

HUMAN CAPITAL FROM THE PERSPECTIVE OF GREEN ECONOMY

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Abstract

One way that can appear new types of industries is given by the transformation our economies today in green economies. This way of transforming an economy may lead to economic growth, but also to diversify the economy. The new types of industries and economic diversification lead to the creation of new jobs. Concerning the transition to the green economy, a major importance is given to the situation of the waste, and also to the wastewater treatment process. The article describes a comparative analysis of information collected. When talking about economic activities, we will consider the aspects relating to production and consumption. All of these economic activities are the responsibility of the people. Considering the human capital, the article presents an analysis of the employment rate of older workers. Also, it makes an analysis of educational level of the population based of the educational institution graduated.

Keywords

green economy, human capital, Romania, education level, wastewater

Introduction

In a green economy, growth in income and employment are driven by public and private investments that reduce carbon emissions and pollution, enhance energy and resource efficiency, and prevent the loss of biodiversity and ecosystem services (UNEP, 2011).

By switching to a green economy is desired also a transition towards a low carbon economy. Changes that occur in the economy can lead to the creation of new jobs. Also, some of the current jobs may disappear. Activities that people perform at the workplace are based on the skills that they possess. Given the current dynamic of economic changes (as well as future), measures are needed to improve people's current skills and acquire more and new skills.

In view of the transition to a green economy, are needed strategies for implementation. These strategies are not sufficient to be only at national level. At the local community level exist different economic agents in various fields of economy, acting through a network for the infrastructure. These components can cause emissions of greenhouse gases. On the other hand, in large urban areas exist a great potential for innovation and application possibilities of new technologies and business practices.

It is considered that the transition to a green economy should be achieved through cooperation and coordination, using both public and private investment, and implementing political reforms and legislative changes (TEEB, 2011).

All of these can become opportunities if, in the communities, stakeholders aware of challenges created in the labor market. Thus, in this case the partnerships could lead to a correct application of the conditions imposed by the green economy. Partnerships which may be concluded at local level communities are consists of collaborative actions and mobilization of the resources. In order to grow a business, economic agents depend on members of a community as suppliers and customers or as employees. Also, economic development and

functioning entity depends on local resources, services and infrastructure. (Boboc et al., 2015).

If we are talking about the green economy, then we must consider changing paradigms. Thus, „the paradigm which needs to be replaced, has created application tools, automatism of interpretation, is present in the textbooks in schools and universities, and the change requires a great intellectual and material effort” (Bran, 2009).

In the world, the green economy concept is used increasingly more often. Due to the negative influences of the economic crisis of 2008 the green economy tends to become a solution to the current challenges. Moreover, United Nations Conference on Sustainable Development (2012) has had among the topics be discussed and topic concerning green economy. After this conference, many countries have adopted this tool for sustainable development.

2. Human capital

If the importance of human capital is to be demonstrated, then we can argue by considering two aspects: firstly, contribution of education and training (Kwon, 2009); and secondly, human capital as labour.

In time, it was found that human capital measurement is not an easy task. Thus, some indicators may be incomplete and is necessary to take into consideration the social context, respectively the political context.

Many paradoxes and puzzles about a dynamic, growing economy, can be resolved once human capital investment is taken into account (Schultz, 1961). Thus, skills and knowledge are looked as acquisitions of human capital.

Skills and abilities of members of a community can be determining factors for the economic success of that community.

We can say that human capital is a complex concept. The acquisitions which refer to the knowledge, skills, competencies could be achieved in different ways, both at school and at home or at the workplace, and not only.

Human capital contributes to the wellbeing of individuals. A high level of education and good health condition make us have better results at the workplace and find personal fulfillment to us. Thus, be added indicators for the two basic dimensions of human capital: school results and health status (UN, 2009).

In this way, we can appreciate that human capital investments are taking place through education and training, through education and training held training, respectively by improving their health status.

Thus, one of the key components of human capital is represented by education and training. One of the world famous economist is Gary S. Becker. He received the Nobel Prize in Economics in 1992 as a result of research in the economic analysis of human behavior in areas such as discrimination, marriage, family relations and education. Becker's research directed at human capital have been considered by the Nobel committee to be a remarkable contribution to the economy. Thus Becker „considers that education, continuous training and health represent components of human capital with consequences over the earnings and the economic productivity” (Becker, 1993).

