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THE REPORT ON THE STATE OF THE GREEN ECONOMY 2018

EXECUTIVE SUMMARY

INTRODUCTION

"Green economy and new employment to boost Italian economy" is the theme for the 2018 States General of the Green Economy, introduced, this year as well, by the Report, now at its fourth edition.

Adopting and implementing ten key green economy policy measures in various sectors over the next ten years, can generate 2.2 mln work units (3.3 including satellite activities) in the next five years. This is what can be read in the first part of the Report, publishing data from a study commissioned by the Sustainable Development Foundation, on green economy development potentials for environmental benefits, well-being and life quality, as well as for an in increase in goods and services production and their added value, especially for job creation.

The second part of the Report updates the analysis of the status of green economy implementation in Italy, with a focus on some key areas: GHG emissions, energy efficiency and energy savings, renewable sources of energy, circular economy, eco-innovation, organic farming, land and natural capital, sustainable mobility.

This year, the Report devotes an additional part to the way towards green cities. Cities are, in fact, a laboratory for developing advanced and integrated solutions for green economy implementation in the urban context, coupling environmental quality, circularity and efficient use of resources, actions to face the climate crisis by adopting adequate governance instruments. Italian cities show an overall delay, though with some leading examples.

In conclusion, the fourth part of the Report provides an updated overview of green economy implementation worldwide, relevant international trends and progresses made, with a focus on worldwide jobs creation due to green economy implementation.

The Report is coordinated by the Foundation for Sustainable Development, acting as the secretariat of the National Council of the Green Economy.

THE REPORT ON THE STATE OF THE GREEN ECONOMY - 2018

Presentation by **Edo Ronchi**
President of the Sustainable Development Foundation

This Report on the State of the Green Economy aims at taking part in the national and European debate on the increase in investments, both public and private, needed for a substantial, stable and sustainable economic recovery and an increased employment. While a need for the increase in public and private investments is well acknowledged in Italy and Europe, much less consideration and debate is devoted to identify such investments.

1. New employment from green economy to boost Italian economy

The Report starts with **a study on ten selected investment measures in green economy** addressing relevant and substantial issues which, should they not be addressed, would imply significant economic and non-economic costs. The first economic advantage of such investments is, indeed, avoiding costs, mainly public and to a lesser extent private, derived from pollution and other adverse environmental impacts. The second economic advantage is the ability of such measures, through public expenditure, to trigger private investments as well, with a significant multiplier factor. The third refers to the capacity to implement and promote innovation and best practices and techniques.

TEN GREEN INVESTMENTS CHOICES

The choice of green measures to be supported with investments is based on an assessment of trends, shortcomings and potentials of the key green economy sectors addressed in this Report, also taking into account the way taken towards the implementation of green cities. The identified measures are: revamping renewable energy sources; more effective energy requalification policies of buildings, schools and offices; implementing a national plan for urban regeneration; reorienting the various waste reuse and recycling pipelines towards the new circular economy targets; boosting expenditure on research and development on environmental issues; upgrading the national water system; implementing an intervention scheme to reduce hydro-geological risks; strengthening organic farming, typical agricultural products and relaunching sustainable forest management; completing the remediation of the contaminated national interest sites; taking strategic measures for a sustainable mobility.

2.2 MLN WORK UNITS (3.3 INCLUDING SATELLITE ACTIVITIES) OVER FIVE YEARS IN ITALY

The effects of such measures are calculated by applying intersectorial matrices to costs estimates based on data from literature and interviews to professionals and experts. Through input-output models and the Social Accounting Matrix (SAM), expenditure programmes effects can be calculated. Such effects can be: *directs effects* on added value and employment generated in the specific sector involved in the demand stimulus; *indirect effects* generated as knock-on effects in the economic system, inducted by one sector on the others through the purchasing of intermediate goods, semi-finished products and the services needed in the manufacturing process; *spillover effects* - Social Accounting Matrix - as added value and employment induced by the use of the additional income flow generated by the measures implementation. The new jobs created are calculated as full-time work units on a yearly basis. **Over five years, the production thus induced values approximately 370 billion euro, with an added value of approximately 129 bln euro; 2.2 million work units would be generated, growing to 3.3 mln including the spillover effects. This would result in**

an additional 74 bln euro of economic production per year on average, mainly national, some 26 bln euro in added value and 440.000 work units (664.000 including the spillover effects).

