

Improving the Methodological Framework for Identifying and Accounting For Green Jobs in Small Business and Private Entrepreneurship

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Abstract- Small business and private entrepreneurship plays an important role in ensuring employment, well-being and economic growth in the country. In this regard, the issue of creating “green jobs” in small businesses is a means of improving working conditions and protecting the environment. With this in mind, this study aims to improve the methodological framework for identifying and accounting for “green jobs” in terms of decent work principles for small businesses. This study examines empirical and conceptual research on the identification of “green jobs” and the improvement of the methodological framework for their statistical accounting reflected in scientific sources in a number of online databases and systematizes their scientific approaches. On the basis of the studied theoretical and practical approaches, a methodological framework for identifying and accounting for “green jobs” has been developed. The study also found that “green jobs” include criteria for decent wages, safe working conditions, and social and legal protection, which help to protect the environment in accordance with the principles of decent work.

Keywords: Small business and private entrepreneurship, green economy, green jobs, green professions, decent work, green jobs calculation methodology.

I. INTRODUCTION

According to official statistics, as of 2020, 334,767 small businesses have been registered in Uzbekistan. These entities account for 53.9% of the country's gross domestic product (GDP), their share in exports is 20.5%, and their share in the total number of people employed in the economy is more than 73.5%. These statistics show that small business and private entrepreneurship play an important role in ensuring employment, well-being and economic growth in the country. However, the majority of these types of businesses fail in the early stages of their activities due to the external environment, unable to withstand the fiercely competitive environment.[1] The main reason for this is the fact that many small businesses now use outdated equipment and technologies that do not meet today's requirements, increasing the risk of injuries to employees at work and the release of harmful emissions into the environment. The state of occupational safety in small businesses is also not at the level of demand. Employees are often not provided with special clothing, footwear, protective equipment against hazards of production. Therefore, it is not surprising that the number of industrial injuries in small enterprises is twice as high as in state-owned enterprises.[2] In addition, full and effective employment in the industry, the creation of healthy conditions for employees, a decent wage for their work is the basis of decent work. In recent years, special attention has been paid to the importance of compliance with environmental standards in the workplace, including the creation of "green jobs", increasing the social responsibility of employers in providing such conditions.[3] In particular, the decision of the Government of Uzbekistan approved the strategy of the Republic of Uzbekistan for the transition to a "green economy" for 2019-2030. One of the main tasks of this strategy is to increase the energy efficiency of the economy and the rational use of natural resources, as well as to encourage the creation of safe and decent jobs in enterprises.

In this regard, support for the transition of small businesses in Uzbekistan to the principles of a green economy can lead to the creation of a large number of “green” and safe jobs. This increases the interest of the government and international organizations (including the ILO) in identifying and socio-economic assessment of “green jobs” and developing an appropriate methodology for their statistical accounting. This is because the statistics on “green jobs” serve as one of the tools to implement and control the country's strategy for the transition to a green economy. The demand for “green activity” or “green jobs” statistics is also related to the need to monitor environmental protection processes in countries' economies.

II. LITERATURE REVIEW

In world practice, there are three methods of identifying and evaluating “green jobs”. The first is a process-based approach, the second is a production-based approach, and finally the third is an environmental-oriented approach. The process-based approach assesses the state of organization of energy-efficient and safe jobs in enterprises. The production-based approach argues that enterprises have a goal of producing products and services that do not harm the environment. The environmental approach, on the other hand, aims to identify industries and sectors that are focused on improving environmental quality.[4]

A study by foreign economists Jarvis, Andrew, Varma, and Rams used two different approaches to defining “green jobs”. The first is the industrial approach, which determines the number of employees employed in enterprises producing green products and services. The second is used in the professional approach to determine the number of employees working in occupations that contribute to the green economy in enterprises. In the industrial approach, “green jobs” are evaluated in terms of production results, while in the professional approach, they are evaluated in terms of production resources.[5]

The U.S. Bureau of Labor Statistics (BLS) has developed a methodology for collecting data on “green jobs”. The main purpose of this methodology is to analyze the number of green jobs and their changes and data on wage levels in green occupations, as well as the distribution of these jobs by industry and economic spheres.[6]

The Labor Market Information (LMI) Division of the California Department of Employment Development (DED) has developed a research program to assess the state of the green economy in the country. The goal of this study is to focus on three areas, the first of which is to determine the number of people employed in green jobs. The second area examines the number of enterprises implementing the principles of the green economy and what factors influenced them to implement green movements. Finally, the third area is to identify emerging new professions and the skills they will need to accelerate prospective research in the sphere of green economy.[7]

