>

# 3.4

## Objective: Strengthen science, technology and innovation (STI) capacities for Green Growth

STI allows the application of knowledge and technology to create new innovative business models, generating great value for all markets, making it an essential basis for the transition towards a green growth approach. However, the current status of STI at a domestic level does not meet the needs to establish such foundations.

The Green Growth Policy identifies 2 causes for weakness, and establishes 2 lines of strategic action with 10 specific actions. The main actions established in the Policy are portrayed in Table 10.

The average investment in STI activities over the last **10 years** is just 0.55% of the GDP (OCyT, 2017).



In OECD countries, **70%** of investment in research and development is performed by companies. In Colombia, the major investment is carried out by the public sector (Alarcón, 2016).



There are insufficient STI capacities required to leverage green growth.

The number of patents requested per 1 million of inhabitants in OECD reference countries is around **6,331.1** compared to **38.7** in Colombia (World Bank, 2018).



**Table 10 – Main Actions to Strengthen STI Capacities**

 PROBLEM SOURCE	 STRATEGY	 MAIN POLICY COMMITMENTS
<p>Weak capacity for the development of STI activities and low investment in them.</p>	<p>Strengthen the capacities of R&amp;D&amp;I for green growth.</p>	<ul style="list-style-type: none"> <li data-bbox="885 446 1505 595">  Include subjects related to green growth in the national research, technological development and innovation agendas by Colciencias.           </li> <li data-bbox="885 702 1505 883">  Update the sectorial STI project guideline under the General Royalties System Framework of the Technology and Innovation Fund, as well as general methodology catalogues.           </li> <li data-bbox="885 1010 1505 1117">  Include green growth criteria within the strategy of standarization of national governmental projects.           </li> <li data-bbox="885 1266 1505 1330">  Develop a model for the consolidation of national centers for R&amp;D&amp;I.           </li> </ul>
<p>Little research from the entrepreneurial side of the private sector.</p>	<p>Promote the development of innovative enterprises related to green growth.</p>	<ul style="list-style-type: none"> <li data-bbox="885 1606 1505 1787">  Associate green growth criteria in the integral departmental/state agendas under the framework for the implementation of the National Productive Development Policy.           </li> </ul>

# 3.5

## Objective: Improve inter-institutional coordination, information management and financing to implement a long term Green Growth Policy







To achieve a transition in the domestic economy towards green growth requires overcoming barriers associated to the inexistence of an institutional architecture that guarantees the implementation of such Policy and establishes a high-level leadership to provide strategic guidance to the parties involved. Likewise, it must overcome the weakness and disarticulation in information management required for decision-making and other weaknesses regarding green growth financing.

With the purpose of overcoming these barriers, the Green Growth Policy establishes 4 lines of strategic actions with 15 specific actions. Table 11 introduces the main actions set forth in the Policy.



Absence of an institutional framework, weak information management and insufficient financing to implement Green Growth strategies.

**Table 11 – Main Actions to Ensure Implementation of the Green Growth Policy**

 PROBLEM SOURCE	 STRATEGY	 MAIN POLICY COMMITMENTS
Inexistence of an institutional architecture that ensures the implementation of the Green Growth Policy and an associated leadership role.	Strengthen interinstitutional coordination.	 Generate a proposal for the incorporation and articulation of the topics pertaining productivity and competitiveness of this Policy within the National Competitiveness, Science, Technology and Innovation System.
	Strengthen national and regional capacities.	 Design an evaluation tool for the performance of green growth at a subnational level.
		 Create a green growth strategic project portfolio that helps leverage financing through different sources in order to foster policy implementation.
		 Implement a program aimed at building technical capacities for green growth.



 PROBLEM SOURCE

 STRATEGY

 MAIN POLICY COMMITMENTS

Weaknesses and lack of articulation in information management required for decision making.

Develop an information management strategy for green growth.



Create a WEB platform, with information modules on the topics prioritized by this Policy.



Consolidate the environmental satellite account focused on establishing relationships between economy and environment in order to generate and measure short and medium term indicators.



Draft the methodological proposal for measuring the composite indicator for adjusted net savings, under the context of the environmental satellite account.



Implement the Environmental Planning and Management Information System for Regional Environmental Agencies (CARs).



