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# Green jobs - potential for employment in the Republic of Serbia<sup>1</sup>

Зелена радна места - потенцијал за запошљавање у Републици Србији

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**Abstract:** This paper puts emphasis not only on employment problems but also on perspective of increasing employment rate in the Republic of Serbia (Serbia) in the field of circular economy. Circular economy, the 21 century concept and model, is a great chance for making employment rate higher, as well as for ecological protection and budget savings. This topic is very important for the Republic of Serbia (Serbia), candidate for the European Union (EU), and in that context greening economy is obligatory. What is one of the key measures for increasing of (green) employment is the state aid for training of employees, and strategic approach in that sense. **Keywords:** economy, law, employment, green jobs, circular economy, Serbia, entrepreneurship, knowledge management, education.

Сажетак: У раду се ставља нагласак не само на проблеме у запошљавању већ и на перспективу повећања стопе запослености у Републици Србији у области циркуларне економије. Циркуларна економија, концепт и модел 21. века, велика је шанса за повећање стопе запослености, као и за еколошку заштиту и уштеду буџета. Ова тема је веома важна за Републику Србију, која као кандидат за чланство у Европској унији (ЕУ) зелену економију има као обавезу. Једна од кључних мера за повећање (зелене) запослености јесте државна помоћ за обуку запослених и стратешки приступ у том смислу. Кључне речи: економија, право, запошљавање, зелени послови, кружна економија, Србија,

предузетништво, управљање знањем, образовање

# Introduction

The circular economy is an economy "in which material flows are either made up of biological nutrients designed to re-enter the biosphere, or materials designed to

<sup>&</sup>lt;sup>1</sup> Овај рад је део истраживачких пројеката под шифрама 47009 (Европске интеграције идруштвено-економске промене привреде Србије на путу ка ЕУ) и 179015 (Изазови и перспективе структурних промена у Србији: Стратешки правци економског развоја и усклађивање са захтевима ЕУ), финансираних од стране Министарства за науку и технолошки развој Републике Србије

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circulate without entering the biosphere" (UNEP, 2012), where reuse and technical recycling are key strategies. Also, a circular economy aims at eliminating wastes.

The circular economy is economy concept that represents a quality response to the global crisis of the environment and climate change. The circular economy is a significantly different approach to the overall economic processes, not only in the field of sustainable exploitation of material resources, but in the area of social responsibility and a more balanced development of the economy as well.

The concept of linear economy is actually abandoned (Дрљача, 2015) because it has become too expensive and unsustainable in terms of increasing competitiveness in the long run. A key assumption in the transformation of a linear into a circular economy is the return link that collects and recycled waste re-enters the production cycle as a valuable raw material. Depending on the technological characteristics, one and the same kind of waste can be recycled repeatedly and reused in the next production cycle.

Industries that are polluting and highly energy-intensive are the steel industry, aluminum industry, cement industry, and paper industry. More than 40% of steel production and 25% of aluminum production employ more than 250.000 people worldwide, and these industries are based on recycled waste (Renner, Sweeney, & Kubit, 2008).

Production can be made either using green or conventional capital. Green capital is characterised by lower energy intensity, lower material intensity and higher recycling rate than conventional capital. Also, green capital produces energy using renewable sources while conventional capital produces energy using non-renewable sources. Therefore, the usage of green capital is conducive to a low-carbon economy (Dafermos, Nikolaidi & Galanis, 2017).

This paper will not make an overview of labour market situation as a whole. It will put emphasis on situation on green jobs as well as jobs in renewables.

# 1. Green jobs

More than 30 years, the green jobs (ILO, <sup>2</sup> concept has grown into an international agenda represented around the world by governments, employers and workers. The ILO is leading this agenda, leading the world towards greener and decent jobs by the Green Jobs Programme. This programme collaborates with many organizations and institutions, some of which are the Partnership for Action on a Green Economy (PAGE), the Green Growth Knowledge Platform (GGKP), the One UN Climate Change Learning Partnership (UNCC: Learn) and the Green Growth Working Group of the Donor Committee for Enterprise Development.

<sup>&</sup>lt;sup>2</sup> https://www.ilo.org/wcmsp5/groups/public/ed\_emp/emp\_ent/documents/publication/wcms\_371396.pdf, 10-11, (20.11.2018).