In 2009, a group of scientists from the Department of Energy, Labor and Economic Development of the US state of Michigan conducted a study to study "green jobs". This is the first study to determine the number of “green jobs” in businesses based on a sociological survey in Michigan. The research team was able to assess the jobs in the “green sector” and changes in them, the level of wages paid for “green professions” and the skills and competencies required for “green professions”. In this study, a team of scientists also tried to forecast green employment until 2038. By 2038, the number of green jobs in Michigan is projected to approach about 10 million.[8]

It should be noted that the limited access to research and methodological resources aimed at determining and estimating the number of “green jobs” or the fact that information about them is not published in open sources complicates the analysis of sources on the research topic. In particular, in most cases, the number of “green jobs” is determined and evaluated through empirical research, but the lack of empirical research in this area further complicates the issue. Therefore, we think it is appropriate to encourage research on the problem of identifying and evaluating “green jobs” and their statistical accounting. Our research aims to improve the methodological framework for identifying and maintaining “green jobs” in Uzbekistan.

III. RESEARCH METHODOLOGY

The study examined empirical and conceptual research on the identification of “green jobs” reflected in a number of online databases and the improvement of the methodological framework for their statistical accounting, and systematized their scientific approaches. Systematic analysis, historical and logical, induction and deduction, analysis and synthesis, comparative analysis, monographic analysis and grouping methods were also used in the research work.

IV. ANALYSIS AND DISCUSSION

The Green Jobs Initiative is a joint initiative of the United Nations Environment Program (UNEP), the International Labor Organization (ILO) and the International Trade Union Confederation (ITUC). The initiative aims to encourage governments, employers and trade unions to create decent, safe and environmentally friendly jobs. In this regard, the Cabinet of Ministers of the Republic of Uzbekistan and the Council of the Federation of Trade Unions of Uzbekistan and the Chamber of Commerce and Industry of the Republic of Uzbekistan signed a “General Agreement” on socio-economic issues for 2017-2019. It sets the task of adopting an action plan to improve working conditions and protection in 2017-2019, including the creation of “green jobs” in enterprises, by taking jobs with decent working conditions into account.

In today's society, “green workplace” means high-tech equipment, resource-saving and environmentally friendly technologies that allow efficient and rational use of material resources, increase the productivity of employees.

The term “green workplace” is derived from the concept of “green economy”. The United Nations Environment Program, the International Labor Organization, the International Organization of Employers, and the International Trade Union Confederation believe that “green jobs” must meet the following criteria: decent wages; safe working conditions; opportunities for career advancement; protection of employee rights; environmental protection.[9]

The above data on “green jobs” show that Uzbekistan has the potential to develop an environmentally oriented labor market, but currently “green” economic activities are not well developed in Uzbekistan.

In our opinion, the development of “green employment” policy in the labor market of Uzbekistan, in particular, the identification of indicators characterizing the development of “green employment” and lack of clear efforts to formation of priority areas for economic activity to create “green jobs” is considered as a the decisive factor.[10]

Based on the study of the literature in the field, we present in Table 1 the criteria for the concept of “green jobs”.

Table 1: Criteria for “green jobs”

Criteria for “green jobs	Description of the criterion
Economic	decent wages, high level of labor productivity
Social	compliance with labor rights of employees, the availability of social guarantees
Technical and technological	use of modern high-tech equipment, availability of safe working conditions, investment in fixed assets
Ecological	reduction of negative impact on the environment

From the point of view of the concept of “green jobs”, we understand that it is acceptable to associate the word “green” with the word “safe”. But not everything that is good for the environment will always have a positive impact on the occupational safety of employees engaged in “green jobs”. Therefore, we have no reason to say that "green jobs" are absolutely safe for employees. In this context, in the course of the research, we tried to make an in-depth analysis of whether the creation of “green jobs” is in line with the principles of decent work.

We do not believe that some of the work done in the "green jobs" will be carried out under decent working conditions. For example, the recycling industry of household waste (paper, plastics, medical waste and glass and electronic devices) can be a source of many toxic substances, including various metal particles and organic compounds that are hazardous to the health of workers. In our opinion, we consider it expedient to provide tax benefits for the provision of safe working conditions and personal protective equipment for employees in waste processing enterprises. According to the analysis, in recent years, the country generates more than 100 million tons of industrial waste per year (14% of which belongs to the category of toxic waste), about 35 million tons of household waste. Considering that about 2 billion tons of industrial, construction and household waste are stored in landfills and waste storage facilities, and they occupy an area of 12,000 hectares, it is not difficult to imagine the negative impact of waste. Therefore, the establishment of high-tech waste recycling enterprises in Uzbekistan will reduce environmental pollution and provide the population with new jobs.