Another famous economist, whose work has been recognized by the Nobel Prize in 1979, Theodore William Schultz is. He appreciated that „the educational investments that matters is that in acquired ability” (Schultz, 1982).

After the census of 2011, the data published by the National Statistics Institute shows that almost 70% of the population aged 25 to 64 living in rural areas did not graduate high school. Also, a third of the population aged between 25 and 64 years living in rural areas, has only 8 grades completed. (Angheluță, 2014).

Looking from this perspective, we believe that the employment rate of older workers is very important. The employment rate of older workers is calculated by dividing the number of employed persons between the ages 55 and 64 years by the total population in the same age group.

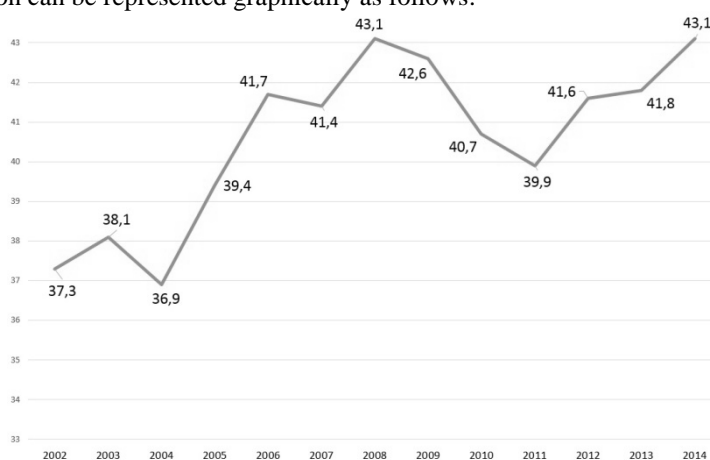
According to the census of 2011, the age groups 55-64 years were included 13.38% of the population, ie 2,692,329 inhabitants (NSI, 2015). Of these, about 40% were persons employed (Eurostat, 2015). At the same time, the population aged between 55 and 64 years represent almost 20% of the population aged 15-64 years. Population aged 15-64 years represent 68% of Romania's total population. The variation of the employment rate of older workers in Romania for the period 2002-2014 is shown in Table 1.

Table 1 The variation of the employment rate of older workers

Year	2002	2003	2004	2005	2006	2007	2008	2014
Employment rate	37,3	38,1	36,9	39,4	41,7	41,4	43,1	43,1
	2009	2010	2011	2012	2013	2014		
Employment rate	42,6	40,7	39,9	41,6	41,8	43,1		

Source: made by the author based on data published on website of EUROSTAT

The variation can be represented graphically as follows:



Source: made by the author based on data published on website of EUROSTAT

Fig. 1 The variation of the employment rate of older workers

At European Union level comparative situation for 2002 and 2014 presented in table 2.

Table 2 Comparative situation of the employment rate of older workers, for 2002 and 2014

Country	2002	2014
EU (28 countries)	38,4	51,8
Euro area (19 countries)	36,4	51,7
Belgium	26,6	42,7
Bulgaria	27	50
Czech Republic	40,8	54
Denmark	57,9	63,2

Country	2002	2014
Germany	38,9	65,6
Estonia	49,7	64
Ireland	48	53
Greece	39,6	34
Spain	39,9	44,3
France	34,7	47
Croatia	24,8	36,2
Italy	28,9	46,2
Cyprus	49,4	46,9
Latvia	41,7	56,4
Lithuania	41,6	56,2
Luxembourg	28,1	42,5
Hungary	25,6	41,7
Malta	30,1	37,7
Netherlands	42,3	59,9
Austria	29,1	45,1
Poland	26,1	42,5
Portugal	51,5	47,8
Romania	37,3	43,1
Slovenia	24,5	35,4
Slovakia	22,8	44,8
Finland	47,8	59,1
Sweden	68	74
United Kingdom	53,4	61