The term "green jobs" is not generally defined. Very a few economic subsectors (e.g. wind turbines production or solar panels production, can shortly be defined as green industries). Definition of ILO is that green jobs includes those jobs in sectors producing green goods and services and on same time occupations environmentally favorable green processes (ILO, 2017)<sup>3</sup>. Summing up, green jobs present subset of the employment effects arising in a green transition process.

Job creation statistics seldom consider if they are sustainable, permanent positions or temporary employments. Problem is also that some studies talk about direct job creation, and others count indirect and induced jobs<sup>4</sup>.

"Recycling and remanufacturing jobs worldwide number many millions, but incompatible definitions and a lack of data gathering make a global tally impossible. China alone is thought to have some 10 million jobs in this sector, and the United States has more than 1 million. In developing countries, recycling is often done by informal networks of scavengers." (Renner et al., 2008).

Green jobs growth is already quite significant, although there are significant gaps. The potential for green jobs growth is huge - from the ability to solve accumulated past ecological diseases to improving our ability to deal with climate change, creating more efficient and sustainable economies. Green employment resulting from these initiatives is a multitude sizes greater than anything currently on the market. However, this optimistic assessment of future potential growth of the green business must be seen in the background of some cut off realities that policy makers must solve, as green jobs are expanding slower than they are needed, especially knowing paradox of the fact that the labor market spreads to tens of millions of people a year, while world unemployment is rising. Practice in various areas - from fuel economy to carbon trading - advises that a pure market process will not have ability of delivering the needed changes that at the level and speed climate changes require.

Establishing an ambitious and clear political framework for rewarding, supporting and launching sustainable economic and social activities and preparing dealing with those whose business practices based and done for a sustainable future, have to be done by governments. Part of the solution can be an innovative public-private partnership, or joint research and development centers that are working on development of green technologies in the public space, as employment is made by investments. Global investments in "clean technology" (mainly renewable energy), including project financing, venture capital, public markets and research and development is expanding. By 2020, as Estimates of the United Nations Environment

<sup>&</sup>lt;sup>3</sup> https://www.ilo.org/wcmsp5/groups/public/---ed\_emp/documents/publication/wcms\_613861.pdf, 52-53 (20.11.2018).

<sup>&</sup>lt;sup>4</sup> https://www.ilo.org/wcmsp5/groups/public/---ed\_emp/documents/publication/wcms\_628605.pdf, 7-8, (20.11.2018).

Program (UNEP), financing of clean and renewable energies could reach \$ 1,9 trillion (Renner, Sweeney & Kubit, 2008).

In 2014, a total of 7,7 million jobs (direct and indirect ones) were related to renewable energies globally (IRENA, 2015). In absolute terms, China, Brazil and the United States were the largest employers. However, in relative terms the regional distribution looks different. In Europe, the largest employers are the wind, solar PV and solid biomass industries.

However, the solar PV industry did experience job losses over the past five years, including those due to rising competition from China. Some job losses were experienced also in wind power, a sector which entered a consolidation phase in 2013 as competition from China continued to grow. Despite this competition, jobs per person in the workforce in the EU-28 remain, to date, larger than in China.

The end of 2015 was marked by the adoption of the Paris Agreement to combat climate change – agreement that opened the way to a low-carbon and sustainable future (ILO, 2016). The agreement has the recognition of the imperative a just transition for the workforce and the creation of decent work.

The Partnership for Action on Green Economy (PAGE) gives a coordinated package of technical assistance and services for building socially inclusive green economies. PAGE HAS expertise of 5 UN agencies – UNEP, ILO, UNIDO, UNDP and UNITA, working closely with national governments.

Green Centenary Initiative made by ILO will significantly scale up the ILO's office-wide knowledge, tools and policy for managing a just transition to environmentally sustainable and low-carbon societies. At national level, focus will fall on the practical use of the ILO's Just Transition Guidelines (ILO, 2015)<sup>5</sup>.

In the period 2012-2017.global renewable energy employment increased year after year, so that more 3,1 million people are employed (Figure 1).

