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ESTIMATING GREEN JOBS
IN ARGENTINA

EXECUTIVE SUMMARY AND CONCLUSIONS



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GREEN JOBS IN ARGENTINA: KEY FINDINGS AND STRUCTURE OF THE STUDY

This document presents the key findings of the study to estimate green employment in Argentina for 2015. The aim was to identify the main economic sectors that develop environmental activities and quantify the employment they generate in order to **provide statistical information and contribute to the design of green employment policies.**

This study defines **green jobs** as those that meet *decent work standards* and are carried out in *environmentally sustainable* sectors. That is to say, the economic, social and environmental aspects are considered according to the ILO's definition of decent work and the criteria for environmental sustainability established by the United Nations Environment Program.

Two strategies were used to identify **green sectors** in Argentina. First, potential sectors were identified based on *international definitions* (primarily: environmental sectors; taxonomies of branches of industries according to their environmental externalities; and lists of environmental goods). These were *validated using empirical evidence for Argentina*, which made it possible to assess the suitability of international criteria in the case of Argentina. Second, information was gathered regarding the *best practices* within each branch, according to the latest definitions of environmental activities, which show efforts must be made towards greater sustainability in all economic sectors. This work took into account *environmental seals and certifications* – for the most part, related to processes – and *public policies and specific programs*.

Decent work is a multidimensional concept. It implies the opportunity to access productive employment that provides: a fair income, security in the workplace, social protection, prospects for personal development and social integration, freedom of expression and organization, and equal opportunities and treatment for all. An estimate of decent work entailed practical difficulties, due mainly to the lack of availability of necessary information. Thus, this study adopted the criteria of a worker's registration in the social security system as a means of approximating the concept of decent work. In Argentina, registration implies that several of the definitions of decent work established by current labour laws have been met, such as: (i) health coverage provided for the worker and his family through a health insurance plan; (ii) family allowances; (iii) insertion into the pension system; (iv) occupational risk insurance (ART) and (v) unemployment insurance. Registration in the social security system also implies compliance with the minimum wage and basic salaries negotiated in collective

agreements. In some cases, it is possible that this definition may be restrictive in some cases, as it does not include the decent work that falls under the category of self-employment. In other cases, the definition may lead to an overestimation of green jobs, since not all formal employment complies with the standards of decent work. Nevertheless, it presents a reasonable approximation.

Based on the combination of this criteria, two estimates were made, one that is broad and another that is restrictive. The first includes public passenger transport among the green sectors, while the second excludes it. When the broad approach that includes public passenger transport (163,000 jobs) is considered, **it is estimated that approximately 650,000 green jobs existed in the country in 2015, a figure that represented 7% of formal salaried workers.** According to this estimate, the majority of green jobs in Argentina were found in the manufacturing industry (38%), transport (29%), water supply and waste management (7%), and in the agriculture, livestock, forestry and fisheries sector (9%). Trade and services related to environmental protection accounted for 10% of green jobs.

When public passenger transport is eliminated from consideration and a *restrictive estimate* is used, green employment accounts for 486,000 jobs, or 5% of formal salaried workers. The sectors' relative contributions to green jobs also changes under this approach when compared to the broad estimate; the manufacturing industry (50%), agriculture, livestock, forestry and fisheries (12%), and water supply and waste management (10%) all increase in importance. At the same time, trade and services related to environmental protection increases to 13% of green jobs.

Two sectors stand out in both estimates that are small in terms of employment and yet very dynamic and with a high potential for creating green jobs: tourism and the production of energy and fuels from renewable resources.

The study also identified sectors with a high potential for creating new green jobs. This could be exploited if policies are implemented to promote the development of environmental activities, or to address the deficit of decent work in the corresponding sectors.

Waste management (of solids and liquids) was identified to be among the activities with a high potential, as coverage levels are very low in comparison with the development achieved in other sectors. An increase in the provision of this service could generate a significant number of green jobs. As well as a high deficit of decent work in municipal solid waste management (MSW), the sector shows evidence of child labour practices. Both situations must be addressed.

GENERAL FINDINGS

Green jobs and their share of registered salaried employment, in thousands of jobs and as a percentage of the total or sector (2015).