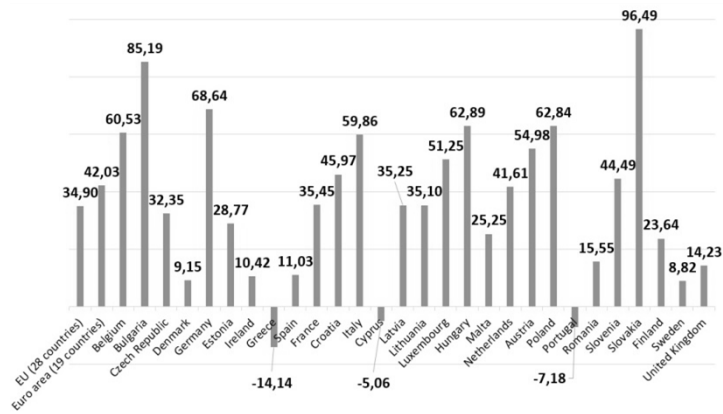
Source: made by the author based on data published on website of EUROSTAT

It is observed that for Romania, growth percentage in 12 years was just 15.55%. At European level, there are countries for which the employment rate of older workers has almost doubled. It is case of Slovakia or Bulgaria.

The countries where the employment rate of older workers is high are: Sweden – 74%, Germany – 65.6%, Estonia - 64%, Denmark – 63.2% and the UK - 61%. The countries where the employment rate of older workers is low are: Greece - 34%, Slovenia – 35.4%, Croatia – 36.2%, Malta – 37.7%. Romania is among the last 10 European countries with an employment rate of older workers of 43.1%. Average of employment rate of older workers for the EU is 51.8%.

In Romania, in 2013 compared to 2011, the life expectancy has increased to 74.74 years from 73.77. For men, in 2013, life expectancy was 71.24 years and, for women, 78.28 years (NSI). There are differences for people living in urban areas compared to those living in rural areas. For males, the average lifespan is greater for people living in urban areas by almost 2 years. Instead, for females, the average life expectancy is greater for people living in urban areas, by almost 1 year. One could also notice that, in the past three years has decreased the difference between the average life expectancy of people living in urban areas compared to those in rural areas (Angheluță, 2015).

In Tables 3, 4 and 5 are presented the situation stable population, by education level of the educational institution graduated, at national level and by communities (urban / rural).



Source: made by the author based on data published on website of EUROSTAT
Fig. 2 Comparative situation of the employment rate of older workers, for 2002 and 2014

Table 3 Stable population based on educational level of the educational institution graduated, at national level

The education level of the educational institution graduated							
Total	higher	Post-secondary and foremen	Total	secondary			Primary and persons with no schooling
	Of which:			higher			
	The licensed of the University			High School	Vocational and apprenticeship	Inferior (gymnasium)	
12,8	11.2	2.85	58.4	21.8	12.4	24.1	25.8

Source: made by the author based on data published on website of NSI

Table 4 Stable population based on educational level of the educational institution graduated, at the level of urban localities

The education level of the educational institution graduated							
Total	higher	Post-secondary and foremen	Total	secondary			Primary and persons with no schooling
	Of which:			higher			
	The licensed of the University			High School	Vocational and apprenticeship	Inferior (gymnasium)	
20,2	17.5	4.1	56.5	27.4	11.9	17.1	19.0

Source: made by the author based on data published on website of NSI

Table 5 Stable population based on educational level of the educational institution graduated, at the level of rural localities

The education level of the educational institution graduated							
Total	higher	Post-secondary and foremen	Total	secondary			Primary and persons with no schooling
	Of which:			higher			
	The licensed of the University			High School	Vocational and apprenticeship	Inferior (gymnasium)	

4.2	3.8	1.3	60.7	15.2	13.0	32.4	33.7
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Source: made by the author based on data published on website of NSI

Of the total population at the time of the census, 54% lived in urban areas, while in rural areas 46% (Angheluță, 2013). From the tables presented, it can be seen that only about 13% of persons of the population have a university education License, Masters and PhD. However, it is observed that in urban areas almost 20% of the population falls into this category, while in rural areas only 4%. The difference between the percentages of graduates of secondary education in urban and rural ones are about equal. But the number of high school graduates in urban areas is almost double (27%) than rural (15%). The situation of graduates of lower secondary education (gymnasium) is exactly the reverse. Thus number of graduates in rural (32%) is double the number of graduates in urban (17%). The situation is repeated for primary school graduates or those persons with no schooling.

We can say that among 20 people found in rural areas, only one has a university degree, three have graduated high school, 16 have no more than vocational school, respectively gymnasium. Certainly from these data shown can be drawn many conclusions. First we can think of developing business opportunities, and coordinating their management by rural population. Instead, in urban areas, 20 people encountered, we can identify 4 people with university education, 6 people with high school and only to 9 with vocational school or gymnasium.