The results of the study showed that for “green jobs” it is recommended to introduce certification systems and occupational safety standards at each stage of the life cycle. The "green economy" must have safe, harmless working conditions and minimal production risks. For example, since nanomaterials belong to new types of materials and products, it is necessary to describe their potential risks to human health and the state of the living environment. In this regard, in Russia from July 1, 2016, GOST R 56748.1-2015 / ISO / Ts 12901-1: 2012 “Nanotechnologies. Nanomaterials. Risk Management” standard was introduced.[11]

If green jobs are truly decent and sustainable, we need to make sure they bring positive benefits to employee health and safety as well as the environment. In this context, we have attempted to describe the “green jobs” as a conformity to decent work requirements (Figure 1).

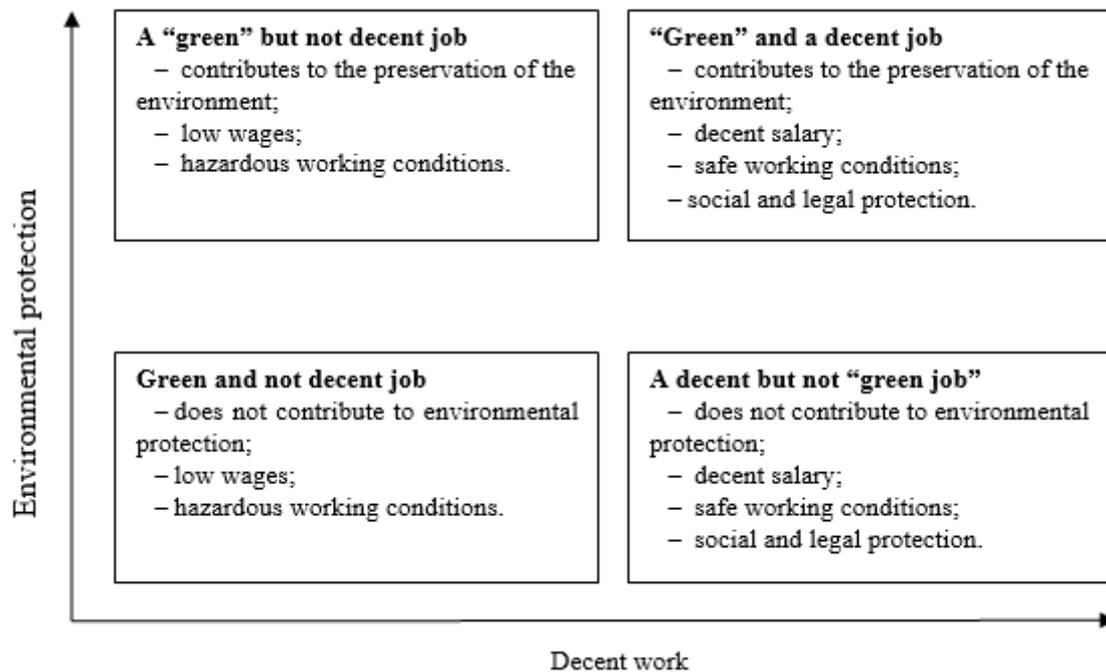


Figure 1. Description of compliance of “green jobs” with the principles of decent work

From Figure 1, it can be concluded that a “green” and decent jobs should include criteria for decent wages, safe working conditions, as well as social and legal protection, which will help to protect the environment.

Also, the rapid expansion of the “green economy” creates the need for additional training and retraining of employees who do not have sufficient qualifications for “green jobs” and “green professions” (Table 2).

Labor processes or new technologies associated with “green jobs” create new risks that require a combination of new skills to work with them. That is, it is not always appropriate to introduce traditional occupational safety knowledge into the solution of occupational safety problems in the “green workplace”. For example, the installation of solar water heaters requires that the skills of a carpenter, plumber and electrician repairing the roof be combined.

Table 2: Changes in occupations and skills for a “green job” [12]

Level of change in qualifications and skills	Professions change	Skills and competency change activities
Past	Changes in existing occupations	Organization of on-the-job training or short training courses
Medium	The emergence of new occupations	Organization of long-term and continuous training courses
High	The emergence of new types of professions in the future	Development of university curricula and organization of continuous training courses

It will be important to develop the specific skills needed for green jobs, as it is important that the workforce is properly and adequately qualified in the transition to a green economy. That is, employees working in “green jobs” must have the necessary skills.

According to a study by economist Bert Colijn, technical skills, resource management skills, and problem-solving skills are among the most important skills needed for “green jobs”. The majority of all business leaders surveyed stressed the need to train and retrain employees to identify and prevent new occupational hazards in order to create “green jobs”.

