

STATE OF CAREER DEVELOPMENT AND VOCATIONAL EDUCATION FOR WOMEN IN LOW-SKILLED JOBS IN WASTE MANAGEMENT SECTOR – LITERATURE REVIEW

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ABSTRACT

Aim: This study aims to explore the economic theories and current situation regarding vocational education for women in low-skilled jobs in waste management, focusing on the challenges women face in this male-dominated sector. It seeks to address the gender inequalities and barriers that prevent women from advancing in their careers, particularly the impact of stereotypes, biases, and immaturity of qualification standards. **Methods:** The primary research method employed was a literature review, conducted through an analysis of the content of six academic databases, which were searched using relevant keywords. This process resulted in the identification of 48 articles, 30 of which were available in full. These articles were then thoroughly analyzed and categorized into three main themes: 1) applied theories and concepts, 2) stereotypes, career paths, and vocational education, and 3) literature relating to the selected region (Uzbekistan and Tajikistan). **Results:** The findings highlight significant challenges and gender inequalities faced by women in waste management and adjacent sectors. It was found that the lack of gender-inclusive qualification standards and systemic biases lock women under a “glass ceiling,” limiting their career advancement. The review also revealed a gap in research on the specific skills and knowledge women need to succeed in these fields, especially in regions like Uzbekistan and Tajikistan, where waste management systems are still developing. **Conclusions:** The results highlight the importance of developing training programs that address gender-specific needs and tackle the gender gaps in qualification standards. They also emphasize the necessity of implementing systemic changes to improve working conditions and expand leadership opportunities for women in the waste management sector. The study concludes that further research is required to gain a deeper understanding of the gender inclusivity of national qualification standards, particularly in industries such as waste management.

Key words: waste management, circular economy, women inclusivity, vocational training, gender equality

JEL codes: D63, O18, O20

INTRODUCTION

The organization of waste management systems is an important block of the economy to avoid man-made environmental disasters [Amoah et al. 2023].

The sector is expanding worldwide toward building a circular approach to economic development. It needs to be mentioned that human capital plays an important role and requires attention not only from scientific but also from industrial and policy-making

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perspectives. The quality of the workforce in the waste management sector requires professional services and technologies. The sector needs professionals from several disciplines, such as engineering and social and environmental protection, who are properly prepared to serve the quality of the services the system offers to the population.

The role of women in advancing the waste management sector is attested through several studies [Asteria et al. 2020, Bhakta et al. 2022]. Women are equal representatives of environmental protection to men [Syauqi et al. 2024]. However, being gender divided, the sector still maintains notions like “men’s work” and “women’s work” [Foster et al. 2012, Amoah et al. 2023]. Men occupy more leadership positions and have decision-making power, hence it is their interests that are represented [Amoah et al. 2023]. This is limiting the potential of female workers in the sector. This is also the case for other male-dominant industries, such as construction, energy, and mining [Bhakta et al. 2022, Amoah et al. 2023, OSCE 2024, Thelma and Ngulube 2024]. Several studies show that most employed women (in the waste and construction sectors) who are performing low-skilled jobs hold a junior high school education level [Sun et al. 2023, Husam et al. 2024]. Education and technical knowledge are usually prerequisites to occupying leadership positions [Amoah et al. 2023]. In this context, it is important to mention the research of the 2023 Nobel laureate in economics, Professor Claudia Goldin. Professor Goldin’s study found that the gender pay gap has evolved over time and is closely linked to women’s life choices, particularly around family and caregiving responsibilities. She highlighted that the gap is not just a result of direct discrimination but also due to structural factors like differences in career paths and time spent in the workforce. Women often experience wage penalties after taking career breaks for childbirth or caregiving, which can accumulate over time [Goldin 1990]. Goldin’s research emphasized the importance of flexibility in the workplace, noting that careers with more flexible hours or those that offer part-time work options are more attractive to women, particularly when balancing work and family responsibilities. She found that many women’s career paths were shaped by their ability to negotiate

work conditions that accommodate caregiving rather than by a lack of ambition or ability [Goldin 2006]. Goldin’s studies showed that while men often experience a “marriage premium” (higher wages after marriage), women face a “motherhood penalty,” where their earnings and career advancement are negatively impacted by their roles as mothers. Over time, Goldin tracked changes in the labor market and women’s increasing participation in higher education and the workforce [Goldin 2014].

