



Chemical safety & noise pollution in Bosnia and Herzegovina: a gender equality, social equity and poverty reduction lens

Claudia Strambo, Lisa Segnestam, Belma Jahović

Key messages

- In Bosnia and Herzegovina, long-term, continuous exposure to harmful chemicals and noise pollution can lead to a variety of health problems.
- There are both physiological and social reasons why certain groups in society are more affected by harmful chemicals and noise than others.
- Examples of effective preventive actions that can help mitigate the harmful impacts of exposure to chemicals and noise pollution include implementing exposure control measures in the workplace, restricting the commercialisation and use of certain substances, and incorporating gender differences into regulatory risk assessments.
- Improving living standards for marginalised populations, addressing poverty and strengthening the visibility and voice of disadvantaged groups are also key measures that can help reduce their exposure to harmful chemicals and noise.

Introduction

Gender inequality and social inequity – understood in terms of access to and control over assets, decision making and participation, and knowledge, which are all dimensions of poverty¹ – are deeply intertwined with environmental change (SEI, 2019). Socio-economic and political factors, such as education, income, political influence, access to legal resources, access to health care and adequate housing, affect people's exposure and vulnerability to environmental problems, with socially disadvantaged² groups being disproportionately

¹ In this brief we rely on a multidimensional definition of poverty, which goes beyond income poverty and refers to the lack of resources, power, voice, opportunities and choice, and human security (Sida 2017).

² "Social disadvantage relates to socioeconomic aspects such as income, employment, education and socioeconomic status; to sociocultural aspects such as gender, ethnicity, religion, culture, migrant status and social capital; to socio-geographical aspects such as living in a deprived neighbourhood; and to age. SDG [socially disadvantaged groups] may actually be affected by more than one of these dimensions." (WHO Regional Office for Europe 2013, p. 2).

affected (European Environment Agency, 2018; WHO, 2019).³ At the same time, solutions to environmental change are not socially neutral; they may benefit or disadvantage particular groups in society in different ways (Mackie and Haščić, 2018). Moreover, reducing poverty and strengthening social equity and gender equality can contribute to better environmental outcomes (UNDP, 2010; UNEP, 2017). Thus, it is essential to incorporate gender equality, social equity and poverty considerations into environmental policy and vice versa.

This discussion brief outlines the main relationships between chemical safety, noise, gender inequality, social inequity and poverty in Bosnia and Herzegovina (BiH).^{4,5} It summarises the findings from a review of secondary literature and publicly available databases on the environment, health, natural resources, gender equality, social equity and poverty, with a particular focus on Europe and BiH. A broader introduction to the interlinkages between gender equality, social equity, poverty and environmental issues in BiH is available in the SEI policy report “Strengthening environmental policy in BiH with a gender equality, social equity, and poverty reduction approach” (Strambo et al., forthcoming).

The discussion brief first describes the chemical safety and noise challenges in BiH. It then explains how and why gender inequality, social inequity and poverty contribute to chemical safety and noise problems and vice versa in BiH. Particular attention is given to the population subgroups most vulnerable to the negative impacts of exposure to chemicals or noise. The final section explores policy measures that can help address the challenges of gender inequality, social inequity, poverty, chemical safety and noise issues concomitantly.

3 This discussion brief relies significantly on information from the World Health Organization and the European Environmental Agency reports on environmental health inequalities (e.g., European Environment Agency 2018; European Environment Agency 2020a; WHO 2016; WHO 2018; WHO 2019). These publications constitute thorough assessments combining the analysis of European data with a comprehensive review of the existing academic literature about environmental health inequalities, including issues of chemical safety and noise.