<sup>&</sup>lt;sup>5</sup> Policy framework and a practical tool to help countries the transition to low-carbon economies and can also help them achieve their Intended Nationally Determined Contributions (INDC) and the 2030 Sustainable Development Goals; for more details see: http://www.ilo.org/global/topics/green-jobs/publications/WCMS\_432859/lang--en/index.htm (20.11.2018)

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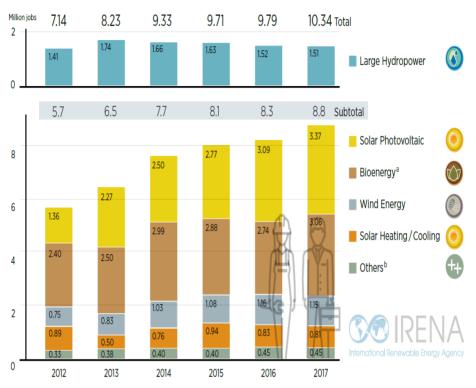


Figure 1. Global renewable energy employment by technology, 2012-2017

In 2017 there were 10,3 million people employed in renewable energy concept. Figure 2 represents number of people employed in this concept by criteria of technology.

Source: http://irena.org/publications/2018/May/Renewable-Energy-and-Jobs-Annual-Review-2018 (20.11.2018).

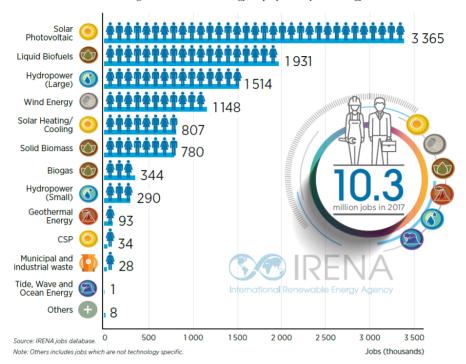


Figure 2. Renewable energy employment by technology

Source:http://irena.org/publications/2018/May/Renewable-Energy-and-Jobs-Annual-Review-2018 (20.11.2018).

More than 70% of green jobs employers are found in China, Brazil, the United States, India, Germany and Japan, as the biggest renewable energy employers year after year. Despite huge progress made across Europe (European Commission, 2016) in green technology and jobs, significant disparities still exist between Member States. In 2014, Danish businesses employed almost 300.000 people in green jobs, representing 11 % of the total workforce. However, other Member States report a much smaller share.

According to ILO, green jobs are decent jobs contributed not only to environmental preserve but restoring all industry sectors as well.

Situation in EU member states improved this- as "scenario modelling studies for the global, European and country level (examples of UK, Netherlands and Sweden) all show substantial job gains of a transition to a circular economy on the macro level (Stocker & Gerold, 2015).

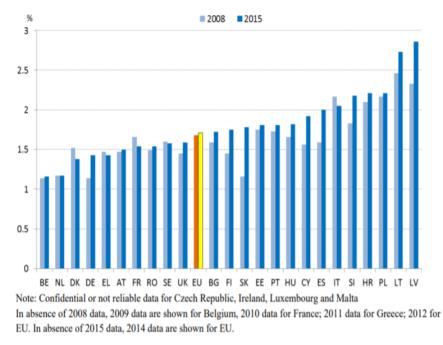


Figure 3. Number of persons employed in the circular economy sectors (as % of total employment)

#### Source: http://ec.europa.eu/environment/circular-economy/pdf/monitoring-framework\_staff-workingdocument.pdf (20.11.2018)

Almost 3,9 million people were employed in circular economy sectors in the EU in 2014 (i.e. 1,7% of all the employed people). Compared to 2012 it made a growth of around 2%. During the time period 2008-2015, employment in the circular economy has increased in most EU States, despite the economic crisis. Lithuania and Latvia have the highest share, with more than 2,5% of employed people in circular economy, but in absolute terms, Germany has the highest number of employed in circular economy (more than 616.000 people), followed by Italy and the United Kingdom (around 500.000 people each). Employment rate in circular economy sectors increased in Slovakia (by 53%, as share of the total people employed), Spain and Germany (around 25% both).