Thelwall [2019] states that among the domains, the proportion of female authors in scientific publications published in the USA from 1996 to 2018, one of the lowest is waste management, among other environmental sciences specialisms [Thelwall 2019]. It also sheds light on the state of gender parity in the education and research sectors in waste management disciplines.

Studies show that the waste management sector is gender divided into many disciplines, such as research, education, and the workforce [Thelwall 2019, Amoah et al. 2023]. It is important to develop the sector through a gender lens and create equal opportunities for male and female workers. The role of education in the role of women in waste management is undeniable [Asteria et al. 2020]. In the waste sector, there is a correlation between gender and job satisfaction, as well as education and job satisfaction [Foster et al. 2012, Misra and Tewari 2022, Surchat et al. 2023]. Therefore, professional education must be gender-responsive [Foster et al. 2012, Mehdi et al. 2021, Berk 2022, Amoah et al. 2023, Sun et al. 2023].

The requirements for people employed in the waste sector, which historically emerged from the profession of “public cleansers” (for instance, in Great Britain in the 1890s) [Townend 1999, Misra and Tewari 2022], have grown over the next century to be a bachelor of science in engineering [Townend 1999]. In recent decades, the requirements for performing skilled jobs have shifted toward professional certifications, similar to what transpired in the IT industry in the 20th century. The time dedication has shortened for being ready to perform a skilled task in the job market. The distance learning has removed the geographic borders of receiving educational services [Huang and Wang 2011, Wannagatesiri et al. 2015].

The demand for vocational and technical training has increased, as it prepares students for the labor market by equipping them with technical skills and competences [Berk 2022, Amoah et al. 2023]. For instance, the practice in the United Kingdom shows that the National Vocational Qualifications in waste management can be divided into skills-based stages adaptable to the needs of waste professionals while still keeping the essential requirements for the performance of a professional qualification. The employees in the waste sector can prove their qualification through evaluations from foundation skills to chartered professional and senior management occupations [Townend 1999]. These personal portfolios of evidence are relevant for proving the qualification, which is key for employability [Townend 1999, Rainbird 2000, Cort et al. 2018].

GENDER INEQUALITY PROBLEM

There are cultural expectations in society based on sex assigned at birth [Husam et al. 2024], and women are often excluded from leadership roles in waste management due to stereotypes and unconscious biases. They portray them as less competent or authoritative compared to their male colleagues [Thelma and Ngulube 2024]. The study in Ghana reports that professional staff and managers in district government units responsible for the environment and sanitation were occupied by men, while clerical duties were done by women [Amoah et al. 2023]. This study also states that female solid waste workers were denied access to garbage tricycle operation training, which is essential for waste collection and transportation, because of the belief that it demands a substantial amount of physical strength. Positions like janitors are also considered as male job. The study further states that one time, when a vacant place opened for a position as a janitor, one woman showed courage to apply and was hired [Amoah et al. 2023]. Women have to show an interest in and the courage to advance their career in this male-dominated sector.

Another study held in Tanzania states that driving trucks and trailers is almost always considered a male job in the waste sector, while in waste entities, the revenue collection is allocated to women with-

out estimates of the personal qualities of candidates [Foster et al. 2012]. However, according to a study in Vietnam, there is typically no distinction between male and female employees in waste management when it comes to access to bicycles or tricycles [Amoah et al. 2023]. A study from another male-dominated sector, mining, states that the tools like pickaxes and hammers were exclusively for men, while women were not expected to use them due to such perceptions [Ofosu et al. 2024]. This study also quotes interviews with female workers in the sector. Female respondents think that the main activities related to entrepreneurship, operations and possibilities to scale the business are available only to men, while being unaware that laws and regulations are gender-blind in terms of doing business or the use of technology [Ofosu et al. 2024]. Women are provided fewer opportunities for professional trainings due to an institutional pattern of excluding certain groups, which affects the kinds of responsibilities female and male workers get in the waste management system.