4 The discussion brief is based on secondary sources, mainly grey literature (i.e., materials published by well-known organizations, such as organizations within the United Nations system, outside peer-reviewed academic journals). The analysis is limited by significant constraints, such as the lack of recent data on the state of the environment and environmental health impacts in BiH, and the fragmentation of relevant information across multiple sources. Therefore, it does not pretend to be exhaustive. Rather, it aims to highlight some of the main ways in which gender equality, social equity and poverty are linked with chemical safety and noise pollution in the BiH context. Available information does not allow for a differentiated analysis at entity/district level.

5 BiH consists of two entities: the Federation of Bosnia and Herzegovina, which itself is composed by 10 cantons, and Republika Srpska. The BiH Constitution also established the Brčko District, which falls under the responsibility of the institutions of Bosnia and Herzegovina and whose territory is jointly owned by the two entities.

It is important to recognize that men, women, persons with disabilities, the poor, the elderly, children, or Roma persons do not have one-dimensional identities. They have multiple identities that intersect with each other. For example, a woman may be elderly or young, poor or affluent, and Roma or non-Roma. Therefore, to avoid generalisations, one needs to account for these multiple, intersecting identities. Unfortunately, available information on the interactions between gender equality, social equity, poverty and environmental challenges in BiH does not allow for such a detailed assessment. Thus, the analysis compiled below uses some generalisations, which further studies could help nuance.

Chemical safety & noise pollution in BiH

Exposure to harmful chemicals can occur both indoors and outdoors. The State of the Environment report of BiH 2012 highlights that there are clear indications of water, soil and food contamination by hazardous chemicals and substances in BiH (UNEP, 2013). Contamination mostly comes from inadequate disposal of municipal waste and waste from industry, mines, hospitals, lack of waste water treatment plants, and sewage systems that directly discharge into open water bodies (UNEP, 2013). There are also sources of exposure in people’s everyday lives, such as consumer products, household dust and drinking water; and with chemicals entering the body through diverse ways, such as ingestion, inhalation, skin contact and injection (Kuipers and Mascolo, 2017). There is little awareness of these dangers among the populations most at risk (GEF and UNIDO, 2015).

According to the World Health Organization (WHO), long-term, continuous exposure to hazardous chemicals in water, food, soil and air can lead to various health problems, such as damage to the reproductive, immunological and neurological systems, and cancer and organ-specific damage (WHO, 2016). While the health risks of chemical exposure depend on multiple factors (such as the type and frequency of exposure and health conditions of an individual), the negative effects can go beyond health problems. Exposure can lead, for instance, to reduced working capacity and therefore income loss, increased expenditures on treatment of illness and even loss of income resulting from the death of a household member (GEF and UNIDO, 2015). The level of knowledge that populations have of the risks and whether they have access to health services in due time are also mediating factors in differentiated impacts of chemical and noise exposure. There is no official information about the link between environmental pollution and health in BiH (UNEP, 2013).

Environmental noise pollution, which is caused by road, rail and airport traffic, industry, construction, as



Shopping during Covid, Bosnia and Herzegovina. Photo: iStock / GettyImages

well as some other outdoor activities, is the second greatest environmental health risk in Europe, with more people being affected in urban areas than in rural areas (European Environment Agency, 2017; European Environment Agency, 2020b). Environmental noise can affect both physical and mental health, as well as general well-being (WHO, 2019). Exposure to environmental noise can, for instance, lead to cardiovascular disease, cognitive impairment in children and sleep disturbance (WHO, 2018). There is currently no data on noise pollution in BiH.

Interactions between gender equality, social equity, poverty, chemical safety and noise

Certain population sub-groups tend to be more vulnerable to the adverse health impacts of chemicals than others. There are various reasons for this, including lower exposure thresholds for health effects, health status, levels of exposure to hazardous chemicals, and a limited ability to protect from exposure. Social factors, such as working and living locations and where a person spends most of their time, also play a role (Kuipers and Mascolo, 2017). Social factors also affect one's capacity to cope with the adverse impacts of exposure to chemicals.

