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Mineral Projects: Legal and Institutional Challenges in Armenia"**

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## **List of Abbreviations**

EA Environmental assessment

EIA Environmental Impact Assessment

EHIA Environmental Health Impact Assessment

HIA Health Impact Assessment

HIV Human Immunodeficiency Virus

HM Health Ministry

IA Impact Assessment

NGO Non-Governmental Organization

NEHAP National Environment and Health Action Plan

NPA Nature Protection Ministry

PPP policies, programs or projects

SEA Strategic Environmental Assessment

SIA Social Impact Assessment

SIDA Swedish International Development Agency

USA United States of America

UK United Kingdom

WHO World Health Organization

## INTRODUCTION

Mining can play a role in shifting the economic growth of a country or region. Assessing these potential benefits, for example through increased local employment and economic growth, should remain a core focus of standard EIA practice as well as being connected to associated improvements in health. Additional positive community health impacts may be improved access to quality food, health care facilities and other infrastructure. However, mining projects also pose enormous risks to health. Mining and minerals extraction has been shown in many different jurisdictions to impact on occupational and community health. Occupational health risks include respiratory illness, injuries, cancers, and mental health., Community health risks occur through exposure to air, water, soil and noise pollution as well as disasters, and indirectly through migration including the transmission of communicable diseases such as HIV-AIDS and the Ebola virus<sup>1</sup>.

From Hippocrates several thousand years ago to Rudolf Virchow over one hundred years ago, it has long been recognized that social and economic conditions, and the governmental policies that affect them, play a significant role in determining people's health<sup>2</sup>.

WHO (2006) defines health as a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity. The enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being without distinction of race, religion, and political belief, economic or social condition. The health of all peoples is fundamental to the attainment of peace and security and is dependent upon the fullest cooperation of individuals and States. This means that as health is a fundamental human right, it is the responsibility of the state to ensure that every resident of the state enjoys a basic level of health status and accessibility to basic health services<sup>3</sup>.

“Ideally, it is the legal duty of mining companies to eliminate, minimize and compensate for any damage caused to the environmental and human health. While this theory is mostly well established in mining legislation in many developed countries, that is not always the case in developing countries, as in Armenia. A well-developed mineral legislation encompasses all aspects related to mining projects in terms of environmental protection, including social, economic and financial components. The focus of this paper will be on the social component,

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<sup>1</sup> <https://www.ncbi.nlm.nih.gov/>

<sup>2</sup> Prospects for Health Impact Assessment in the United States: New and Improved Environmental Impact Assessment or Something Different? Brian L. Cole, Michelle Wilhelm, Peter V. Long, Jonathan E. Fielding, and Gerald Kominski, University of California, Los Angeles, Hal Morgenstern

<sup>3</sup> A Draft Submission Guidance Document On Health Impact Assessment (HIA) In Environmental Impact Assessment (EIA) Submitted by Prof. Dr. Jamal Hisham Hashim and Prof. Dr. Zailina Hashim

particularly legal and regulatory tools ensuring proper assessment of health impact of mining projects and to which extent they are integrated into the general EIA framework. Emerging health issues in mining communities as evidenced by various studies and researches in the field indicate about poor health management and associated risk assessment by mining companies and relevant state bodies".<sup>4</sup>

As a relatively new public policy concept HIA still needs to be communicated and properly elaborated among all stakeholders, state officials, community villagers, politicians, health and environmental professionals, private sector, as well as of NGOs, etc.

The importance and actuality to understand how past and future mining activities negatively affect the human health of the local communities should be highly evaluated. It is also necessary to study the international best practices from developed countries. This thesis paper will study the experience of Poland, Sweden and Germany concerning HIA and will offer a methodology of HIA as a valuable tool to assist decision makers in policy development and law making processes with the aim of protecting fundamental constitutional rights of each person to live in an environment favorable to his or her health. In addition, the recommendations on legislative changes are also expected to reduce the adverse effects of mining activity on the ecosystem and promote a more environmentally and socially responsible mining industry.