Having no data on the share of women in the waste sector in Central Asia, this research uses references from studies from other similar male-dominated sectors and scientific studies conducted in other regions. The energy sector in Central Asia also has limited female representation, being 10% in Tajikistan and 12% in Uzbekistan. The average for Central Asia is 16%, with the highest rate in Kazakhstan, at 25% [OSCE 2024]. In Uzbekistan, restrictions on women driving heavy vehicles and buses were officially removed in February 2024.

In the waste sector, occupations available for low-skilled women are usually informal, with no stable job or salary [Surchat et al. 2023]. Studies held across different countries show that women working in the collection and sorting of waste have entered their job via their male relatives, i.e. they chose their job by starting to help their husbands or sons [Bhakta et al. 2022, Misra and Tewari 2022, Derhgwawen et al. 2024]. A study held in one of the landfills in Delhi in India showed that women occupy the lowest ranked jobs, like waste pickers, while their husbands are occupied the higher positions, like door-to-door collectors with access to thelas (official registered carts) [Misra and Tewari 2022]. When composting entities were

studied in Rwanda, it was found that the occupations with the highest monthly salaries were occupied by men (e.g., guards, technicians, managers) and the lowest paid jobs for daily payments, like cassava peeling, were female jobs [Surchat et al. 2023]. Female workers in the informal waste sector tend to have more difficulties entering the formal sector because of the lack of a qualification, skills and funds [Foster et al. 2012]. A study from India quotes a woman, a waste picker, who says that nobody took care of her education, while she sees that education can help her children to not become waste pickers [Derhgawen et al. 2024].

Several studies show the need for education and training directed at changing attitudes and stereotypes to empower women in the waste sector [Foster et al. 2012, Amoah et al. 2023]. Yamoah and Kaba [2024] have studied the gender opportunity gap for female cocoa farmers engaged in cocoa-waste management. Mixed gender training led to an improvement in the working relations between men and women, resulting in women being an equal partner in discussions related to business [Yamoah and Kaba 2024].

Being differently interpreted, many scholars agree with the notion that empowering women is the way to achieve gender equality, i.e. having control over acting freely, believing in one's own capabilities and the right to choose [Foster et al. 2012, Ebrahimi et al. 2022]. Empowering women in the waste sector requires a set of proven techniques, such as mentorship, sponsorship, and leadership development programs, to help women to gain the relevant skills to free themselves from stereotypes and biases [Raines et al. 2024, Thelma and Ngulube 2024]. This, in turn, leads to building confidence in women through a sense of contributing to the sector [Foster et al. 2012, Asteria et al. 2020, Bhakta et al. 2022].

At the same time, professional education in the waste management sector needs a more tailored approach. The problem exists across the globe within the same context. For instance, the job market in waste-related occupations is generalized to other sectors [Townend 1999, Davis 2012]. Therefore, clearly defined job functions and standards for qualification completion are needed [Davis 2012].

Several scholars also state that the transition from the informal to the formal waste sector ignores

opportunities for female workers [Foster et al. 2012, Surchat et al. 2023]. Rainbird [2000] says that once occupied as an unskilled worker, it might be difficult to change one sort of work to another within the entity. As workers are assessed based on the jobs they perform, some skills required for career advancement are not evaluated [Rainbird 2000]. Evidence of such skills in the form of vocational training is needed. Vocational training for equipping workers with the necessary skills could be helpful in stepping into the entrepreneurship role as well. A study conducted in the USA in the middle of the 20th century proved that a college education presented few or no obstacles for running a small business, while the lack of a college education was a weak point for larger businessmen [Lewis 1960].