Jobs creation is one of the important advantages of the green economy. UNEP states that green economy is a net jobs generator. UNFCCC and ILO affirm climate change mitigation actions generate new jobs. The world economic downturn caused by the 2008-2009 world financial crisis generated various green fiscal stimulus proposals aimed at jobs creation. **Energy efficiency, renewable energy sources, resources circularity and pollutants reduction are the reference for green economy at all stages: production, sales and consumption.** The work carried out by Eurostat allowed to include EGSS (environmental goods and services sector) standards in the United Nations integrated environmental economic accounting: green jobs definitions by EGSS can help countries to develop standards and statistical methods for green jobs, green economy and employment in the environmental sector, as well as to improve the international data comparability.

CLIMATE CHANGE ACTIONS AS A JOB SOURCE WORLDWIDE

An American research states that **renewable energies and low carbon emissions sectors generate more jobs per unit of energy produced than the fossil fuel sector**, with solar photovoltaic sector in the lead with the highest number of jobs created per unit of electric energy produced. A study demonstrates that the 100 bln dollar American fiscal s timulus package implemented at the outset of the economic crisis and oriented at promoting strategies for energy efficiency and renewable energies generated 2 mln jobs. The London School of Economics collected results from dozens of studies showing how policies on climate change and, in particular, on renewable energy, can generate significant additional jobs. **At the aggregated global level, 2017 was again a record year for the solar photovoltaic industry, with an employment rate rising by 8.7%.** ILO, building upon IEA's scenarios, estimated the effects on employment in the various sectors until 2030 and in the decarbonization paths compliant with the 2°C minimum target set in the Paris Agreement. **Such climate change actions generate approximately 18 mln net jobs worldwide by 2030, as compared to IEA's business-as-usual scenario.**

2. Update on green economy in Italy

The Report updates the analysis of some key sectors of the Italian green economy, showing an uneven picture, with both positive and negative elements.

GHG EMISSIONS

A slight increase, between 0.5% and 1%, in GHG emissions in Italy is estimated, pending official assessments. Over the last four years, in conjunction with a modest economic upturn, the decarbonisation process has come to a halt, in both Italy and Europe.

ENERGY EFFICIENCY

Until the early years of the new millennium, GDP and energy consumption grew with very similar patterns, showing a strong correlation. An evidence of this trend is the stability of GDP energy intensity, around 120 toe per mln euro. **Over the last three years, coinciding with an economic upturn, though modest, energy consumption started increasing again, from 166 Mtoe to over 170 Mtoe from 2014 to 2017.** While with a less significant GDP growth if compared to the same semester of the previous year, the first half of 2018 seems to follow the same trend, with a slight reduction in natural gas and coal consumption, possibly balanced out by a modest increase in electricity and oil products demand.

RENEWABLE ENERGY

As of 2016, **we are the third country (after Germany and France) in final energy consumption from renewable sources.** In Italy, renewable energy met 17.4 % of the demand, as compared to 17.0% average of the EU28, 17.4% in Spain, 16.0% in France, 14.8% in Germany and 9.3% in the UK. Nonetheless, over the last years, our country is marking time: while from 2013 to 2016 energy

production from renewable sources grew by little more than 300 ktoe in Italy, it grew by almost 4,000 ktoe in Germany and 3,500 ktoe in the UK. In 2017 renewable energy gained a further small increase, with an encouraging +700 ktoe over the previous year and reaching 17.7%. This figure could be confirmed in 2018. While experiencing a steady state for the last five years, after a sustained increase from 2005 to 2013, some positive elements should be noted. First, the new installed power from renewable energy sources increased over the last year by more than 900 MW, the highest value in the last four years. Secondly, provisional data from the first half of 2018, particularly rainy, show a halt in the drop of hydroelectric power production, an increase in that such production by more 36% over the same period of the previous year, returning to pre-2015 figures and a reduction in the production from fossil sources.

CIRCULAR ECONOMY

In the waste sector, we are on the eve of the transposition of new important EU Directives aimed at a circular economy: an opportunity for further progress, if positive results already achieved are not compromised by wrong legislative choices. **Italy ranks first among the five main European countries for circularity rate, and has a good resource productivity** (measured in euros GDP per kg of employed resources), ranking second among the main European countries. In 2016 13.55 mln ton of urban waste was recycled, accounting for 45% of total waste produced, thus ranking second, after Germany and rising one place, with an especially good performance on packaging waste. Italy is also a leader in Europe on special waste recycling: in 2016 91.8 Mt of special waste were recycled, 65% of those produced.