	Registered Salaried Workers 2015		Green Jobs (Broad Estimate)			Green Jobs (Restrictive Estimate)		
	Thousands	% of Total	Thousands	% of Total	% of Sector	Thousands	% of Total	% of Sector
Agriculture, livestock, forestry and fisheries	366	4%	58	9%	16%	58	12%	16%
<i>Agriculture, livestock, hunting and related service activities</i>	341	3%	53	8%	16%	53	11%	16%
<i>Forestry and timber harvesting</i>	11	0%	3	1%	30%	3	1%	30%
<i>Fisheries and aquaculture</i>	15	0%	2	0%	11%	2	0%	11%
Mining and quarrying	97	1%	-	0%	0%	-	0%	0%
Manufacturing industries ⁽⁴⁾	1,274	13%	245	38%	19%	245	50%	19%
Electricity and gas supply	71	1%	11	2%	15%	11	2%	15%
Water supply; waste water disposal, waste management	59	1%	48	7%	83%	48	10%	83%
Construction ⁽¹⁾	475	5%	23	3%	5%	23	5%	5%
Transportation and storage	476	5%	188	29%	39%	24	5%	5%
Food services and lodging activities ⁽²⁾	278	3%	16	2%	6%	16	3%	6%
Trade and other non-analyzed services (personal and business) ⁽³⁾	6,844	69%	62	10%	1%	62	13%	1%
Total	9,939	100%	650	100%	7%	650	100%	5%

Source: ILO, based on data from the Observatory of Employment and Business Dynamics (OEDE) and other sources.

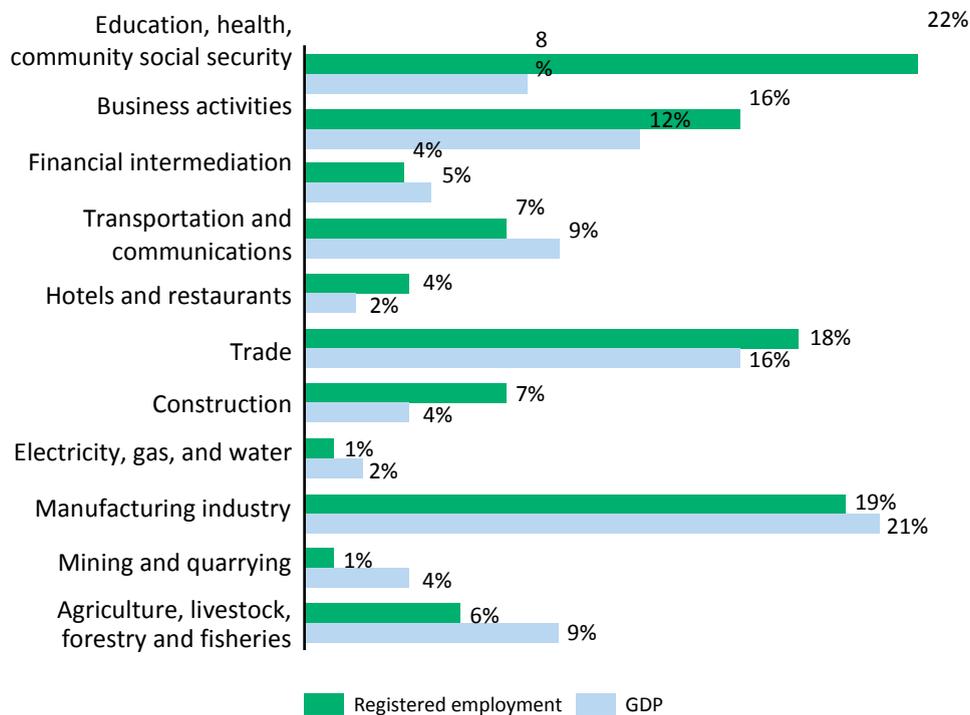
Notes: (1) Includes architecture and engineering services. (2) Includes cultural and recreational activities. (3) Excludes the services included in (1) and (2) (4). Excluding ISO 14000 criteria, green jobs in manufacturing industries would be 226 thousand.

1. CONTEXT OF PRODUCTION AND EMPLOYMENT

Argentina is one of the largest economies of Latin America, with a Gross Domestic Product (GDP) of more than US\$ 594 billion in 2015. The country is undergoing an economic transformation that promotes sustainable and inclusive economic development, as well as its insertion into the global economy.

TABLE 1.

Structure of GDP and Private Employment Registered in Social Security (2015)



Source: National Institute of Statistics and Censuses (INDEC) and OEDE.

Argentina has abundant natural resources in terms of energy and agriculture. It encompasses a territory of 2.8 million square kilometers filled with agricultural lands and the potential for renewable energies, among other natural resources. The country is a leader in food production and has large-scale industries in the agriculture and cattle breeding sectors. Certain manufacturing sub-sectors and the innovative high-tech services industry also present substantial opportunities. In 2015, the agriculture, livestock, forestry and fisheries industry accounted for 9% of GDP, while the manufacturing industry accounted for 21% (of which, food and beverages accounted for 25%).

