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Green Skills for Green Economy: Case of The Environmental Education Role in Kazakhstan's Economy

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The research on situation with developing "green skills" in conditions of transition to "green economy" is analysed in this article. Kazakhstan like many other states has been going through transition to "green economy" since 2013. Economic reforms have made an impact on the system of environmental education. The authors of this research directed their efforts at revealing how people use "green skills" in such sectors as catering, car-service and waste management. The authors carried out sociological survey and observation in order to find out to what extent knowledge, skills, opinions, types of behaviour associated with "green skills" are spread among the respondents. Comparative analysis demonstrated that application of environment-friendly operating procedures at enterprises in official and non-official sector vary. Many employees perceive "green skills" as environmental friendliness and have no proper understanding of the role of "green skills".

Keywords: green economy, green jobs, "green skills", environment-friendly procedures

INTRODUCTION

Many countries are currently in the state of transition to "green economy" which makes an impact on various branches of industry as well as education. The United Nations suggested the way of transition to "green economy" internationally within the framework of "Global Green New Deal" (UNEP 2009).

"Green economy" is defined as economy providing high quality of life and efficient use of natural resources. What are the reasons for such economic changes?

Among these reasons experts mention consumption of vast amount of nonrenewable resources, lack of mineral and energy-resources as well as growing

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number of poor people.

Transitioning to "green economy" will probably lead to growing demand for new technologies, goods and services, as well as emergence of new ways to save energy: progress in developing alternative energy sources will further lead to reduction in greenhouse gas emissions (CEDEFOP, 2012).

According to M.Brown, possible strategy in response to climate change is the necessity of transition to low-carbon economy. These changes will create new jobs (Brown, 2015).

Steps towards developing "green economy" may impact employment rate which will define its quality in the future. Working conditions are already changing as a result of emerging new technologies and equipment. Jobs created in the course of these changes must be green and decent (International Labour Office, 2013).

Green jobs can be created in any sector: agriculture, industry, services or administration. They include the kinds of jobs which provide protection of ecosystems and biodiversity; they cut the consumption of energy, raw materials and water through high-efficiency strategies; they will lead to reduction of carbon emissions in economies as well as minimization of waste and pollution (Azizov and Akinshina, 2009).

International organization UNEP suggests the following definition of "green jobs": Green jobs reduce the environmental impact of enterprises and economic sectors, ultimately to levels that are sustainable. They include work in agriculture, industry, services and administration that contributes to preserving or restoring the quality of the environment.

Changes taking place in the environment caused by vast emissions as well as industrialization progress are among factors promoting transition to greener jobs. All these changes impact professional needs of labour markets: especially agricultural ones in arid and semi-arid zones. Implemented environmental policy promotes higher sustainability in the industry contributing to increase in requirements to skills for green jobs (ILO, 2011).

Such scholars as Ana Belén Sanchez and Christine Hofmann in their papers define the list of necessary business and social skills which contribute to forming skills for green jobs. For instance, business skills are absolutely essential in order to manage environmental technology. Managerial skills are always in demand at any enterprise. Such skills as readiness to learn and introduce innovations are always appreciated everywhere. Leadership skills are needed to solve environmental problems at top level. This is especially important for influential political figures in order to stimulate people correctly, to create conditions for cleaner production, and so on (Belén Sanchez, Hofmann, 2009).

Recent research (Vona *et al*., 2015) states that "green skills" requiring high qualification are related to design, production, management, control over technologies and technical know-how. Environmental regulation leads to technical progress and increases demand for technical and science-based skills (Vona *et al*., 2015).

The Republic of Kazakhstan has recently adopted Strategic Plan for Development of the Republic of Kazakhstan until 2020. Implementation of "green growth" principles is an important priority of the plan (www.kazpravda.kz/_pdf/feb10/120210plan_2020.pdf). Kazakhstan's transition to "green economy" in particular suggests creating new jobs in five industrial clusters which will enable to diversify economy. According to the framework of transition to "green economy" 400,000 jobs in the country's africultural sector are expected to be created by 2030. Up to 150,000 jobs are expected to be created due to the expansion of pasture areas and agricultural lands; greenhouse enterprises will employ additional 50,000 people. More than 200,000 jobs will be indirectly created at the expense of development of added value chain including food production. High-tech