ECO-INNOVATION

As per the eco-innovation, according to the *Eco-Innovation Scoreboard*, Italy ranks over the EU 28 average, tied with Austria and after Sweden, Finland, Germany and Denmark, ranking 113 as compared to a 100 EU average. This result confirms progresses made through the implementation of policies oriented to eco-innovation and circular economy, while also showing room for improvement for a society based on a more effective use of resources and on more circular and sustainable consumption and production patterns.

AGRICULTURE

Italian agriculture continues to mark green progresses: the area cultivated with organic farming methods almost reached 1.8 mln hectare, increasing by 20% over the previous year. The incidence of the organic agricultural area over the total Utilised Agricultural Area (UUA) reached 14.5% from 12% in the previous year. Italy is the second country, after Spain, with the widest organic agricultural area, followed by France and Germany. While the organic agricultural area increased, fertilizers consumption remains stable, after a gradual decrease over the last years (-0.7% between 2010 and 2015), and the use of plant protection products decreased by 22.2% between 1990 and 2015. Certified quality agricultural production is also increasing, accounting for 15 bln euro at the end of 2016.

TERRITORY AND NATURAL CAPITAL

In 2017, land use continued at a pace of 15 hectares per day. Italy still has one of the highest land use share among European countries and it appears very hard to comply with the target of zero net land use by 2050 declared by the EU Parliament and Council in 2013. Further alarming is the lack of a national law to contain land use: the draft bill tabled by the government in 2014 is blocked in Parliament since 2016. *The Second Report on Natural Capital in Italy*, drafted in 2018 by the Natural Capital Committee, updated the informative picture on the conservation status of Italian ecosystems, **focusing and stressing the extraordinary value of the natural capital in our country and the abundance of ecosystem services it provides.** Nonetheless, expenditure on biodiversity and landscape protection is extremely low: it dropped from 689 mln euro in 2010 to 524.7 mln euro in 2017.

TRANSPORT

While Italy has the highest number of cars in Europe, 613 per 1,000 inhabitants, the imported share of such vehicles is growing: in 2000 1.4 mln cars were manufactured, while in 2016 the figure has

fallen by half: 700,000. **In Italy, per every 10 new registered cars, 4 are manufactured, as compared to 8 in France, 17 in Germany and 20 in Spain.** While the fall in traditional cars production is non-recoverable, a special attention should be devoted to avoid creating the same gap for the new ecological vehicles: indeed, only gas-powered vehicles are produced in Italian plants, while the electric vehicles share is a niche production. In the 2017 top ten selling cars chart, no vehicles manufactured in Italy are listed in the sections for the hybrid, plug-in hybrid and electric vehicles sections.

3. The way towards green cities

Along with the key sectors, cities deserve a special attention, as they have a great potential for developing a green economy. Contemporary cities, taking the path towards the green city model as the most advanced ones have done, combining environmental quality, circularity and efficient use of resources, actions against climate change and adequate governance and ecoinnovation instruments, become powerful promoters of green economy development, as laboratories for advanced and integrated solutions to improve the quality and sustainability of citizens' well-being. **Analyzing Italian cities according to the green cities model shows an overall delay, though with some leading examples.**

ITALIAN CITIES UNDER INVESTIGATION

Unauthorised development is still considerable in many Italian cities and has been growing in the years 2005-2015 from 11.9 to 19.9 unauthorized buildings per 100 buildings, though slowing to a 19.4 in 2017. The unauthorised development rate remains very high in the South and the Islands, reaching approximately 50% in 2017. **Public green areas in cities** are still scarce: approximately 5% in as many as 96 out of the 119 provincial capitals inspected. **Traffic congestion** is still a major problem in many Italian cities: walking, cycling and public transport is used by more than 50% citizens in as few as 8 provincial capitals (Bolzano, Bologna, Ferrara, Florence, Milan, Pisa and Venice). Roma has the highest rate in Europe of mobility with private transport, 65%, as compared to 15.8% in Paris, 26% in Madrid, 30% in Berlin and 37% in London. According to 2013 data, Italy has the highest rate of premature deaths attributed to the effects of **air pollution**: in 2016 the daily PM10 threshold was exceeded in 33 urban areas, mainly in Northern Italy. According to WHO thresholds, more restrictive than the EU ones, 82% of the population of the inspected municipalities is exposed to yearly average PM10 values above the threshold (20 μg/m^3).