There are studies about the role of women as users of household waste, but the role of women in their occupations in the waste sector and the paths available in this male-dominated sector have not yet been studied well. Furthermore, considering the immaturity of qualification standards and career development pathways in waste management, this research brings attention to gender-responsive education; the missing knowledge and skills needed for women workers in low-skilled jobs in the waste sector to plan their careers. The lack of relevant frameworks locks women under the “glass ceiling,” and this is true even from the lowest qualification job levels. It prevents talented human resources from being equally represented and contributing to the sector. In the current situation, women need structured support in acquiring the relevant skills to implement in practice, and in proving them formally through qualification standards. Therefore, we need evidence from previous studies conducted in the waste and adjacent sectors with the prevailing male dominance regarding the needs of women employees to advance their careers.

AIMS AND METHODS

General assumptions

The primary objective of this study is to source and map the previously conducted scientific research worldwide on the theories, current state of prospects, and vocational education for women in low-skilled jobs to advance their careers.

The above primary objective is structured into secondary objectives, as follows:

1. To source theories and concepts that have been studied related to the career prospects and vocational education for women in waste management.
2. To map the findings of previously conducted scientific research about the state of prospects and vocational education for women performing low-skilled jobs in the waste and adjacent sectors.
3. To identify relevant literature on waste management in Central Asia, Uzbekistan and Tajikistan as case studies.
4. To provide recommendations for academia, industry and policymakers on engaging women in the waste management sector.

In order to conduct this research, a literature search was performed in the EBSCO, Elsevier, Web of Science, Springer Nature, Taylor & Francis and Scopus databases with relevant keywords (Table 1). Based on this, 48 articles were picked for literature review among 32,176 sourced. Among them, 30 were available and used based on their full access.

The keyword searches “Vocational Education and Training (VET) System AND Uzbekistan AND Tajikistan AND Waste management” and “Vocational Education and Training (VET) System AND Tajikistan AND Waste management” did not yield any publications.

Theories and concepts about career prospects and vocational education for women employed in the waste management sector

Scholars underline the human capital theory, where wage and education have a relationship, where one’s investment in education returns with corresponding remuneration [Rainbird 2000, Cort et al. 2018]. Hence, a person will invest in their education if it ensures an increase in their pay scale. In this regard, the International Labour Organization (ILO) uses the term “decent work,” which is defined as productive work for women and men in conditions of freedom, equity, security and human dignity [ILO 2012, Surchat et al. 2023].

Loosemore et al. [2003] and Husam et al. [2024] have studied the concept of gender inclusivity in construction,

Table 1. Keywords, sources and selected articles

Keyword	unskilled workers AND education OR training AND waste management AND women [text] Waste management AND Career opportunities AND Gender Inequality AND Vocational education Vocational Education and Training (VET) System AND Uzbekistan AND Waste management Vocational Education and Training (VET) System AND Tajikistan AND Waste management
Search period	1931–2024
Search database	<ul style="list-style-type: none"> • EBSCO • Elsevier • Web of Science • Springer Nature • Taylor & Francis • Scopus
Search field	all, abstract, text
Search results	32,176
Picked	48
Full access available	30

Source: authors’ work.

another male-dominated industry. The concept of gender inclusion was connected to workplace diversity. Thelma and Ngulube [2024] see diversity as things that make a person unique based on that person's background, personality, life experiences and beliefs.

Another concept that has been proposed is the paths via which resources are shared between women and men. The access to and control over resources, where access refers to the right to use, and control indicates the right to decision-making [Amoah et al. 2023].

Thelma and Ngulube [2024] bring several concepts up for discussion such as the “glass ceiling,” as invisible barriers for women to advance in leadership positions. Another is the labyrinth metaphor, which describes the complicated paths for women to build their career due to societal and organizational influences. The social identity theory describes how gender stereotypes and biases impact perceptions and behavior in terms of women leaders [Thelma and Ngulube 2024]. It has been explained through the findings that the lack of female managers in senior roles creates a stereotype that women are less competent leaders, therefore fewer are chosen for these positions [Thelma and Ngulube 2024].