Project NEUJOBS (Stocker & Gerold, 2015) used the macroeconometric model NEMESIS (Bossier, Thierry & Melon, 2015)<sup>6</sup> for investigating the employment

<sup>&</sup>lt;sup>6</sup>NEMESIS is a comprehensive macro-econometric model estimated for each European country with coverage of 30 sectors. For non European regions, the model is less detailed except for the USA and Japan for which the level of detail is close to the European model. For a model description see http://www.erasme-team.eu/files/Manual\_Part\_I.pdf.

implications of a socio-ecological transition. According to the fact that the European Union has to make employment and environmental challenges in order to manage a socio-ecological transformation, project partners propose two policy response scenarios in order to tackle these challenges, not only in a "friendly" but a "tough" economic context. The first scenario called "Ecological modernization" only comprises market-based instruments. Carbon tax, a decrease of labour cost and R&D subsidies are the main instruments for fulfilling this. Compared to the reference scenario, there is possibility of creation 4 million additional jobs in the "friendly" context by 2030, corresponding to an increase of 1,7%. Economic activity would be higher 1,9% for GDP in 2030 and could reduce labour costs. In the "tough" scenario only 1,3 million additional jobs could be created.

Second scenario, called "Sustainable transformation", behavioral instruments based on economics are added to the market-based instruments. These instruments contain marketing tools-campaigns, norms and regulations, emphasizing on goods and services that reduce GHG emissions. The target is to improve this range by 1% to 3% yearly (15-30% till 2030). Revenues from these instruments are suspected to be reinvested, diminishing labour taxes. The results could be 2-2,5% yearly, and could have a net positive impact on EU states GDP. Increase in job productivity of 2% could create 2 million jobs.

#### 2. Serbian green and circular economy

From 2017, the Republic of Serbia (Serbia) invests resources in establishing a circular market by increasing institutional capacity to support such development, raising the social capacity for accepting changes in economic system towards cleaner, circular economy. It is expected that this way of business will become dominant paradigm in Serbian business by the year of 2035 (OESC, 2016). Investing in renewable energy sources means state and market higher independence from imports of fossil fuels.

Also, Serbia is successful in carrying out a process of managing packaging waste and special waste streams, recycles the total amount of used tires and batteries, and in the amalgamation waste has been achieved with the National targets set.

At the national level, green jobs are an effective way to revive the economy and create new job positions, as well as reduce negative environmental impacts. Green jobs can play a key role in promoting socially inclusive development, as they provide adequate earnings, social protection and respect for workers' rights (Вукадиновић, 2016).

But there is no infrastructure for creating an incentive environment, which promotes investments in green technologies, waste management, and investment in production systems that generate energy from renewable energy sources (RES). Although Serbia is quite energy-independent (only 27,6% of energy is imported), we cannot come to the conclusion that we generate enough energy within the borders of

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the state, since industrial activities are still very weak. Increase in industrial activities would potentially lead to increasing use of energy.

A great majority of businesses in Serbia do not currently take too much account of energy efficiency; quite an expected gradual increase in energy needs is expected. Only 25-30% of renewable resources are used to generate energy while using the profile of energy shows a low percentage of energy use from the RES (about 21%) (OSCE, 2016). This leaves a huge space for the improvement of business in that market with two visible benefits: increasing the country's energy independence and increasing energy capacity while providing cleaner production. About 40% of hydro capacity is unused, while the biomass potential exceeds 80% unused capacity. Production of energy from water and biomass is defined as national priorities, whose share in generating electricity from the RES needs to be to be increased. According to the Ministry of Agriculture, recycling in Serbia has improved, and it is at the level of about 18%-20% when it comes to recycling all types of waste. Due to the inadequate treatment of waste, impact of climate change, accidents happening, Serbia loses over 250 million euros annually.

The activities from the end of 2015 and the beginning of 2016 promoted the institutional framework for regulating business in the area of waste management, protecting the environment and generating, showed positive progress. The Waste and wastewater management in municipalities - IMPACT project, a joint initiative of the German Organization for International Cooperation (GIZ), OSCE Mission in Serbia, Ministry of Agriculture, and environmental protection and the Chamber of Commerce of Serbia, a series of meetings were organized in five cities in Serbia (Sremska Mitrovica, Subotica, Kragujevac, Niš and Novi Pazar) gathering stakeholders with the purpose of raising their capacity and awareness of the significance of the circular economy in Serbia.