According to the 10th National Population, Households, and Dwellings Census¹, in 2010, Argentina had a population of 40,117,096 and a life expectancy at birth of 75.3 years (78.8 for women and 72.1 for men). Due to the increase in industrial and agricultural and livestock activity, the provinces of Buenos Aires, Cordoba, Santa Fe and the City of Buenos Aires concentrate 63% of the country's population.

In the first half of 2015, unemployment affected 6.8% of the economically active population (EAP) in the 31 most populous urban centers of the country, as a result of an activity rate of 44.6% and an employment rate of 41.9%. According to ILOSTAT, the average unemployment rate in Latin America was 6.6% for the same period.

Unemployment is not the only labour issue, as underemployment is also high: according to the INDEC, it affected 8.8% of the EAP in the same period. Informal labour is another problem. Informal workers often have poor quality jobs, low wages, lack of access to training opportunities, difficulties accessing the judicial and social protection systems, and even difficulties obtaining occupational health and safety protection. This means that both workers and their families are subject to vulnerable economic and working conditions (ILO). For that matter, in the first semester of 2015, the non-registration rate reached 31.1% of salaried workers (INDEC, consulted in BEL, Ministry of Production and Labour).

¹. Latest data available

2. KEY ENVIRONMENTAL ISSUES

The kind of economic growth the country underwent in the last decades led to the main environmental issues it now faces. Deforestation or land clearing – the primary cause of desertification and one of the primary sources of net greenhouse gas emissions – is the biggest environmental issue faced by the country (Secretariat of Environment and Sustainable Development, 2018).

Air pollution, waste management, and water pollution are also serious problems, particularly in urban centers. These results emerged from a recent study by the World Bank (2016), which states that although the country has improved its economic growth and poverty reduction since the 2001 financial crisis, the type of development it has implemented has not always been sustainable nor environmentally friendly.

Since 2003, the Gross Domestic Product (GDP) grew in an upward trajectory, punctuated by intermittent years of decline. Growth was significant in the primary and industrial sectors and, as a consequence, resulted in a considerable increase in GHG emissions. Due to its high productivity and relatively low population, agricultural and livestock production in Argentina greatly outpaces internal consumption demand, placing the country in an important position in terms of global food security, as a food producer for hundreds of millions of people. However, this, in turn, results in high GHG emissions linked both to agriculture and the use and change in use of the soil.

The country has a greenhouse gas inventory for 2014. The study shows the greenhouse gas emissions inventory rose to 8.6 tCO₂eq per inhabitant in 2014 and was composed of 67% CO₂ (carbon dioxide), 21% CH₄ (methane) and 12% N₂O (nitrous oxide). When emissions are analyzed by sector, it can be seen that the largest share corresponds to the energy sector (52.5%), followed by agriculture and livestock (39.2%) and, in third place, industrial processes (4.5%). Meanwhile, waste generated 3.8% of total emissions (Ministry of Environment and Sustainable Development, 2017).

3. RESULTS BY SECTOR

What follows is a brief summary of the findings from the estimate of green jobs by sector.

Agricultural and livestock sector

It is estimated that there were 58,000 green jobs in Argentina's agriculture and livestock industry in 2015. Results indicate that 16% of formal salaried workers in the sector belong to this category.

The sub-sectors identified as having good environmental practices are as follows:

- I. Temporary crops: 15% of employment was considered green according to different criteria, such as whether the employer holds environmental certifications or participates in associations that certify the application of good environmental practices (organic farming, zero tillage, or precision agriculture).
- II. Permanent crops: a greater incidence of green employment was seen in this sub-sector (38%), particularly in terms of the fruit exported to markets with environmental requirements.
- III. Livestock sector: employers applying good environmental practices account for 7% of the jobs in this sub-sector. It is important to highlight the existence of the biodigesters used in different activities in the fields, as they reduce GHG emissions and waste while generating energy.

Small producers have the greatest potential for creating green jobs: their activities are environmentally sustainable but they do not meet the standards for decent work. From an environmental perspective, there are many opportunities to adopt more sustainable practices that create jobs. Examples include better disposal of livestock waste, or agricultural practices that cause less water pollution. In terms of quality of employment, improvements in working conditions in activities such as organic farming also have the potential to drive green job creation.

Forestry sector

It is estimated that there were 3,300 green jobs in forestry (34% of total jobs in the sector) in 2015, most of which corresponded to forestry activities and forest services.