**The research question raised in the paper can be divided into two sub-questions: a) What are the legislative and institutional challenges in implementation of HIA, and b) What are the recommendations to address the identified challenges?**

This research can be a useful reference both in terms of legal assistance for policy-makers and drafters of legislation in improving the effectiveness of national environmental legislation and technical assistance in implementing necessary improvements in national laws.

In order to reach to this goal, this research paper will be divided into three chapters.

The **Introduction** will highlight the importance of HIA identifying health hazards and considering evidence of impact at the community health. It will stress the essence of HIA as a tool for ensuring inclusion of health impact aspects in the social and EIA process.

**Chapter 1** will analyze domestic legislative, regulatory and institutional framework with respect to community health protection measures during and after mining operations with focus on how HIA is integrated into existing decision making tools to identify key challenges and gaps

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<sup>4</sup> [www.sciencedirect.com/science/article/pii/S0375674217303497](http://www.sciencedirect.com/science/article/pii/S0375674217303497)

in this process and also statistics of study demonstrating industrial pollution of the mining projects in the territory of Armenia.

**Chapter 2** will present a comparative analysis of HIA practices in developed countries, particularly in Poland, Sweden and Germany to provide recommendations for addressing gaps if national legislation.

**Chapter 3** will review the basic concepts and methods of the HIA and present its methodology based on international best practices feasible in the Armenian context.

**The Conclusion** will briefly draft main findings of the research.

The research methodology is based on a comprehensive study of the Armenian legal framework specifically enshrining EIA and HIA. The paper makes references to a vast array of research articles, scholarly papers, Central European countries legislations, interviews with stakeholders, as well as books by reputable agencies, authorities and famous authors involved in both practical and research fields of HIA.

## **CHAPTER 1**

### **Review and Gap Analysis of Armenian Legislative and Regulatory Framework with Respect to Health Impact Assessment (HIA)**

The EIA is a tool to support establishing, reporting and estimating specific and related effects of a project on the human beings, fauna and flora, soil, water, air, climate and the landscape, the interdependence between the elements, material assets and the cultural inheritance<sup>5</sup>. A part of environmental impact assessment dealing particularly with influence on human health is often called Environmental Health Impact Assessment (EHIA). It is widely held that EHIA offers special possibilities for the safety and promotion of human health.

Review of relevant academic literature shows that for more than thirty years, policy and processes for EIA have evolved with little input from the aspect of public health. Anyway, many of the functional EIA regulatory systems in the world today have an indirect or direct purpose to protect human health. Though statements show that health considerations have often been neglected or superficially addressed<sup>6</sup>. Different grounds may be given for why health has been ignored or has not been included in EIAs. This can be due to main two factors such as;

- 1) the problem of rating vulnerability at the population level, and of proving causation especially in case of exposure to multiple pollutants, and the lack of testimony grounds,
- 2) lack of an obligatory legal framework demanding HIA.

The goal of this chapter is to review, analyze domestic legal and institutional framework to identify possible gaps and inconsistencies. Meanwhile through review and study of relevant literature, the chapter will also examine whether the health systems can operate within EIA as a power for supporting and making better public health.

In the developing world large-scale projects in the natural resources extraction are often associated with long-term adverse health consequences to local communities. Whereas HIA has been institutionalized in many industrialized countries, relatively few HIAs have been performed

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<sup>5</sup> <http://www.who.int/hia/examples/mining/whohia199/en/>

<sup>6</sup>Balsam S. Ahmad Integrating health into impact assessment: challenges and opportunities.

in mining settings in developing countries.<sup>7</sup> Mining operations include a series of phases containing the finding and mining of mineral lying under the area of the earth. During this process hazardous wastes are produced and released into the surrounding atmosphere causing pollution of air, drinking water, rivers and soils, alterations in chemistry of terrestrial and aquatic ecosystems. Mining activities impose health risks on both people working within mine operations and people living in nearby communities. These health risks can keep their impact even after the mine closes or is abandoned. The abandoned mines are one of the most significant problems, since they cause a serious or possible danger to human safety and health, and an environmental hazard.