Update the policy guidelines for environmental information and the Data and Information Management Protocol, as part of the Environmental Information System for Colombia (SIAC, for its acronym in Spanish).



Propose developing an assessment process to implement Green Growth Policy into the DNP's assessment agenda.

Weaknesses in green growth financing.

Strengthen finances for green growth.



Strengthen capacities in Finagro and Findeter, to promote development, financing and investment for green projects to leverage private capital.



Make the finance tools available to the entrepreneurial sector for facilitating green growth investments through Bancoldex credit lines that allow for financing such initiatives.



Strengthen the capacities of the "Financiera de Desarrollo Nacional" (National Development Financer) to promote green growth investments by the private sector into areas of great market break-through.



Strengthen, in the framework of the Finance Management Committee of SISCLIMA, coordination and collaboration among the national development banking sector for the mobilization of green financing.



04

GREEN  
GROWTH  
INDICATORS

## 4.1

## Green Growth Indicators

This Policy document resulted in a dashboard of 12 indicators whose main objective is to capture and analyze economic advancement in the transition towards green growth. Table 12 details a summary of the selected indicators.

Additionally, the Policy identifies the need to implement other indicators in the mid-term, that are an essential part of the dashboard in order to measure the transition towards green growth. Its design shall be led by the DANE along with relevant sectors.

### Green growth indicators to be implemented in the mid-term are:



Participation of  
Bioeconomy in the GDP



Productivity in the  
use of materials



Green job positions



Adjusted net savings

**Tabla 12 – Indicators to Monitor Policy Implementation**

OBJECTIVE	NAME OF INDICATOR	UNIT OF MEASURE	BASE LINE	2030 GOAL
Generate conditions that promote new economic opportunities based on the wealth of natural capital resources.	Participation of forest economy in GDP.	Percentage	0.79 (2017)	1.5
	Annual national forest loss.	Hectares	276,669 (Average 2000 - 2012) <sup>(a)</sup>	0
	Number of bioproducts.	Number of registered bioproducts	84 (2018)	500
	Verified Green Business.	Verified Green Business	90 (2015)	12.630
Strengthen mechanisms and instruments to optimize the use of natural resources and energy in production and consumption.	Water productivity.	Pesos of added value per m3 of extracted water (\$/m3)	3,334 (2015)	4,440
	Participation of agricultural production that complies with green growth criteria. <sup>(b)</sup>	Percentage	0.49 (2016)	10
	Energy Intensity. (Power)	Terajoule per thousand million pesos of 2005 (TJ/\$)	3.7 (2015)	2.9
	Number of electric vehicles.	Number of vehicles.	1,695 (2016)	600,000
	Recycling rate and new use of solid waste.	Percentage	8.6 (2015)	17.9
	Percentage of solid waste effectively used.	Percentage	17 (2015)	30
	Reduction of total emissions of greenhouse gases related to the 2030 projection.	Percentage	0 (2010)	20
Strengthen Capacities in STI for Green Growth.	Public investment in R&D of importance for green growth related to the total public expenditure	Percentage	0.02 (2016)	0.08

Note (a) For the baseline, the annual average for loss of natural forest was taken (2000-2012), for the continental and insular surface. (b) This is an indicator built based on good environmental practices criteria defined in the Domestic Agricultural and Livestock Survey, whose base line and goal may be reviewed and adjusted based on the available information of other criteria or methodological adjustments.



05

FINANCING





**The Green Growth Policy** defines a total of 155 specific actions to execute between 2018 and 2030. From these, 120 actions indicate an estimated figure of about 2.3 trillion COP of financing required, intended for the **five objectives defined in the Policy** that are displayed in **Table 13**.

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**Table 13 – Indicators to Monitor Green Growth Policy Implementation**

POLICY OBJECTIVE	REQUIRED FINANCING (MILLIONS OF PESOS)
Generate conditions that promote new economic opportunities based on the richness of natural capital.	<b>1,943,668</b>
Strengthen mechanisms and instruments to optimize the use of natural resources and energy in production and consumption.	<b>363,230</b>
Develop guidelines to build human capital for green growth.	<b>16,851</b>
Foster capacities in STI for green growth.	<b>11,843</b>
Improve interinstitutional coordination, information management and financing to implement the Green Growth Policy in the long term.	<b>16,130</b>
<b>TOTAL</b>	<b>2,351,722</b>



Embajada de Noruega



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