In cities, most resources are consumed and most of the waste is produced. This is why cities have a leading role in developing a circular green economy. Urban **waste recycling** is crucial to recover and recycling materials and reducing the use of virgin raw materials. The highest differentiated collection rates are recorded in Treviso, over 87%, Belluno and Pordenone (almost 84%), Tortolì and Mantua (83%). Out of the 32 provinces with a rate above the 65% target, 25 are in northern Italy, as few as two in the Center and five in the South. The **construction industry** can boost the implementation of a circular economy, limiting the employment of natural resources with the aim to improve reuse and recycling of construction and demolition waste. Material recovery rate stands at 76.2% in 2016, above the 70% target set in the Directive 2008/98/CE for 2020. The top 55 municipalities for **land use** are located in Lombardy and Campania (mostly in Milan and Naples provinces), with shares above 55% of the municipality territory. Rome, similarly to most province capitals, has the highest figure for municipal land use (31,697 hectares), with an increase by 36 hectares in 2017. In absolute terms, 71% of the additional land use recorded between 2016 and 2017 took place in smaller municipalities, with less than 20,000 residents. In 2015, in Italy, 166.2 mln euro were invested in buildings, out of which 119 bln (73%) were used for **ordinary and extraordinary maintenance**

of existing buildings, while new buildings only account for 26%. Extraordinary maintenance activities grows from 77.4 bln euro in 2007 to 85.7 bln euro in 2016, twice the new buildings sector.

Leakages in water networks is still a critical issue in the 119 province capitals analyzed, as of 2015, with an average 38.2% water not reaching the final users (the actual loss, net of unauthorized usage, thefts, measurement errors, etc. accounts for 35.1%). Leakages over 60% are observed in seven province capitals: Latina, Frosinone, Campobasso, Potenza, Vibo Valentia, Tempio Pausania and Iglesias. The absence or insufficiency of **urban wastewater collection and treatment systems** cause severe adverse environmental impacts. The Court of Justice of the European Union fined Italy 25 mln euro, plus an additional 30 mln euro per semester of delay in the implementation of measures needed to comply with the 2012 judgment in the 74 agglomerations not complying with the EU Directive on urban wastewater treatment.

The definition of **a climate change mitigation and adaptation plan by cities is one of the most important means to face climate change.** A recent study on Local Climate Change Plans in 885 EU28 urban areas outlines a highly varied situation: while 66% of investigated cities adopted at least one climate plan, as few as 17% has an adaptation plan, 17% has a joint mitigation and adaptation plan and 33% has no local climate plan. Italy has a low number of adaptation plans: out of the 76 surveyed cities, 56 (73.7%) adopted a SEAP, while as few as 15 (19.7%) have also adopted commitments on climate change adaptation. **Energy consumption** in the civil sector in Italy in 2015 is 39.3% of the total. Existing housing in Italy amounts to 12.2 mln buildings (31.2 mln inhabitants); almost 70% was built before the adoption of earthquake-proof regulations (1974) and energy efficiency regulations (1976). **Energy savings** due to energy efficiency measures triggered by tax allowances in the years 2007-2016 amount to 439 kToe/year. Investments in a three-year period amount to some 9.5 bln euro: over 40% was spent on windows, doors and shields; 25% for walls and roofs insulation; little over 9% on reducing the heating energy need of buildings. Total investments in 2016 were 3.3 bln euro, increasing by 7% over 2015. In order to reduce GHG emissions and comply with targets set out in the Paris Agreement, a substantial conversion towards **renewable sources of energy** is also needed. On this path, while an overall drop in installed power occurred in province capitals between 2011 and 2016, some province capitals have good performances. Lombardy has the highest number of photovoltaic plants, almost 110,000, followed by Veneto (99,486 plants): such two regions together account for 28.5% of all plants in the nation. Puglia has the highest installed power, 2,623 MW.

4. The international framework

Again this year, the Report is closed by an analysis of the international scenario. Last year, **a global increase in carbon emissions due to fossil fuels combustion was recorded**, as reported by the Global Carbon Project (GCP) at the end of 2017 and further confirmed by more recent data. The most recent estimate by GCP, in March 2018, reports an increase in 2017 by 1.5%, following three years of stable or diminishing carbon emissions, thus flagging an alarming point further confirmed by the data available for the first half of 2018. An updated assessment of green economy, based on the 46 countries considered by OECD and accounting for most of the world economy, shows that **most countries currently use available natural resources and environmental services more efficiently**, thus mitigating pollution and environmental threats. The extraction of renewable natural resources (timber, fishery, fresh water) is being levelled off in many countries, and more sustainable practices are being implemented. However, **this progress is not sufficient**, as it is proven by the enduring natural capital degradation as well as by the trend in GHG emissions.

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