The concept of intersectionality has been discussed by Ofosu et al. [2024] and Thelma and Ngulube [2024], where different dimensions of social identity are challenged in interconnected networks and power structures. A study by Ofosu et al. [2024] undermines that the general stereotypes associated with women in society are translated into the mining sector, and preventing women from using their opportunities even though the legal system does not undermine gender differences [Ofosu et al. 2024]. Women's rights in sanitation with the connection to intersectionality have been explained by Bhakta et al. [2022] using the example where female waste workers develop particular health issues due to a lack of toilets in waste collection points and landfills [Bhakta et al. 2022].

In this research, definitions of the terms “low-skilled” and “skilled workers” are also sourced. In terms of higher education and vocational education, a skilled worker is a person who has acquired a nationally recognized university qualification [Cort et al. 2018]. Low-skilled is defined as someone who has not completed a qualification beyond basic schooling or who has only completed a short vocational qualification [Cort et al. 2018]. However,

lifelong learning undermines the concept that skills are gained through non-formal and informal learning, making it difficult to draw a clear distinction based solely on formal qualifications like certificates and diplomas [Cort et al. 2018].

The classification of workers as low-skilled frequently assumes they lack skills because of social and/or psychological issues, suggesting that addressing these perceived shortcomings through education is the key to improvement [Cort et al. 2018]. Skilled workers are active and reflective, and able to assess past decisions and their consequences, enabling them to adapt to changes in the labor market by responding flexibly to new workplace demands [Cort et al. 2018].

Mapping previous studies on the state of prospects and vocational education for women performing low-skilled jobs in waste and adjacent sectors

Bias and stereotypes

Yamoah and Kaba [2024] conducted trainings for 20 female and four male selected respondents on organic composting and business development [Yamoah and Kaba 2024]. Pre-training and post-training interviews were conducted. The study showed that the mixed-gender training yielded an improvement in the working relationships of women with their male counterparts in the area. Men were not culturally used to talking about business with female cocoa farmers. The selected male participants had communicated the training to other male colleagues, which helped to improve the working relations with other women [Yamoah and Kaba 2024].

A study by Amoah et al. [2023] was conducted in two communal waste collection sites, where they observed the behavior and patterns of waste employees, and also the local population in terms of gender duties in handling waste. Women were refused enrolment in garbage tricycle training programs with the rationale that driving such tricycles requires physical strength. The research into social relations in rural solid waste management showed that while being exploited at the operational level in waste-related tasks, women have little power over the discussions on issues or making final decisions [Amoah et al. 2023].

Husam et al. [2024] conducted a survey with 29 gender-inclusion attributes among construction workers. The study showed that the attributes like “Commitment from top management,” “Inclusion of women in top management” and “Workplace health and safety” are indicated as the most important among female and transgender respondents [Husam et al. 2024].

The model proposed by Ofosu et al. [2024] suggests that women working in artisanal and small-scale mining face issues based on their identity (e.g. gender, class, ethnicity). They are treated as sexual objects, are poor and are considered expendable. The authors pay attention to the fact that it is not just the existence of these overlapping identities that causes chronic inequality for women in mining; it is how these identities interact within the existing power structures of the mining industry. These power dynamics create the conditions for the unfair and difficult experiences that women miners face [Ofosu et al. 2024].

Career paths and barriers

Misra and Tewari [2022] have conducted research in Barpeta and slums in Lucknow in India through semi-structured interviews. The research presented a gendered perspective on attempts of women waste pickers in waste management to work and earn. The study states that the majority of waste pickers are women and rely entirely on the waste sector for their income. The women state that by challenging the norms, they become visible, and being visible makes them prone to harassment as well as physical and sexual abuse [Misra and Tewari 2022].