Recycling process achieves numerous goals, savings of raw materials, energy saving, environmental protection, as well as green jobs opening as recycling processes and eco product design require knowledge and work creating the demand for new job positions.

Paper, cardboard, plastic, glass, aluminum, copper, iron, ceramics, electronic and electrical waste could all be recycled. Serbia is successful in carrying out a process of managing packaging waste and special waste streams, recycles the total amount of generated tires and accumulators, and in the amalgamation waste has been achieved with the National targets set (OSCE, 2016).

At the beginning of 2016, a space for the introduction of a circular was opened economy as well as the opening up of "green" jobs (OSCE, 2016). Strategic concept for economic growth and the increase in GDP is becoming an effective use of resources and renewable resources energy, as well as the use of comparative advantages of the natural environment. By introducing new institutional structures, creation that could support the "third" investment cycle could be founded. As green infrastructure is a growth driver encompassing waste water management, waste management and renewable energy sources. The first step towards a circular economy in the new legislative framework is measures that support the principle of waste management hierarchy, and in particular prevention of waste generation. The novelty in the legislative framework is also the introduction of the term "by-products" and "end-oflife status", which means the return of materials in production- returning waste back into the life cycle.

Waste Management Strategy 2010-2019 presents a basic document that provides conditions for rational and sustainable waste management in the Republic of Serbia. This Strategy defines both short-term and long-term goals in order to reduce environmental pollution and space degradation. 26 regional waste management centers planned to be opened.

A special place in the development of green economy is reserved for various forms of state aid, given that in this way State can provide funding for the development of green economy in Serbia (for example, state aid for waste management (Домазет, 2011), employment, cogeneration and energy efficiency, energy infrastructure, the adequacy of the production system of trade permits for relocation of companies, and so on.). In accordance with the legislation of the European Union state aid is a priori inadmissible, unless it meets the conditions for compatibility that aid with the internal market. The aforementioned conditions are laid down in the EU guidelines on state aid for environmental protection and energy for the period 2014-2020, which Serbia will have to respect as a condition for joining the European Union. The system estimates the compatibility of state aid contained in point 90 of the Guidelines. In this sense, aid for environmental purposes will by its very nature, tend to favor environmentally friendly products and technologies at the expense of other, more polluting ones and that effect of the aid will, in principle, not be viewed as an undue distortion of competition, since it is inherently linked to the very objective of the aid, that is to say making the economy greener. When assessing the potential negative effects of environmental aid, the Commission will take into account the overall environmental effect of the measure in relation to its negative impact on the market position, and thus on the profits, of non-aided firms. In doing so, the Commission will consider in particular the distortive effects on competitors that likewise operate on an environmentally friendly basis, even without aid. Likewise, the lower the expected environmental effect of the measure in question, the more important the verification of its effect on competitors' market shares and profits in the market.

Thus, it can be seen that the green economy should be viewed from the aspect of competition law, namely the various subsidies and other forms of state aid can improve competitiveness (green) economy. However, the question is how the domestic

economic operators will be able to withstand strong competition from EU member states, with regard to the general prohibition of state aid.

## 3. Green jobs in Serbia

There is still no clear understanding of the term "green jobs" in the Republic of Serbia. In contrast, the term "green business" is a broad term in the field of environment. Green economy is one of the main accelerators of the economy, currently more than 2.000 people works in this area directly in the RS (according to UNECO database) and about 30.000 people rely on this sector indirectly. The National Employment Service in Serbia announced (in its publication "Jobs") in 2015 need of harmonization of educational profiles with the labor market (Ministry of Agriculture and Environmental Protection, 2016).

In 2017, National framework of qualifications was adopted, and it has the job title recycler, what is important step to make the green employment visible on the labour market.

Serbia would be given a chance for development by the model of the circular economy, and according to that its citizens will have ecological security, "green" jobs, new water and air quality, healthy food and a new quality of life. The nation's social capital is also an investment for future. Circular economy in Serbia could have 30.000 people employed, as OECD estimates (OSCE, 2016).