Regarding people's occupation and living conditions, those working on hazardous waste landfills, fire-fighters, construction workers, persons working on repairs and replacement of condensers and transformers, persons working in metal processing and building materials and persons employed in the chemical and textile industry are more likely to be exposed to chemicals (UNEP, 2013). Gender norms play a role here, since many of these activities are traditionally undertaken by men. However, cleaning and maintenance services, healthcare, as well as hairdressers and beauty salons, are also higher risk occupational environments (Kuipers and

Mascolo, 2017). Importantly, these sectors also tend to employ more women than men. For example, in BiH, the proportion of women in the social work and health sector is estimated to be over 70% (UN Women, 2020).

The National Implementation Plan of the Stockholm Convention in BiH identifies which groups are likely to be at greater risk from the effects of persistent organic pollutants (POPs) in BiH based on international research. It is important to note, however, that there is no data specific to BiH to confirm this is the case. Among other things, it highlights the vulnerability of women, pregnant women and children, as well as those living near landfill sites and in buildings that may contain traces of POPs (UNEP, 2013).

Indeed, women, fetuses, infants and children are especially sensitive to hazardous chemicals for physiological reasons. However, the types of occupations and roles within households that many women typically have because of gender norms can also increase the volume of exposure to hazardous chemicals they experience. Cleaning and personal care products contain chemical agents that can be harmful (Geiser, 2015). Because women and girls are often responsible for cleaning and household management and are more likely to use a variety of personal care products, they are more likely to be exposed to the chemicals they contain (UNDP, 2011). At the same time, small children are also particularly vulnerable, as they may be exposed to chemicals through crawling, hand to mouth behaviour and because they cannot read warning labels on products (Kuipers and Mascolo, 2017).

Moreover, research shows that in rural communities, men and women tend to be exposed to chemicals through agricultural activities, though they may not be the same activities given how gender norms determine their respective roles in the



Construction workers. Photo: Gettyimages

agricultural production process (UNDP, 2011). In BiH, the agriculture sector employs 20.5% of women, compared with 16% of men,⁶ and many women in rural households perform non-paid agricultural work in addition to housework (FAO and UN Women, forthcoming). The division of labour in BiH is influenced by gender norms. Women's roles are often concentrated on manual activities, while men are more likely to carry out activities higher up in the supply chain, such as decision-making roles (FAO and UN Women, forthcoming). Such conditions may put women at greater risk of exposure to harmful chemicals, although more information about gender division of labour and farming practices in the agriculture sector would be necessary to confirm this.

Poverty and discrimination may cause people to live in areas that are more prone to chemical contamination. In Central and South-East Europe, Roma communities tend to be more vulnerable because they often live in polluted areas (near waste dumps and landfills, contaminated sites of dirty industries), resulting in both physical and mental health issues (Heidegger and Wiese, 2020; Nikoloski and Marnie, 2018). This can be worsened by limited access to health services and education, which often results from discrimination and financial constraints (McFadden et al., 2018; Stojisavljevic et al., 2020). There are also indications that disadvantaged communities' food habits and lifestyle can deeply influence the types and level of intake of harmful chemicals they experience (Kuipers and Mascolo, 2017). Literacy gaps may also limit people's capacity to read and/or understand warning labels on products.

As for exposure to environmental noise, there is mixed evidence regarding the link between socio-economic status and exposure in Europe, with local factors – such as property value in city centres and

the share of income-poor populations residing in rural areas⁷ – believed to influence this relationship (European Environment Agency, 2020b). It is important to note that many people affected by noise are also affected by other environmental health hazards, such as air pollution and high temperatures. These correlating effects can often be seen in areas with low socio-economic status (European Environment Agency, 2018).

The WHO (2019) emphasizes that differentiated health effects of noise result from a combination of differences in exposure, vulnerability and available resources. Age may also be a factor in the differentiated impacts of noise pollution, as research shows a relationship between noise exposure and a decline in children's cognitive ability and that older people are more at risk of suffering from cardiovascular effects of noise pollution (European Environment Agency, 2020b). Gender and age may play a role, too, through differentiated transport behaviour: there can be gender and age related differences in transport mode preferences (Aldred et al., 2016), which can result in differences in exposure to and responsibility for outdoor noise. Additional data on transport behaviour could clarify whether this is the case in BiH.