A study by Surchat et al. [2023] was dedicated to testing the hypothesis of whether occupations in the circular bioeconomy have deficiencies in “decent work” when it comes to the topics of gender and social security in Rwanda. To assess the decent work conditions, the researchers examined how men and women were distributed within the studied site. Horizontal segregation meant that men and women work in different job types. Vertical segregation meant that men and women hold different levels of responsibility. In the six companies studied, women’s roles were often limited to sorting, cleaning, and feeding the black soldier fly larvae. Men’s roles were more diverse, including sorting, operating machinery, brick-

-making, technical work, security, mushroom cultivation, and cassava processing [Surchat et al. 2023].

Another study, conducted in Tanzania and Zambia by Foster et al. [2012], shows that organizations solely comprised of women have offered a path for women to develop leadership skills and challenge societal expectations about women’s roles in waste management. In contrast, other organizations tend to give women lower-level positions and roles [Foster et al. 2012].

The objective of the research by Thelma and Ngulube [2024] was to list the various obstacles that women face in leadership roles in Zambia, to examine the implicitness of these barriers. Sixty-one female respondents from leadership roles and aspiring to reach those roles were asked to rank the obstacles they face. Among those mentioned were double-standards and gendered expectations, a lack of role models, micro aggression, and exclusionary behaviors [Thelma and Ngulube 2024].

The book “Human resource management in construction projects” by Loosemore et al. [2003] brings attention to the family-friendly working conditions and paths that put women into minority groups while building careers in male-dominated sectors, like construction. The authors suggest creating family-friendly career paths for women in workplaces [Loosemore et al. 2003].

Vocational education

The study by Wannagatesiri et al. [2015] identified the prospects of the vocational training system for dropout students and for those who want to shift to another occupation or get a second job [Wannagatesiri et al. 2015]. They surveyed local administrative organizations on the present condition of skill upgrading and vocational retraining at the provincial skill development centers. The research showed that the demand for skills is the leading reason for people to invest in their education. Also, short-term training of 12–18 hours does not yield any new skill development or increase in earnings, while vocational training with a duration of 4–6 months provides better opportunities for students [Wannagatesiri et al. 2015].

Rainbird [2000] states that once occupied as an unskilled worker, it might be impossible to move from one type of job to another within the organization [Rainbird 2000].

The study by Syauqi et al. [2024] was conducted in an integrated waste treatment facility in Indonesia. Among 54 women of the workers of the facility, 85% were sorters, and 56% of the total had a junior high school education. The study also found that women had a role in facilitating the local values toward a circular economy.

Asteria et al. [2020] conducted a survey to assess the pro-environmental education and involvement of women in waste management in Indonesia. The research had two independent variables: the score of the opportunity to access higher education, and the score of the opportunity to be financially literate. Using a logistic regression model, the authors found that the possibilities available for accessing higher education positively impacted the likelihood of women enrolling in waste-handling trainings [Asteria et al. 2020].

Ebrahimi et al. [2022] studied the relationship between vocational education and women's empowerment, which was conducted in Iran in agricultural production, including a reduction of agricultural waste. The participants of the classes were surveyed to identify the outcome of these classes on their empowerment. Among the most impactful attributes, there were “having savings,” “ability to guide others” and “respect yourself/self-esteem” [Ebrahimi et al. 2022].

State on the art of literature on waste management in Central Asia

The literature search for scientific articles on vocational education and training in waste management in Uzbekistan and Tajikistan did not return any publications. This shows a need to conduct research in these countries to collect primary data to study the state of gender questions among workers occupied in the waste sector.

CONCLUSIONS AND RECOMMENDATIONS

The reviewed studies collectively highlight the significant challenges and gender inequalities faced by women in waste and adjacent male-dominated sectors, emphasizing the need for systemic changes to improve their working conditions and opportunities for leadership.