Moreover, mining remains one of the most perilous occupations in the world, both in terms of short term injuries and fatalities, but also due to long term impacts such as cancers and respiratory conditions such as silicosis, asbestosis and pneumoconiosis. Studies of mining and health by type of mine process are divided into deep and open cast mines. Deep mines produce severe harms for employees in terms of their risks of high blood pressure; heat exhaustion; myocardial infarction and nervous system disorders. Studies of surface mining focus on coal, granite and rock mining and health risks related to dust breathing. In all levels of mining health risks occur with dust<sup>8</sup>.

In this sense Armenia is not an exception. A research was conducted in one mining and one smelting communities in Armenia; Akhtala and Alaverdi, appropriately. The aim of the study was to quantify the levels and possible origins of arsenic and lead in the residential soil of these communities, and measure the relationship between those levels in the soil, and its proximity to the industrial source. The results showed that in the smelting town of Alaverdi, 75.6% of soil samples exceeded Clean up Level<sup>9</sup> for arsenic and 24.0% for lead. In the mining town of Akhtala, 3.2% of all soil samples exceeded Clean up Level for arsenic and 27.1% for lead. Pollution levels in the towns studied were classified as moderate to strongly polluted.<sup>10</sup> The WHO calculates the environmental burden of disease in Armenia as 17%. The study suggests that having too many threats on healthy life in the country the governance is supposed to be on

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<sup>7</sup> <http://www.who.int/hia/examples/mining/whohia199/en/>

<sup>8</sup> Environmental and Health Impact of Mining On Surrounding Communities: A Case Study Of Anglogold Ashanti In Obuasi by Joseph Yaw Yeboah B. A. (Hons.)

<sup>9</sup> Ecology sets cleanup levels based on US state law—the Model Toxics Control Act. For cancer causing contaminants, the law set cleanup levels to protect people against an increased lifetime cancer risk at one in a million. For arsenic, the risk-based cleanup number would be 0.67 ppm. However, arsenic occurs naturally in soils at levels higher than 0.67 ppm. In Washington, it is considered that “background” arsenic to be 20 ppm. That is where they set the cleanup level. <https://fortress.wa.gov/>

<sup>10</sup> [www.sciencedirect.com/science/article/pii/S0375674217303497](http://www.sciencedirect.com/science/article/pii/S0375674217303497)



the high level of control with a profound management. It is believed that the economy can be improved by making well-drafted laws and regulations that have strong enforcement mechanisms and sustainable implementation. Especially if the mining is considered one of the long-term goals of the government of the Republic of Armenia: “Armenia’s Strategic Plan for Long-Term Development 2012–2025 sets the country’s development priorities. Mining is identified as a key priority for Armenia, and the plan details the need for economic policies for the sector more specifically there is a need to produce proper regulations in this field”.<sup>11</sup> Moreover, the constitution of the Republic of Armenia defines that the state shall promote the preservation, improvement and restoration of the environment, the reasonable utilization of natural resources, guided by the principle of sustainable development and taking into account the responsibility before future generations. (article 12.1).

Estimating the potential impact of a chemical, biological, physical or social agent on a specified human population system under a specific set of conditions and for a certain timeframe is possible via the process HIA. HIA has also been interpreted as a mixture of procedures, methods and tools by which a policy, program or project may be judged as to its potential effects on the health of a population. Decision makers at all levels are using the fast-growing field of HIA to take health into account when making decisions in a broad range of sectors, including agriculture, education, energy, and budgeting, in all types of locations-rural, suburban, and urban, local, regional or statewide. To all intents and purposes HIA has a lot of advantages and one of them is that HIA has the capacity not only to identify negative outcomes but also positive outcomes, such as improved benefit derived from new sources of employment, protection of drinking-water sources, greater access to outdoor play areas, etc. If used at the correct point in the process it can assist decision-makers at a strategic level or at a project level.<sup>12</sup> HIAs generally consist of the following 6 steps: *Screening, Scoping, Appraisal Recommendations, Reporting and Monitoring*.