3. Green economy

It is considered that the green economy leads to improving the welfare and improve social inclusion. On the other hand, sustainable development is based on three pillars: social pillar, environmental pillar and economic pillar. It is assumed that these pillars are correlated among they and should be part of a coherent package of policies and measures concerning the green economy.

Reducing the impact of economic activities of the environment must be carried out by directing efforts towards improving working conditions of employees in green sectors. It also should be taken of the employees in the sectors that are in the process of adapting jobs to the green economy.

Concerning jobs, if green economy apply inclusive and environmental policies when the result would be to increase employment rates. In this way, there would be conditions for expanding the tax base and supply conditions for of additional financial resources that are much needed for social insurance systems and for public health systems.

We can say that jobs are green when they help to reduce the negative impact of economic activities on the environment. Thus, green jobs reduce energy consumption and raw materials, reduce emissions of greenhouse gases, minimize pollution and waste generation, but also lead to protect and restore the ecosystems.

The green economy is based on reducing emissions of greenhouse gases. In the future, the industrial pollution will decrease by the enforcement of various environmental policy measures. There is a risk that some polluting sectors disappear. Thus, we can assumed that only the green jobs will be sustainable for long term.

At world level, manifest themselves orientation towards action of waste disposal of all types. In this way, we want to use the resources that have the quality to be renewable, cyclical and edible.

If we take question the latter aspects, then we can study the varying the amount of urban solid waste deposited. For the period 2002-2004, the data are in Table 6.

Table 6 Amount of urban solid waste deposited

Modes of solid waste disposals	Year		
	2002	2003	2004
Total (tonnes)	7.073.567	7.768.658	8.338.696
Of which: landfilled in dumps of garbage (tons)	6.853.341	7.501.885	7.923.934

Source: made by the author based on data published on website of NSI

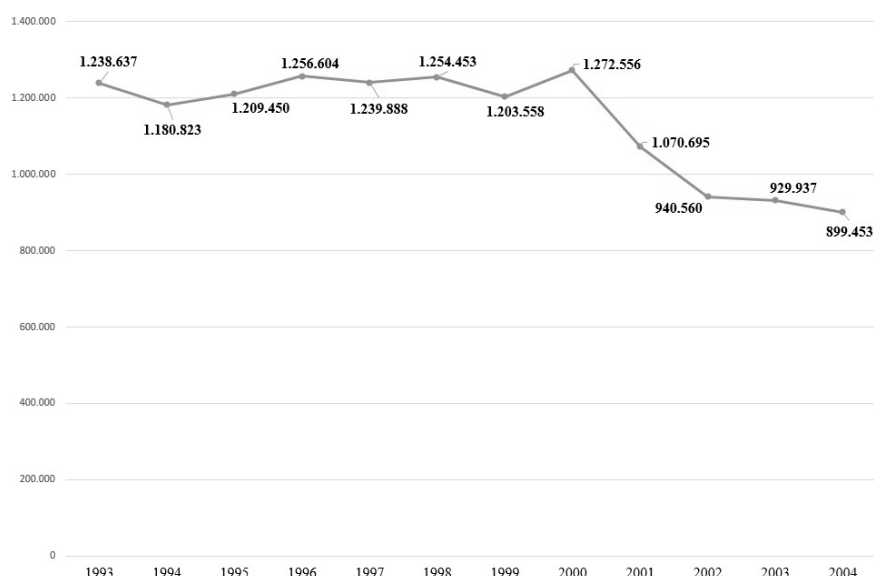
Note that the NSI does not have data prior to 2002 and since 2005 this indicator no longer pursues. Given the increasing trend of the quantity of solid waste, it would have been interesting to follow the further evolution of this indicator. Evolution of this indicator can give us information concerning the economic capacity and economic opportunities, but also of the inhabitants. Certainly, increasing the quantity of waste may indicate a better material condition, as well as the consumption accordingly. Sewage treatment contributes to the regeneration of this important resource of the planet. Variation of flow rate for the stations for cleaning the polluted wastewater is shown in Table 7.