Environmental certifications were taken into account when identifying green jobs in forest extraction activities. It was shown that although there is a low rate of environmental certification at the extractive stages, the rates are higher for industrial processes (paper and wood products).

However, it is estimated that there are 11,600 forestry-related green jobs that, for the most part, are found in the public sector that monitors and manages the regulatory framework on forestry activities. The progress made both in implementing minimum standards for forests and in the coverage of environmental certifications is part of an environmental policy strategy that stimulates the creation of green jobs in the sector. Nevertheless, the rate of deforestation of native forests continues to have a strong negative environmental impact, as do labour informality and occupational accidents, which are central items on the policy agenda despite showing signs of decline.

Fisheries and aquaculture

Fishing is a highly regulated activity due to the need to control the natural resource. The complex regulatory framework is aligned to international recommendations and there is also an institutional framework for monitoring and control. However, the sector continues to suffer from unstable employment conditions and environmental issues.

The study identified inland fisheries and aquaculture as sub-sectors that employ good environmental practices. Good practices were also identified in the maritime fishing sub-sector, particularly when employers, in addition to complying with current regulations, have environmental certifications.

If production activities alone are considered, green employment in the fisheries sector is estimated to amount to approximately 1,500 jobs, or 21% of the sector's formal employment. The regulatory system that oversees the activity also creates a significant amount of green employment at the institutions responsible for monitoring and managing the regulatory framework. When these positions are taken into consideration, green employment in the sector rises to 2,400 jobs.

The study showed the sector also provides “green jobs” that do not meet the labour standards for decent work due to, among other factors, high rates of informality and the instability associated with this type of economic activity. This is observed in both small-scale fishing, inland fish farming activities and maritime fishing.

Manufacturing industry

It is estimated there were 245,000 green jobs in Argentina’s manufacturing sector in 2015. Results indicate that 19% of formal salaried workers in the sector are “green”.

This figure includes both jobs created by the production of environmental goods and jobs in companies that observe good environmental practices. These companies were identified through the ISO 14000 and other certifications they hold¹. A large portion of green employment is found at the industrial food and beverage production stage of the value chain, whose agricultural stages are also environmentally certified.

Three criteria were adopted to identify the set of companies that follow good environmental practices. First, the study disregarded activities that, according to local metrics, present higher than average negative environmental externalities. Second, rather than considering sub-sectors as a whole, the remaining activities were analyzed to identify the subsets of companies within them that accredit their good environmental practices through different certifications. These subsets account for, for example, 17% of registered salaried employment in the food sector, 37% in beverage production, or 8% in pharmaceutical production. Third, sectors that produce capital goods and inputs used for environmental protection activities are considered “green”. In some cases, these companies also hold environmental certifications.

During the study, some branches of activities were observed to generate significant negative environmental externalities relative to the average of the economy, but they also made substantial efforts to improve their environmental performance. This was particularly noted in the case of the manufacture of paper and cardboard, chemicals, and base metals. Nevertheless, the study discarded these activities because the limited access to information meant a distinction could not be made between the percentage of jobs involved in improving environmental sustainability at these companies, and the percentage dedicated to activities that have negative environmental externalities. A study focused on green jobs in these occupations would be extremely interesting, but would require the development of new sources of statistical information.

¹ If ISO 14000 were excluded, green jobs in manufacturing sector would be 226,000.

Energies and fuels

The estimates identified approximately 11,000 jobs in energy production – at small hydraulic, wind and solar power plants – and bioenergy, which includes biodiesel, bioethanol, and other forms of biomasses. Among these, approximately 10,000 qualify as green employment, as they meet the standards for decent work conditions (the rate of formality in this sector is very high). Green jobs account for 15% of total registered salaried workers in the Argentine Integrated Pension System (SIPA) for the energy sector.

Argentina's energy matrix is concentrated on fossil fuel-based energy production – gas, in particular – which explains why the renewable energy sector remains relatively small.

Waste management: solids and liquids

Those workers employed in the environmentally sustainable sectors of waste management and under conditions that meet the standards of decent work are considered to have green jobs.

The study concentrated on the following sub-sectors: (i) water collection, purification and distribution; (ii) wastewater disposal and treatment; (iii) waste collection and disposal (only 64% of the sub-sector properly disposes of waste); (iv) waste treatment and disposal, and (v) materials recovery.

Two clarifications should be made in this regard. First, proper waste disposal is considered to be that which is carried out at sanitary landfills (64.7% of total waste disposal). When waste is disposed at open-air dumps – usually without controls – it is not considered “green”. Second, as with the other sectors analyzed, it is considered that the number of registered employees allows for an approximation of decent work. In other words, the green employment estimate does not include workers who perform jobs associated with proper waste management but whose jobs do not meet appropriate labour standards.