We consider it expedient to take the following measures in the training of personnel in accordance with the requirements of the “green economy”:

- Training of personnel, formation of a culture of careful attitude to energy and resources;
- Raising awareness and skills of industry staff, including managers and engineers, taking into account the new requirements for professional skills with the development of the “green economy”;
- Taking into account the basics of the “green economy” in the development of state educational programs for training and retraining;

A distinctive feature that distinguishes small businesses from large enterprises in this area is that, despite their easy adaptability to different conditions, they have several factors that hinder the creation of “green jobs”:

- Most small business owners are not responsible for the environment or do not consider these issues as an important aspect of the business;
- Most business owners do not have sufficient knowledge about the environment and decent employment, or have a sense of fear of investing in these activities;
- Most small business leaders emphasize that the impact of their business on the environment is insignificant and that it is expensive to invest in this area.

Because training in small businesses to develop “green skills” is based on on-the-job and self-training forms, the acquisition of these skills is very slow [13].

V. METHODOLOGY FOR CALCULATING AND ACCOUNTING FOR “GREEN JOBS”.

Identifying and scaling up green jobs is a daunting task. So far, no perfect methodology or clear state standards for calculating and quantifying “green jobs” has been developed. The main reason for this is that the concept of "green jobs" is very broad and does not have a clear perfect expression. A number of scientists conducting research in this area have tried to identify and evaluate green jobs.

In world practice, there are three methods of identifying and evaluating “green jobs”. There are four steps for calculating and accounting for “green jobs”.

Step 1. The first is a process-based approach, the second is a production-based approach, and finally the third is an environmental-oriented approach. The process-based approach assesses the state of organization of energy-efficient and safe jobs in enterprises. The production-based approach argues that enterprises have a goal of producing products and services that do not harm the environment. The environmental approach, on the other hand, aims to identify industries and sectors that are focused on improving environmental quality.

The “green economy” means not only the existence of “green jobs” or “green spheres” in it, but also the willingness of the enterprises operating in it to protect the environment. Such enterprises will be interested in providing safe working conditions in the production process and investing more in the introduction of ecofriendly technologies.

The method we propose is a process-based approach, which involves several steps in determining the number of “green jobs” and keeping track statistics of them. In the first stage, the growth rate of the average annual salary of industrial employees of the enterprise is calculated (Table 3).

Table 3: The growth rate of the average annual wage

Indicator	Methodological commentary on the calculation of the indicator	Calculate the growth rate of the indicator
The average annual salary per employee of industrial production in the enterprise (S), UZS / person	$S_a = S_f / N_e$ (1.1) Here: S _a - average annual salary, soums; S _f - annual salary fund of an industrial worker at the enterprise, soums; N _e - the number of industrial and production employees in the enterprise, person	$S_g = S_1 / S_0$ (1.2) Here: S _g - the average annual salary rate; S ₁ - average annual salary in the reporting year; S ₀ - average annual salary in the previous reporting year

Source: The table was created by the author.

Step 2. The second stage is the gross performance indicators of small businesses and private entrepreneurship (Table 4).