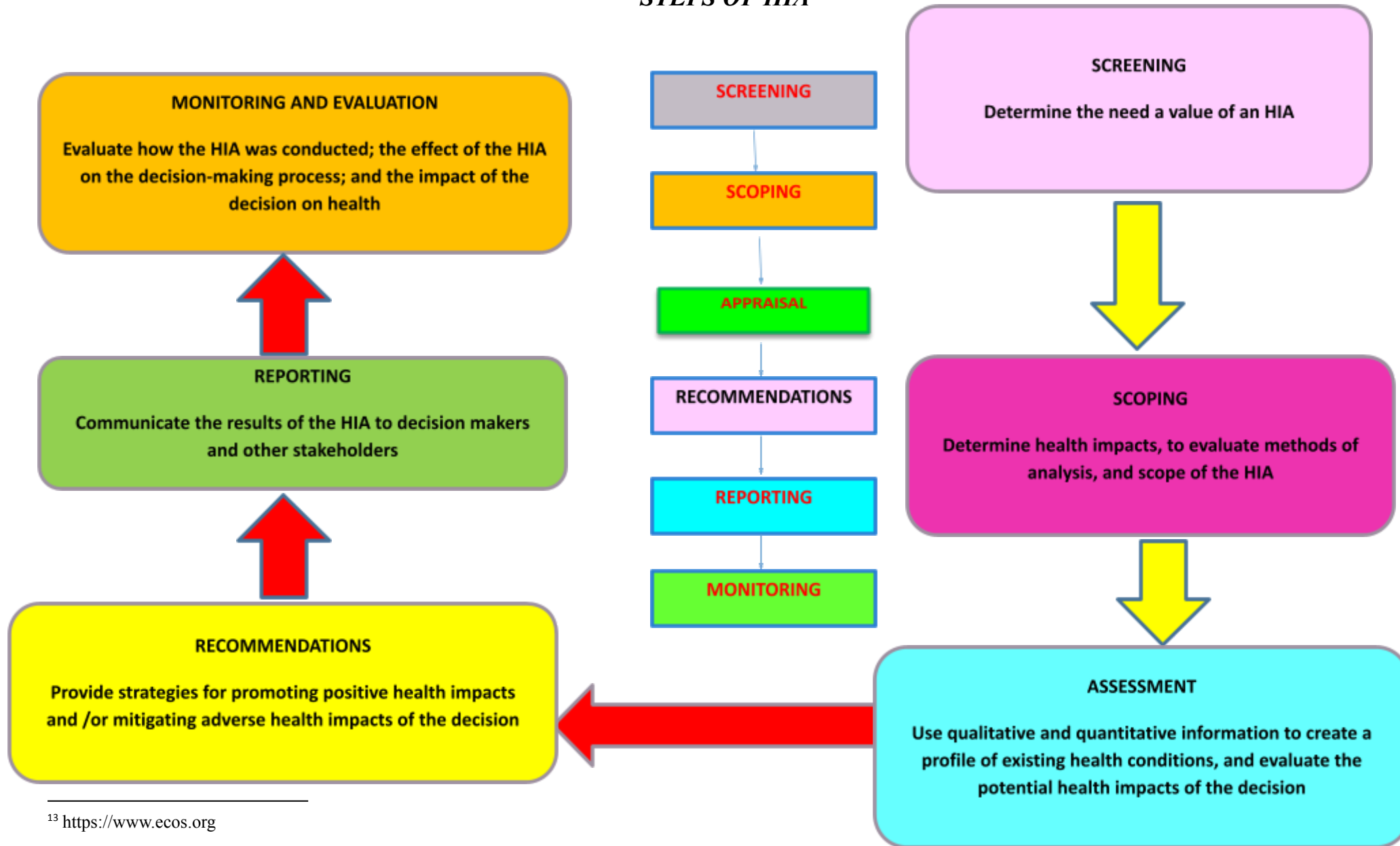
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<sup>11</sup> EIA And Public Participation In Development Decisions in Armenia Gayane Atoyán, Thesis submitted in fulfillment of the requirements for the degree of Doctor of Philosophy (Ph.D.), Newcastle Law School Newcastle University