Table 7 Variation of flow rate for the stations for cleaning the polluted wastewater

activity for cleaning the polluted wastewater	stations flow rate for cleaning the polluted wastewater (thousands cubic meters)	wastewater clean (thousands cubic meters)	Sludges resulted from wastewater treatment (thousands cubic meters)
1993	4.966.567	1.238.637	-
1994	4.960.999	1.180.823	-
1995	5.002.453	1.209.450	630.293
1996	4.978.877	1.256.604	540.284
1997	5.060.277	1.239.888	702.965
1998	5.098.322	1.254.453	786.774
1999	5.062.472	1.203.558	749.188
2000	5.077.816	1.272.556	739.015
2001	5.151.739	1.070.695	657.549
2002	5.140.825	94.0560	645.532
2003	5.127.124	929.937	364.312
2004	4.940.476	899.453	425.552

Source: made by the author based on data published on website of NSI

The following graph shows the variation of purified wastewater for the period 1993-2004. Mention that not even this indicator is no longer pursues from 2005.



Source: made by the author based on data published on website of NSI

Fig. 3 Variation of purified wastewater for the period 1993-2004

Regarding this indicator, we can consider that decrease of the amount of wastewater treated is due to the economic activity downturn for the economic agents big water users.

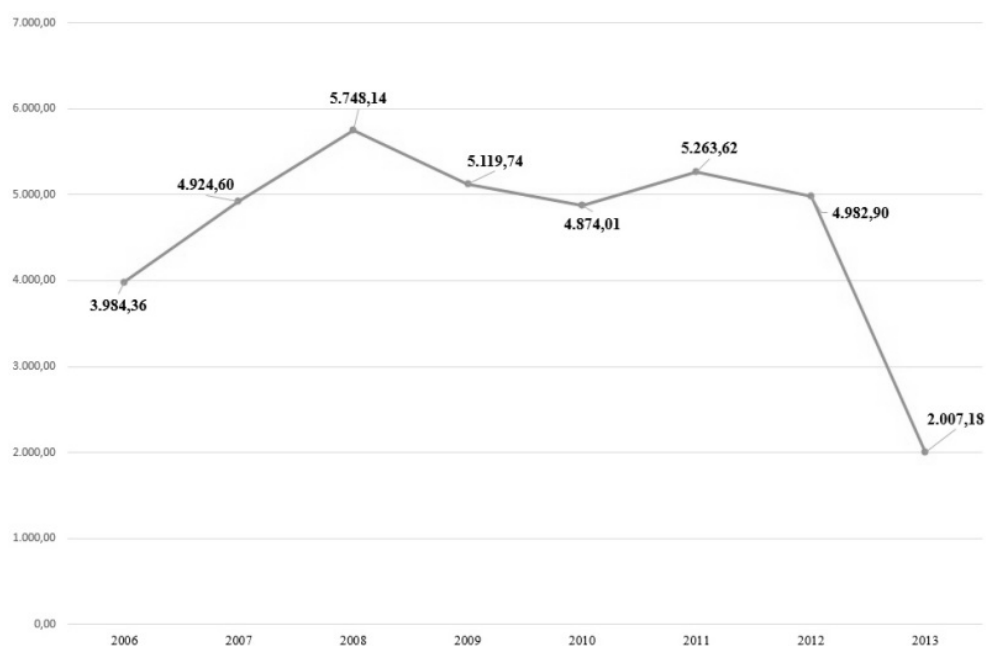
The assertion is also based on information regarding the volume of wastewater generated by activity sectors. The information are presented in the following table, in million cubic meters / year.

Table 8 Volume of wastewater generated by activity sectors

Activity sectors	Year			
	2006	2007	2008	2009
Total, of which:	3.984,3	4.924,6	5.748,14	5.119,74
Agriculture, forestry and fishing	3,69	3,50	2,13	5,14
The mining industry	80,10	65,53	52,48	74,12
Food industry	44,17	33,86	39,74	44,19
Metallurgical industry	117,98	205,09	256,84	143,57
Transportation	3,23	2,50	3,88	3,36
Textiles	12,33	9,65	9,17	7,55
Pulp and paper manufacturer	20,38	18,37	14,88	6,48
Chemical and petrochemical industries	143,61	143,94	142,15	107,55
Production and distribution of electricity	2.223,1	3.077,69	3.643,37	3.438
Constructions	3,71	2,97	3,50	3,14
Industrial wastewater - Total	2.952,3	3.855,76	4.671,63	4.085,49
Domestic wastewater - Total, of which:	1.032,0	1.068,83	1.076,52	1.034,25
Other activities	124,41	215,35	477,29	434,27