Table 4: Gross performance indicators of enterprises and their growth rate

Indicator	Methodological commentary on the calculation of the indicator	Calculate the growth rate of the indicator
The volume of output per employee, UZS	$V_o = V_p / N_e \text{ (1.3)}$ Here: V_o - the volume of output per employee; V_p - volume of production during the year, soums; N_e - number of industrial employees, person	$GV_o = V_{o1} / V_{o0} \text{ (1.9)}$ Here: GV_o - the growth rate of the volume of output per employee; V_{o1} - the volume of output per employee in the reporting year; V_{o0} - the volume of output per employee in the previous reporting year
Renewal ratio of fixed assets	$RF_a = Fa1 / Fa0 \text{ (1.4)}$ Where: RF_a is the renewal rate of fixed assets; $Fa1$ - the value of fixed assets received by the enterprise during the year, thousand soums; $Fa0$ - the value of fixed assets available at the enterprise at the end of the period, thousand soums	$Fag = RF_{a1} / RF_{a0} \text{ (1.10)}$ Here: Fag - growth rate of renewal rate of fixed assets; RF_{a1} - the ratio of renewal of fixed assets in the reporting year; RF_{a0} - the ratio of renewal of fixed assets in the previous reporting year
Fund availability, UZS / person	$FT = Faa / N_e \text{ (1.5)}$ Here: FT - fund availability; Faa - average annual value of fixed assets, thousand soums	$USFT = FT1 / FT0 \text{ (1.11)}$ Here: $USFT$ - growth rate of fund supply; $FT1$ - fund availability in the reporting year; $FT0$ is fund availability in the previous reporting year
Material return	$Mr = V_p / M_c \text{ (1.6)}$ Here: Mr - material return; MH - volume of production, thousand soums; Mc - material costs for production, thousand soums	$GMr = Mr1 / Mr0 \text{ (1.12)}$ Where: GMr is the growth rate of material return; $Mr1$ - material return for the reporting year; $Mr0$ is the material return for the previous reporting year
The ratio of highly qualified staff of the enterprise	$K_{qe} = N_{qe} / N_e \text{ (1.7)}$ Here: K_{qe} - the coefficient of employment of highly qualified personnel of the enterprise; N_{qe} - number of highly qualified industrial workers, person; N_e - total number of industrial and production employees, person	$GH_{qe} = K_{qe1} / K_{qe0} \text{ (1.13)}$ Here: GH_{qe} is the growth rate of the supply of highly qualified personnel; K_{qe1} - coefficient of employment of highly qualified personnel in the reporting year; K_{qe0} is coefficient of employment of highly qualified personnel in the previous reporting year
Fixed capital investments, thousand soums	Annual volume of investments in fixed assets, thousand soums	$Gfc = Ifc1 / Ifc0 \text{ (1.14)}$ Here: Gfc - the growth rate of investment in fixed assets; I_{AK1} - investments in fixed capital in the reporting year; I_{AK0} - fixed capital investments in the previous reporting year
The share of employees employed in normal working conditions among total staff	$E_{en} = N_{en} / N_e \text{ (1.8)}$ Here: E_{en} - the share of employees engaged in normal working conditions; N_{en} - the number of industrial workers engaged in normal working conditions	$GE_{en} = E_{en1} / E_{en0} \text{ (1.15)}$ Here: GE_{en} - the growth rate of the share of employees engaged in normal working conditions; E_{en1} - share of employees employed under normal working conditions in the reporting year; E_{en0} - the share of employees employed under normal working conditions in the previous reporting year

Source: The table was created by the author.

Step 3. Comparison of the growth rate of the gross performance indicator of the organization with the growth rate of the calculated average annual salary.

Step 4. Determining the number of “green jobs” in the organization.

In the implementation of the fourth stage, it is necessary to use the information obtained as a result of the implementation of the third stage:

- If the ratio between the growth rate of the calculated average annual wage and the growth rate of a gross indicator of the efficiency of the enterprise is greater than 1, then it can be said that the jobs occupied by industrial workers in the enterprise are not considered “green jobs” because wages will grow faster than indicators characterizing the state of fixed assets, human capital and rational use of natural resources;
- If the ratio between the calculated average annual wage growth rate and the growth rate of the overall efficiency of the enterprise is less than 1 or 1, then the jobs occupied by industrial workers in the enterprise can be included in the list of “green” jobs; because the growth rate of indicators characterizing the state of fixed assets of the enterprise, human capital and rational use of natural resources is higher than the growth rate of wages.

Step 5. Completion of state statistical surveys on the number of “green jobs”.

- In our opinion, in order to keep track of the number of “green jobs”, it is advisable to develop a new form of state statistical monitoring in which enterprises display the following information on the status of a particular date on the above criteria:
- Number of “green jobs” in the reporting year;
- Increase in the number of “green” jobs compared to last year;
- Investments in the creation and modernization of “green jobs” in the reporting year;
- Average cost of creating 1 “green job” in the reporting year;
- Increase in labor productivity at the enterprise compared to the previous year;
- Increase in the average salary in the enterprise compared to the previous year.

Thus, the data obtained in the last 5 stages can be entered into the form of state statistical observation.

VI. CONCLUSION AND RECOMMENDATIONS

In addition to the above methodology, it is proposed to use the following as indicators for assessing the development of “green” employment:

- The number of “green” jobs created and modernized;
- The number of people employed in the “green” sectors of the economy;
- The number of highly qualified employees employed in the “green” sectors of the economy;
- The volume of investments in fixed assets aimed at environmental protection and rational use of natural resources;
- Unemployment rate;
- Dynamics of labor productivity.

The proposed indicators will allow assessing the effectiveness of the implementation of “green policy” in Uzbekistan. Recommendations on the assessment and accounting of “green” jobs will expand their use.

In our opinion, one of the main goals of the “green employment” policy in the field of small business and private entrepreneurship is to create safe working conditions. The creation of safe working conditions through the renewal and modernization of equipment and technological processes will lead to an increase in labor productivity, an efficient economy, a favorable environmental environment.

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