<sup>12</sup> Using impact assessment in environment and health: a framework World health Organization/ Europe



*STEPS OF HIA<sup>13</sup>*



<sup>13</sup> <https://www.ecos.org>

In Armenia environmental and social regulation of the mineral sector is primarily based on the Law on Environmental Impact Assessment and Expert Examination of the Republic of Armenia (hereinafter referred to as “the Law”)<sup>14</sup> and the RA Mining Code<sup>15</sup>. Overall, the legal framework, and particularly the Law includes most, **but** not all, concepts and methods that one may wish to see in that the goal being to anticipate, prevent or mitigate potential negative impacts on the environment or human health and well-being.

As prove of mentioned view it can be appropriately stated pursuant regulations of the Law. For instance, the Law defines that assessment and expert examination are carried out taking into account: human rights of benefiting from environment, which is favorable for health, decent life and creative work (article 5.1(1). Moreover, pursuant to article 6 point 1 of the Law the goal of assessment is to forecast, prevent, mitigate or exclude potential negative environmental and human health impact of implementation of mainframe paper and planned activity. The Law also defines that IA phase includes review of the alternative solutions for the approaches of mainframe paper and planned activity and assessment of their environmental, human health and socio-economic impacts (article 17.1.2 (2)). At the first sight it seems that the law contains appropriate regulations, but some question concerning to this process will stay unanswered, since the Armenian legislation does not regulate these issues. For instance, one of the phases of the HIA is the scoping and the main purpose of this step is to identify key issues that should be considered in the HIA, the affected population(s) and the methods to be used in the assessment. No any single provision of the Law defines how to determine the results of proposed policy/project potential affected community and population, the latter’s health conditions during or after mining operation as well. In addition, there is a lack of any relevant methodology of assessment<sup>16</sup>. Although the article 17 point 3 of the Law enacts that the methodology of assessment shall be approved by the Government of the Republic of Armenia, but there is not any secondary legislation and it means that required methodology is missing. This is confirmed also by the chief specialist (hereinafter referred to as “the specialist of this field”) of the EIA Expert Center of the NPA of the Republic of Armenia during the interview. Though latter states that according to the Government Protocol decision dated on 2014 September 4 N 37 (appendix 4) defines guide of the methodology of EIA

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<sup>14</sup> Law on Environmental Impact Assessment and Expert Examination of the Republic of Armenia, adopted in 21.06.2014

<sup>15</sup> Mining Code of the Republic of Armenia, adopted in 28.11.2011

<sup>16</sup> More detail about the gaps of the legislation of the RA concerning to the methodology of HIA process, will be discussed in the 3 rd. chapter of this research.

of mining programs in the Republic of Armenia. Moreover, appendix 6 of abovementioned decision defines that the typical EIA evaluation report of the mining project should include explicit information about possible environmental and social impacts and should also include some data about whether the assessment describes the region of direct or indirect impacts of the project and on which sources the assumptions are based on. Obviously, all mentioned refers to EIA but not to HIA. HIA is generally implemented within EIA in international practice. During the interview it was mentioned that RA MNP closely cooperates with the RA MoH. For having an expert opinion on HIA MNP sends all documents to MoH's relevant department, but there is no legally adopted methodology for assessment of health impact.

In addition, pursuant to Law, rules on assessment and compensation of economic damage to environment shall be established by the Government of the Republic of Armenia (article 17.4). Though the government adopted appropriate decision dated 27.05.2015, No 764-N, but the decision assigned that assessment and compensation of economic damage to environment is realized according to the environmental components and that possible economic damage is calculated according to the following formula;

$$VT=HAG+JAG+OAG;$$

In this formula VT is monetary expressed possible economic damage,

HAG is the impact value assessment of damage of the earthen resources in the result of economic activity,

JAG is the impact value assessment of damage of water resources as a result of direct and indirect influence of economic activity,

OAG is the impact value assessment of damage of atmosphere in the result of economic activity.