sector of electric power industry based on renewable sources will also create new jobs. The sector of waste management and processing materials in conditions of closed cycle is one of the most essential sectors at present. Other countries' experience shows that waste management sector employs great number of people, mainly, with technical education and skills. Establishing enterprises, which deal with collecting and processing different kinds of waste in Kazakhstan can create up to 8,000 new jobs by 2030. Management of water resources, public water supply and disposal are very important and problem-plaqued sectors of public administration in Kazakhstan. Enterprises dealing with processing effluent water and one working in irrigation sector will create from 3,000 to 8,000 new jobs; new vacancies can temporarily emerge as well during the period of constructing new infrastructural objects (*Kontseptsiya po perekhodu Respubliki Kazahstan k «zelenoy ekonomike»*).

Environmental education and raising awareness on environmental issues in overall population and especially in businesspeople are among vital approaches of transition to "green economy"; the necessity to improve functioning educational programs and to create new ones, which take into consideration rational use of natural resources and protection of the environment. These new programs are to be used in the system of education and personnel training.

The United Nations Environment Program 2010 report on "green jobs" states that due to growing demand for "green skills" each job will improve the economy (UN Economic and Social Council, 2011). Consequently, the key factors of transition to "green economy" are to train new personnel and to develop new "green skills".

In 2008 Dusseldorp Skills Forum (DSF) made a research among senior students and trainees to check their knowledge on skills necessary for sustainable development. The research revealed that state policy directed at sustainable development and business initiatives seriously affect the situation. According to the conclusions, significant growth of training in "green skills" is observed at working places and educational centers. However, there is a huge gap between youth and society's expectations on developing skills in highly-qualified specialists who could cope with problems of sustainability (Callaghan, 2012).

We need to make a plan of developing "green skills" via the system of education (colleges and training courses). As a result of new policy, the curricula and professional development in terms of "green skills" for "green economy" will be changed. These three aspects comprise a triangle: 1) policy changes, 2) curriculum review and 3) professional development. Thus, one may expect the reforms in these three main sectors (Maclean, 2012).

Kazakhstani scholars Zh.A.Altynbekova and B.K.Shaikhova suppose that upbringing of people who appreciate the values of sustainable development requires creating such system of environmental education and upbringing, which must include lifelong education from preschool level to secondary school, then at universities and postgraduate programs. At the same time, unity of environmental upbringing and education suggests its subordination to the concept of sustainable development (Altynbekova and Shaihova, 2013).

At present, environmental education acquires the priority in all educational institutions. Teaching staff face an important task – to help students become active society members who could realize global and local environmental problems and have knowledge necessary for fixing them. Currently, no environmental consciousness is formed in the course of teaching natural disciplines, obtained knowledge has abstract nature and is not related to daily practical activity of people (Nurgalieva, *et al.,* 2013).

Most Kazakhstani and Russian scholars pay significant attention to shaping environmental competence. For instance, O.A.Litvinova and Ye.Ye.Morozova associate environmental competence as a new planned result of environmental education with pupils' ability to independently use and translate general skills and

subject knowledge to projecting and organizing environmental-friendly activity (actions and behaviour) in educational (model) socially challenging situations in order to achieve sustainable development, human health and safety (Litvinova, Morozova, 2013).

European Education Foundation report focuses on developing such competences as environmental awareness, systems thinking and creative potential. They need as much attention as the issues of developing specific skills (INFORM, 2012).

It is necessary to determine and create standards of "green skills", competences for training professionals that take into account special features of "green economy". This work is essential practically for all sectors of higher and postgraduate education – "Science and Technology", "Social Science, Economics and Business", "Agricultural Science", "Services" and so on.

Training professionals with "green skills" is especially important in the sectors of Kazakhstan economy playing key role in food supply (agriculture, fresh water, forestry); in the sector of energy production technologies based on renewable sources; construction and transport; environmental taxation and others.

We need to work on organizing professional development of teaching staff for them to shape "green" competences in students.

Thus, implementation of above-mentioned recommendations on modernization of the content of all levels of education in compliance with new tasks of transition to sustainable development of the country and "green economy" especially concerning more focus on environmental values in education is considered to be important.