Policy considerations

To summarise, there are physiological differences in how distinct groups may be susceptible to harm from exposure to chemical substances and noise. There are also differences in how different groups are exposed to and can cope with this harm, a situation which is influenced by formal and informal societal norms and behavioural considerations.

⁶ The proportion of women employment in agriculture is higher in Republika Srpska (33.9%) than in FBiH (10%) (FAO and UN Women, forthcoming).

⁷ In countries like Croatia and Poland, income-poor people tend to be less exposed to noise from streets and neighbours than the general population because a large share of them live in rural areas, while in countries like Germany and France, where income poverty is more present in urban areas, income-poor people tend to experience higher levels of exposure to noise from streets or neighbours (European Environment Agency, 2020a).

Policies cannot change physiological differences, but they can take them into account when doing risk assessments and setting acceptable exposure levels so that they protect the relevant vulnerable groups. For instance, in Europe, the Night Noise Guidelines established a health-based recommended threshold for night-noise that takes into consideration the needs of vulnerable groups, such as children, the chronically ill and the elderly (WHO Europe, 2009). Some countries have incorporated this threshold into their building regulations or into environmental impact assessment requirements (European Environment Agency, 2018).

As for exposure to harmful chemicals and noise, policy and regulatory measures can influence this to some extent. Examples of preventive action here include implementing exposure control measures in the workplace, restricting the commercialisation and use of certain substances, and including gender differences in regulatory risk assessments; that is, focusing not only on average exposure levels, but also accounting for inequalities in exposure (WHO, 2019). Moreover, improving living standards, addressing poverty, and strengthening the visibility and voice of disadvantaged groups are also key steps that can help reduce their exposure to harmful chemicals and noise. Indeed, it is essential to address the structural inequity that leads to differentiated vulnerability and exposure in the first place (Islam and Winkel, 2015; UNDP, 2019).

The lack of data on chemical and noise concentrations in the environment and associated health issues prevents public and policy recognition of the risks that the general population and disadvantaged groups face in BiH. This, therefore, limits the capacity to design adequate measures to protect people's health. A comprehensive mapping and assessment of hot spots of chemical and noise pollution and the collection of disaggregated data on both occupational and environmental exposure are essential to identifying and protecting populations most at risk (GEF and UNIDO, 2015; UNDP, 2018).

Collecting geographically detailed and disaggregated data will be essential to identifying which groups in society are particularly exposed and vulnerable to chemical and noise pollution. But to address these inequalities, policy interventions need to act based on the data collected. For example, it is important to consider the prevalence of hazards in both male- and female-dominated activities (including housework) and with regards to other social variables when determining where to prioritise and distribute resources and direct interventions to manage existing risks in a fair and equal way.

Other potential measures relate to institutional capacities, such as increasing the levels of diversity

in public officials; training those in the health, statistics, environment and other relevant institutes and agencies in the health implications of exposure to noise and chemicals (including social and physical factors of risk); and employing additional occupational health and safety inspectors.

Finally, there is a need for targeted awareness campaigns geared towards helping the groups more vulnerable to the impacts of chemicals and noise pollution (both from an environmental and an occupational perspective). The campaign messaging should explain exposure pathways and health risks, highlight the social differences in exposure and the physiological and socio-cultural reasons behind these differences, and challenge such socio-cultural factors. In Serbia, authorities have collaborated with journalists to train them in safe management of chemicals to raise awareness about chemicals and their differentiated effects among the general public (UNDP, 2015). Strengthening information requirements (labelling, packaging and advertising) and increasing the public's literacy with regards to these can complement awareness efforts.

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