Activity sectors	Year			
	2006	2007	2008	2009
Household activities	907,59	853,49	599,23	599,98
	2010	2011	2012	2013
Total, of which:	4.874,01	5.263,62	4.982,9	2.007,1
Agriculture, forestry and fishing	3,52	3,19	2,51	2,23
The mining industry	63,43	47,28	52,96	58,89
Food industry	32,87	25,53	23,41	24,10
Metallurgical industry	173,23	139,54	114,72	100,8
Transportation	5,46	3,66	2,73	6,34
Textiles	8,20	6,83	5,49	3,19
Pulp and paper manufacturer	9,00	3,02	2,71	2,98
Chemical and petrochemical industries	115,12	97,83	86,67	78,18
Production and distribution of electricity	3.105,70	3.634,13	3.466,15	516,93
Constructions	4,28	3,61	2,87	4,67
Industrial wastewater - Total	3794,53	4.213,78	4.000,01	999,67
Domestic wastewater - Total, of which:	1.079,48	1.049,89	982,89	1.007,5
Other activities	483,77	449,96	166,45	409,21
Household activities	595,71	599,94	816,44	598,30

Source: made by the author based on data published on website of NSI



Source: made by the author based on data published on website of NSI

Fig. 4 Volume of wastewater generated in all activity sectors

The variation of the volume of wastewater generated in all activity sectors is shown in fig.4. Thus, the data presented in the table notes that, in 2013 compared to 2006, the volume of wastewater generated in all sectors has been halved. Also, the volume of industrial wastewater in 2013 was reduced to one third of the value considered in 2006. The largest decreases they may have had the following sectors: pulp and paper manufacturer; production and distribution of electricity; textiles. For 2013, domestic wastewater have retained their value from 2006. Also, a doubling of the volume of wastewater occurred in the transport sector. In 2006, the lowest volume of wastewater were produced by sectors: transport; construction; agriculture, forestry and fishing. In 2013, the lowest volumes of wastewater are produced by sectors: agriculture, forestry and fishing; pulp and paper manufacturer; textiles.

Conclusions

One can say that the most distinctive feature of an economic system is also the need to increase human capital. If this condition is not met, the labor would have been more manually, heavier, and more poverty.

In the world, there is a tendency of transition to the green economy. It is important to know the exact situation regarding human capital to have a picture of the employability and educational level of the population.

Given the level of education of the rural population and the situation concerning distribution of the urban-rural for children aged under 14, we can say that in the future are required to find solutions for people aged 14 and 18 be able to attend the upper secondary education. This is by obtaining a qualification on completion of vocational or high school graduation.

Certainly the benefits of a green economy, clean, lead to increasing life expectancy. And then enabling people to be active increases. Increase the life expectancy based on health status can provide of the extension active period. We can appreciate that a high level of knowledge leads to identifying and obtaining certain benefits. It may be considered that the benefits are in their majority of the community, but ordinary experience suggests that while some of the external benefits of increases in individual knowledge are local, confined to single cities or even small neighborhoods of cities, other are worldwide in scope (Lucas, 1990).

In these circumstances, a change of behavior towards green economy can only be achieved through the interaction of all stakeholders. By changing the economic requirements, are changed also consumer requests. Thus, we may encounter situations of adapting to the new jobs required by the green economy.

The green economy presupposes environmental protection actions. Thus actions for implementation of environmental protection measures are increasingly needed. These efforts are needed because we find that the „at the level of the Earth's economy, of the global environment, the environmental degradation continues, the natural ecosystems lose their reproductive capacity and they are overfished, the current human generation consumes the natural heritage of the future human generations” (Bran et al., 2012).

The transition to the green economy will be achieved. It depends on how people will contribute to this transition. In this context, level of education of the people is very important. The data presented in the article it is noted that the percentage of older workers is growing. This means that there will be more people in the age group 55-64 years who will work in the green economy sectors. Also, about 80% of the rural population has at most vocational school graduate. Given this situation, measures are needed to prepare, to training this population.

Of all sectors, constructions, transportation and domestic wastewater had an increase in the volume of wastewater. These represent activities where the population is more or less directly involved.

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