Obviously, not only in this formula, but also in Armenian legislation generally health component is not included for impact assessment and damage compensation. Moreover, only the title of the article 18 of the Law enacts that mentioned article should discuss the content of Environmental and **Human Health Impact Assessment**. But the whole article does not involve any provision concerning regulations of the HIA.

Polluted land, water and air doubtless have negative influence on human, but as a part of HIA human health risk assessment should be implemented, as a cardinal and analytic procedure to evaluate the character and danger of unfavorable human health impacts connected with exposure to particular poison infects or other dangers in the surroundings, not only presently, but also hereafter. "Numerous papers have been written on the integration of HIA with EIA. In one, Vohra

argues integrating HIA into EIA balances out the weaknesses of each approach to create a more robust assessment of the environmental and health impacts of a proposed development on a locality and its residents. Vohra also sees a further strength of HIA in that it is more likely to ensure that residents feel that their concerns have been listened to and adequately addressed using an approach that is sensitive to their perspectives and experiences.

In considering the implications of integrating HIA with EIA, Bhatia note that HIA views health holistically, considering not only biophysical health effects, but also broader social, economic, and environmental influences.....]<sup>17</sup>.

Taking into account constitutional fundamental rights of each person, (everyone shall be obliged to take care of the preservation of the environment)<sup>18</sup> and building on the worldwide perception that human health is priority to sustainable development, the conventional aim for involving health in EIA must impartially prioritize public health together with environmental safety, social and economic growth in assessment about development programs. So, obviously, the abovementioned formula should contain one more component as well, such as the human health impact assessment in the result of economic activity and the environmental legislation of the Republic of Armenia should make provisions and explicit regulations for the HIA policy within EIA. Since, this omission of Armenian legislation is an essential gap of this sphere it brings to violation of fundamental human rights<sup>19</sup>.

In conclusion, HIA's integration into mainstream policymaking is essential. This can become possible with the presence of political will and close cooperation between all stakeholders: NGO's, governmental agencies, communities, academic institutions to ensure all interests are reflected properly. This chapter's analysis shows that there is a lack of some important pieces of secondary legislation and/or guidelines to aid implementation of the Law, proper methodologies for assessing impact on human health as well as methodologies for calculating and compensating damage caused to human health. One of the key conclusions in this chapter is that HIA should be an indivisible part of EIA; as the ultimate challenge of the health systems, which can act with and leverage help within EIA and be a power for defending and improving public health. So, laws and regulations need to be improved to better protect the health and safety of people working in, living near, and those otherwise impacted by historic, current, and proposed mines.

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<sup>17</sup> <https://www.environmentalisonline.com/article/integrating-eia-and-hia-protect-human-health>

<sup>18</sup> Constitution of the RA adopted , article 12.2

<sup>19</sup> Pursuant to the Charter of Fundamental Rights of the European Union, a high level of environmental protection and the improvement of the quality of the environment must be integrated into the policies of the Union and ensured in accordance with the principle of sustainable development (article 37).

## CHAPTER 2

### Comparative analysis of HIA Best Practices: Cases of Poland, Sweden and Germany

The scale and variety of environmental despoliation at present differs widely among various countries, as does the substance, intensity and timing of national environmental policies. Environmental issues within any nation are perceived, interpreted and given priorities in accordance with existing social preferences. Environmental quality is a matter of social choice and societies may differ, quite legitimately, in their views as to what constitutes as “acceptable” level of environmental quality. Societies afflicted with widespread malnutrition and disease, high infant mortality, low life expectancy, high illiteracy levels and endemic unemployment are not likely to place the same value on degradation of the natural environment as societies in which these kinds of problems have been overcome. This means that identical objectively perceived environmental damage may be accorded quite different social weights in different countries.<sup>20</sup>

National regulations of European countries define that “EIA determines and describes in a report what impact a project will have on humans (including human health), on animals, plants, biodiversity, soil, water, ambient air, the climate, the landscape and cultural goods. The public and specialist authorities, as well as citizens and authorities in neighboring countries that may be affected, may express comments and opinions on the report. The authority responsible for approving a project is tasked with evaluating the information and comments and with taking account of the results of the EIA when deciding whether to approve a project. Regulations governing the EIA are set out in the Act on the Assessment of Environmental Impacts.<sup>21</sup>”

Moreover, the WHO regional office for Europe launched the WHO healthy cities project in the late 1980 and then developed and pilot-tested on HIA toolkit for European cities invited cities to participate in training courses and encouraged cities to use the HIA as useful tool for promoting integrated planning, reducing inequity and achieving sustainable development as well as well as contributing to the evidence base on and rising awareness of determinants of health<sup>22</sup>.