One can be regard "green skills" in wider sense: skills needed by labour resources in all sectors of economy and at all levels to help adapting to climate change by means of changing ecological requirements to goods, services and ongoing processes.

The aim of our research is to reveal the place of "green skills" in Kazakhstani system of higher education, and to study attitudes and behavior of employees of Kazakhstani enterprises towards "green skills" (catering, car-service, and waste management sectors).

RESEARCH TECHNIQUE

We chose catering, car-service, and waste management sectors for this project in order to estimate the situation in terms of "green skills" among employees of Kazakhstani enterprises.

Within these sectors we selected 6 enterprises (2 companies represented each sector: catering, car-service, and waste management), whose activity is regulated by labour legislation; and 6 more enterprises (again 2 companies represented each sector: catering, car-service, and waste management) work in non-official sector.

The number of employees in the first group of enterprises is 26 on the average; 20 per cent of them have secondary education, 32,2 per cent - technical and professional education, 47 per cent have higher education; the majority of people with higher education work in car-service sector, whereas most employees who have no but secondary education work in catering sector.

The situation at enterprises of another group is a bit different (non-official sector): here the share of employees with higher education is the smallest in comparison to the number of employees without higher education (the ratio is 18 per cent against 82 per cent).

We carried out questionnaire survey for our research on mastering "green skills" by employees. In questionnaires we handed out to employees there were special questions which enabled us to get the data on their knowledge, skills, and opinions,

kinds of behavior in the context of "green skills". The method of observation was also applied: it helped reveal respondents' awareness about "green skills", find out if they take into consideration environmental issues while working, if they know about environmental hazards.

RESEARCH FINDINGS

Constantly, Respondents employed by all 12 enterprises stated with confidence that their enterprise follows the state policy of regulating environmental protection, as well as correctly point out at those who are responsible for adopting these regulations and the policy implementation. However, they find difficult to name the regulations: only 11,3 per cent named more than 10 regulations, 29,6 mentioned more than 7 regulations. In particular, the necessity to make quarterly reports on hazardous waste, constant control over implementation of all enacted specifications in the sector.

Virtually all respondents share general awareness of "green skills" as all say they have "considered attitude towards the environment". At the same time, the skills named by the respondents are quite diverse: from certain individual skills on how to deal with nature resources to issues of global relationships between society and biosphere. Specifying the notion "environmentalization of skills", respondents note the need to implement ideas of nature protection for sustainable development.

Regardless the enterprise sector all respondents share the opinion that "green skills" and environmentally safe methods are important for members of staff of their company. Among environment-friendly methods used by the enterprise they name, in the first place, specifications (on waste disposal), use of eco-friendly detergents (in catering), use of modern technologies (car-service sector), regular cleaning of premises, compliance with sanitary requirements.

Respondents were asked a question "Are there people or bodies at your enterprise engaged in green practices (e.g. waste or water management, sources of renewable energy, energy efficiency, minimization of pollution)? Specify them". We found out that not all enterprises employ an ecologist (in fact, only 3 per cent of the total number of the investigated companies in waste management sector do). However, the vast majority of respondents employed by enterprises in the official sector indicated that deputy heads responsible for maintenance do the above-mentioned work.

When asked, "If you do not use environment-friendly methods, please, explain the reasons" all respondents gave an answer "not applicable".

Respondents distinguish, first and foremost, knowledge among the skills required to maintain environment-friendly practices at work. In particular, knowledge of laws, safety regulations, requirements concerning compliance with various specifications. According to the respondents, the list of required skills is a little wider than that of pieces of knowledge. Among them they mention capability to control dangerous situations, to take necessary measures in both standard and non-standard situations, ability to carry out audit and examination of working places, technological procedures and operations, operating tools and instruments from the point of view of environmental safety.

It is more difficult for respondents to understand such categories as opinions and behavior. It may mean that the vast majority of respondents lack general understanding of "green skills". For instance, they often relate to the "behavior" the ability to comply with internal requirements concerning environmental safety in the workplace. However, they left the questionnaire column "opinions" blank, whereas they should have filled it with opinions in the context of "green skills".

Table 1 demonstrates general perception of "green skills" by employees of researched enterprises.