Implementation of sustainable development in Serbia, as well as the global economy, depends on global climate change, extreme weather and climatic events in global community, legal framework and political trends. Extreme weather situation outcomes losses in primary production inputs: human resources, physical capital, infrastructure, land endowments and productivity (Радовић, Пејановић & Маринчић, 2015). In the context of EU integrations, Serbia as a candidate country has strategic directions towards the green economy development. Application of green economy in the Republic of Serbia consist of (Премовић & Пејановић, 2016): 1. harmonization of the social and economic development with the UN policies in the field of the efficient use of natural resources and development accompanied by low gas emissions along with the greenhouse effects; 2. improving social inclusion and reduction in poverty; 3. strengthening and providing support to the sectors of environment; 4. defining long term institutional and financial framework as providing support to the sustainable development; 5. promoting subregional cooperation (National report "Rio+20", 2012). Positive examples of the green economy application in the Republic of Serbia are classified into two major groups within "The study on achievements and perspectives on the pathway towards green economy and sustainable growth in the Republic of Serbia". The groups are: sustainable tourism in the Republic of Serbia, cleaner production and responsible business and financing.

In the sector of sewerage, waste management and remediation activities, there were 18.857 people registered in Serbia in 2015, compared to 1.896.295 employed (Statistical Office of the Republic of Serbia, 2017), which is less than 1% (0,99%) of employed by the data of Statistical office of the Republic of Serbia. In 2016 there were 17.625 people in this sector (Statistical Office of the Republic of Serbia, 2016), compared to 1.920.679 employed, or 0,91% of employed in Serbia. Statistical results present a decrease in people employed in the sector of recycling or increasing employment on black market.

At the enterprise level, green jobs can produce goods and services of environmental benefits. Green jobs are not always the ones that create ecological products. They are also jobs in line with ecological production processes (Вукадиновић, 2016).

#### Conclusion

The transition from traditional to a circular economy will both create winners and losers, but the employment effect is expected to be positive, looking not only to global and EU scenarios but predictions in Serbia as well.

Circular economy represents a chance for accelerated development of the Republic of Serbia, greater competitiveness of the economy and job creation. It demands the application of new technologies and the modernization of society, greater engagement of all actors, change of consciousness, previous patterns of behavior and business models. Circular economy will be a contribution to less pollution of the environment and preservation of natural resources, enabling a better quality of life and a safer future for the nation.

There is a great opportunity for green jobs, but they will be achieved only with sustainable and massive investments in the public and private sectors. Governments and all the stakeholders have to make a framework for greening economy adoption.

Serbia as well as the region, has a huge potential in green and circular economy development, and this is in direct line with green jobs and employment rate increase.

Now, green jobs have and surely they will have far-reaching effects for the employment and labor market functioning, as the issue of sustainable development is one of the most important for all countries in the world.

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#### Summary

This paper puts emphasis not only in employment problems but perspective in increasing employment rate in the Republic of Serbia in the field of circular economy. Circular economy, the 21 century concept and model, is a great chance for making employment rate higher, as well as for ecological protection and budget savings. This topic is very important for Republic of Serbia, candidate for the European Union (EU), and in that context greening economy is obligatory. What is one of the key measures for increasing of (green) employment is the state aid for training of employees, and strategic approach in that sense.

The concept of linear economy is actually abandoned (Drljača, 2015) because it has become too expensive and unsustainable in terms of increasing competitiveness in the long run. A key assumption in the transformation of a linear into a circular economy is the return link that collects and recycled waste re-enters the production cycle as a valuable raw material. One and the same kind of waste can, depending on the technological characteristics, be recycled repeatedly and reused in the next production cycle.

This paper will not make an overview on labour market situation in whole. It will put emphasis on situation on green jobs as well as jobs in renewables.

The transition from traditional to a circular economy will both create winners and losers, but the employment effect is expected to be positive, looking not only to global and EU scenarios but predictions in Serbia as well.

Circular economy represents a chance for accelerated development of the Republic of Serbia, greater competitiveness of the economy and job creation. It demands the application of new technologies and the modernization of society, greater engagement of all actors, change of consciousness, previous patterns of behavior and business models. Circular economy will be contribution to less pollution of the environment and preservation of natural resources, enabling a better quality of life and a safer future for the nation.

There is a great opportunity for green jobs, but they will be achieved only with sustainable and massive investments in the public and private sectors. Governments and all the stakeholders have to make a framework for greening economy adoption.