The studies emphasize the need for systemic changes to improve working conditions and create better leadership opportunities for women. However,

there is still a major gap in understanding the specific skills and knowledge women need to succeed in these sectors. While research has highlighted the biases and barriers women encounter, fewer studies have focused on what women need to thrive in these male-dominated fields. This creates a clear need for research on national qualification standards and the skill frameworks in industries like sanitary cleaning, specifically looking at gender inclusivity. Moreover, there are open questions about how to ensure that women are not just included, but are also empowered to excel in these sectors. One major gap is the lack of studies on vocational education and training in waste management in countries such as Uzbekistan and Tajikistan, where waste management systems are still developing. These regions present a valuable opportunity to gather primary data and investigate gender issues within the workforce. Conducting research in these countries is crucial to understanding the unique challenges women face, and to shaping policies that promote gender equality and economic empowerment in the industry.

In conclusion, while we know a lot about the barriers women encounter in waste management, further research is essential to pinpoint the skills required, develop training programs that are responsive to gender needs, and address gender gaps in qualification standards. This research is vital to creating a more inclusive, fair, and empowering environment for women in the waste management sector and beyond.

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ROZWÓJ KARIERY I KSZTAŁCENIA ZAWODOWEGO KOBIET NA STANOWISKACH NIETYMAGAJĄCYCH WYSOKICH KWALIFIKACJI W SEKTORZE GOSPODAROWANIA ODPADAMI – PRZEGLĄD LITERATURY

STRESZCZENIE

Cel: Celem badania jest analiza teorii ekonomicznych oraz aktualnej sytuacji dotyczącej edukacji zawodowej kobiet w niskokwalifikowanych zawodach w sektorze gospodarowania odpadami, ze szczególnym uwzględnieniem wyzwań, przed którymi stoją kobiety w tym zdominowanym przez mężczyzn obszarze. Badanie ma również na celu zidentyfikowanie problemów związanych z nierównościami płci oraz barierami, które utrudniają kobietom awans zawodowy, zwłaszcza w kontekście wpływu stereotypów, uprzedzeń i niedoskonałości standardów kwalifikacyjnych. **Metody:** Główną metodą badawczą był przegląd literatury, który przeprowadzono na podstawie analizy zawartości sześciu baz danych naukowych, przeszukanych za pomocą odpowiednich słów kluczowych. Dzięki temu zidentyfikowano 48 artykułów, z których 30 było dostępnych w pełnej wersji. Artykuły te zostały następnie szczegółowo przeanalizowane i uporządkowane w trzech głównych kategoriach: 1) zastosowane teorie i koncepcje, 2) stereotypy, ścieżki kariery i edukacja zawodowa, 3) literatura dotycząca wybranego regionu (Uzbekistan i Tadżykistan). **Wyniki:** Istnieją poważne wyzwania w zakresie nierówności płci, z którymi muszą zmagać się kobiety w sektorze zarządzania odpadami oraz w pokrewnych branżach. W badaniu zidentyfikowano brak standardów kwalifikacyjnych uwzględniających płeć oraz obecność systemowych uprzedzeń, które ograniczają kobietom szanse na awans i utrzymują je pod tzw. szklanym sufitem. Przegląd literatury ujawnił również lukę w badaniach dotyczących konkretnych umiejętności i wiedzy, które kobiety muszą posiadać, by odnosić sukcesy w tych branżach, szczególnie w takich regionach jak Uzbekistan i Tadżykistan, gdzie systemy gospodarowania odpadami są wciąż w fazie rozwoju. **Wnioski:** Empirycznie udowodniono konieczność tworzenia programów szkoleniowych, które będą odpowiadać na potrzeby związane z płcią oraz wyeliminują zjawisko stereotypizacji płci w standardach kwalifikacyjnych. Według wyników badań istnieje konieczność wprowadzenia zmian systemowych, które poprawią warunki pracy i stworzą większe możliwości awansu dla kobiet w sektorze gospodarowania odpadami. Przeprowadzone badanie unaocznilo potrzebę dalszych analiz w celu lepszego zrozumienia inkluzyjności płciowej krajowych standardów kwalifikacyjnych, szczególnie w kontekście takich branż jak zarządzanie odpadami.

Słowa kluczowe: gospodarka odpadami, gospodarka o obiegu zamkniętym, integracja kobiet, szkolenia zawodowe, równość płci