These statistical data indicate that respondents understand skills traditionally, i.e. skills are interpreted as capabilities that achieved automaticity. This is probably the reason why respondents focus on skills.

At the same time, respondents' answers do not cover broader social context. In other words, "green skills" are understood as a set of skills required in professional domain. Respondents' answers to the question "How do you evaluate necessary qualifications while recruiting employees for your company?" can confirm this conclusion. Vast majority of respondents said that necessary qualifications evaluation criteria were as follows: education, length of service and experience of work in the corresponding domain.

Besides, employees of non-official sector enterprises state that there is no system of "green skills" evaluation at their enterprises. Heads of these enterprises do not go beyond interviewing job applicants on general questions, while recruiting new members of staff.

All enterprises evaluate previous training in traditional way: employers check diplomas as well as seminar and training certificates, arrange job interviews. Employers certainly take into consideration "green skills", but only within the general context of environmental security. It is indicated by the absence of responses to a question "what "green skills" did you include in previous training".

Among methods used for evaluating "green skills" respondents mention safety training logs in which members of staff register results of safety briefing tests (answers to questions).

Answering a question concerning the context in which "green skills" were acquired by their co-workers, as a rule, respondents mention independent learning/informal training as well as professional education and training.

Managers responsible for implementing safety regulations train members of staff at all enterprises participating in the monitoring.

Thus, researched enterprises carry out work on shaping "green skills" in their employees in traditional mode of operation.

Our research shows that such aspects of environmental compliance as "conforming to environmental regulations at working place" and "Informing on potential environmental threat" work to the full extent only at enterprises of official sector; car-service is the leading sector in this respect. It is worth mentioning that services sector uses environment-friendly modes of operation to the fullest extent: the degree of completeness reveals itself in 6 observed positions out of 26, making up 23 per cent of total number of the observed objects (criteria of evaluation). In particular, observations demonstrated that the following data are precisely registered at these enterprises: place and degree of potential environmental hazard; working practices (techniques), step-by-step working instructions related to potential environmental impacts.

Table 1. Per cent of respondents who specified knowledge, skills, opinions, types of behavior in the context of "green skills" (per cent)

	sectors "A" and "B"	**Sectors "C" and "D"**
knowledge	78,0	72,1
skills	100,0	100,0
opinions	0,2	0,0
behavior	5,6	3,2

The moderate degree of indicators of environment-friendly modes of operation is manifested to the fullest extent in catering sector – 50 per cent of total number of the observed objects (criteria of evaluation). At the same time, the weakest positions are related to improving practices of environmental compliance.

Correspondingly, the degree of limited indicators of environment-friendly modes of operation is apparent in waste management sector: a little more than 65 per cent of total number of the observed objects (criteria of evaluation).

Comparative analysis of indicators of using environment-friendly modes of operation at enterprises in official and non-official sectors indicates that:

- Indicators of non-official sector enterprises are lower than official sector ones according to all parameters;
- Car-service sector is in the most favourbale situation in terms of using environment-friendly modes of operation;
- Indicators according to two criteria have weak positions in all three sectors: "Improving practices of environmental compliance" and "Keeping documents on environmental issues" (environmental records);
- The position "Informing on potential environmental threat" is the most effective in all three sectors.

CONCLUSIONS

The authors of this article analysed development of "green skills" in Kazakhstan. Survey carried out among company employees of the most important sectors of economy in terms of "green skills" (catering, car-service and waste management), revealed that the employees do their best to comply with requirements of environmental security.

Thus, we found out that employees of Kazakhstani enterprises are generally aware of "green skills", but they are lacking the knowledge on environment-oriented economy. Thus, unawareness of "green economy" can lead to problems in economic development of Kazakhstan.

If Kazakhstan plans to create 400,000 jobs in green sectors, the country needs to prepare professionals with the corresponding skills (green ones).

Research findings reveal that employers hardly realise the importance of "green skills" for business and other realms.

It is difficult to understand and explain the importance of having "green skills" for the majority of the respondents. Most respondents do not have clear vision of how to develop "green skills".

We suppose that this problem requires further research: studies of "green skills" development can be an important and prospective aspect of Environmental Science pupils.

COMPLIANCE WITH ETHICAL STANDARDS

The authors declare that they have no conflict of interest.

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