It is estimated that green employment in waste management accounts for 48,000 jobs, or 83% of formal employment in the sector.

It should be noted that a greater number of green jobs exist in the sector, but they are informal and carried out under highly inadequate social and working conditions. There is significant potential for green job creation if these working conditions are improved. Emphasis must also be placed on increasing the coverage of solid waste

and wastewater management services – both in terms of quantity and quality – in order to meet the adequate standards for the level of development of the country. If sector growth is achieved through creating jobs that meet adequate labour standards, it will create new green employment.

Construction

Five environmental sectors were identified in the study: (i) green building construction; (ii) water infrastructure, water supply and sanitation works; (iii) installation of infrastructure for the generation of renewable energies; (iv) installation of domestic solar thermal energy equipment (solar-powered boilers and water heaters); and (v) professional services activities aimed at sustainable construction. It is estimated that 22,000 construction jobs are green, or 4% of total employment in the sector.

Transportation

Two estimates of green jobs were carried out for the transportation sector: a broad estimate that includes public passenger transport, and a restricted estimate that excludes it.

Under the broader criteria, green employment in the transportation sector amounts to approximately 187,000 jobs, or 39% of registered workers.

The transportation sub-sectors that were taken into account to identify the activities with the greatest environmental sustainability are: (i) rail transport, (ii) maritime and waterways transport and (iii) public road passenger transport.

Public passenger transport is considered an activity of greater environmental sustainability because, although it generates strong negative environmental externalities, its impact is reduced in comparison to the emissions generated by individual private transport. It is important to note that private land transport accounts for 79% of the sector's GHG emissions, while public transport accounts for only 13%. Furthermore, 87% of the green employment estimated for this sector corresponds to public passenger transport.

In the restricted estimate (which excludes public passenger transport), 24,000 jobs are considered green, or 5% of the registered workers in the sector.

Tourism

The study estimated there were 16,000 green jobs in the Argentine tourism sector in 2015. Of these, 3% of formal salaried positions in tourism are “green” (restaurants, hotels, travel agencies). However, if personal services associated with the management of tourist destinations are included in a broader definition of the tourism industry, green jobs account for 6% of employment in the sector.

Green sectors in this category include: (i) hotels that follow good environmental practices; (ii) travel agencies that hold environmental certifications; and (iii) activities in (a) protected areas, (b) ecotourism in communities, and (c) ecotourism and adventure tourism with companies.

When a broader definition of tourism is used – one that includes tourism destination management – other green activities can also be considered, such as botanical garden services, national park management, maintenance of green spaces, library services, and museums. Cultural and recreational activities such as theater, shows, and amusement parks that are managed under sustainable conditions are also found within this category, albeit on a smaller scale.

It is important to note that there is a portion of employment in the tourism sector that is sustainable and yet fails to meet the standards of decent work. Community ecotourism, adventure tourism, and some activities carried out in protected areas generate informal employment. On the other hand, hotels and agencies that hold environmental certifications represent a more formal sector of the industry.

Business, social and community services and trade

It is estimated that other services (business, social and community services) and trade account for approximately 62,600 green jobs. This employment is made up of some 28,000 jobs in regulatory and enforcement bodies; 8,900 jobs related to technical testing activities or research and development institutions; 5,000 jobs linked to trade in recycled materials; and 4,000 jobs in trade unions and employers’ organizations.

The environmental sub-sectors that were identified are as follows: (i) the wholesale trade of waste, in its entirety; and (ii) those segments of institutions and specific areas dedicated to the environmental sector, such as: (a) technical testing and analysis, research and development (40%), (b) regulatory and enforcement services (5%), and (c) services for trade union and employers' organizations.

4. STRUCTURE OF THE STUDY

The results of the study are published in several documents. The first of the series is dedicated to describing the methodology applied and the criteria used to define green employment, and also explains the sources of information that were used.

The study is comprised of documents relating to each sector, each of which follows the same structure: (i) a description of the main productive characteristics, which includes the different sub-sectors and an outline of the value chains that comprise the sector; (ii) key environmental issues that were detected in the literature or in the interviews that were conducted, and the public or private actions developed to improve environmental sustainability and, (iii) an analysis of the employment created by the sector, which includes a description of working conditions.

This information is then used to estimate green employment and identify potential areas for growth, both in terms of improving the environmental sustainability of the activity and the working conditions.