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<sup>20</sup> <http://www.bmu.de>

<sup>21</sup> <http://www.bmu.de>

<sup>22</sup> John Kemm “Integration of HIA with other assessments, past achievements, current understanding and future progress”, Oxford University press 2013, page 169.

Each particular law should be seen as part of a comprehensive process of resource management for sustained human benefit, rather than an ad hoc response to discrete, specific problems. Environmental laws as a whole should attempt to coordinate the various sectors and policies that currently relate to the human environment in a fragmented manner. The process of environmental legislation should facilitate the development of a unified policy focus that can serve as a frame of reference for all decisions that relate to the management of resources. To accomplish this goal, environmental law must be integrated with economic planning<sup>23</sup>.

**For the purpose of answering the questions raised in this research paper, it is necessary to study the international best practice of the Central European countries particularly the experience of Poland, Sweden and Germany concerning HIAs and its implementation and based on study to analyze the experience of this countries to find out whether European developed countries' experience can be carried out in Armenia.**

#### **1. Environmental legislation and HIA process in Poland.**

“Environment and health policy in Poland is implemented under the umbrella of several national acts and policy programs. The new Constitution, introduced on 2 April 1997, covers environment and health issues under Article 68. Under this article, the Constitution sets the obligation for public authorities to combat epidemic diseases and to prevent negative health effects from environmental degradation. The same article emphasizes the right to health protection, access to equal health care services and the relevance of giving special health care to children, pregnant women, disabled people and older people. The new Constitution also stresses the need to protect the natural environment and to ensure sustainable development (Article 5) requires public policies ensuring ecological security and provides the right for all citizens to be informed about the quality of the environment and its protection (Article 74) (55).

“[...]EIA was introduced in Poland through the Environmental Protection Act, adopted on 27 April 2001. Articles 3 and 47 stipulate that EIA procedures relate to the analysis and assessment of direct and indirect influence on the environment as well as on human health and conditions of life.

[EIA is mandatory for: 1) the draft concept of the national land-use policy, draft land-use plans and draft regional development strategies and 2) draft policies, strategies, plans or programs in industry, energy, transport, telecommunication, water management, waste management, forestry, agriculture, fisheries, tourism and land use, where their preparation by the national or

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<sup>23</sup> Jaro Mayda “Environmental Legislation in Developing Countries: Some Parameters and Constraints” Ecology Law Quarterly, Volume 12/Issue 4, September 1985, page 1005



voivodship<sup>24</sup> public administration authorities is provided for by law. An advisory and supervisory role concerning human health issues is delegated to the Ministry of Health and specifically to the Chief Sanitary Inspection (and its local agencies).

The extended responsibility of including health in EIA is still not sufficiently covered in the enforcement of the legislation. There is not enough expertise to implement the legislative regulations reliably and efficiently based on recognized methods of health risk assessment or HIA. The health part of the EIA has been reviewed by the health sector more according to “good practice standards.

As a main conclusion, it was felt that there is no need for change in legislation but for strengthening this procedure according to the good practice standards such as using quantitative risk assessment to strengthen EIA. The first phase of such advancement requires “scoping” and is ongoing in some countries (not in Poland) with public participation. The review has shown that the health component within EIA reports is still insufficient and inappropriate. The methods for including HIA in EIA reports need to be strengthened. The number of specialists in HIA is still insufficient. Training and education in this field need to be developed further.

“Poland has made progress on compiling and providing access to environmental information. The Act on ‘Information on the Environment and its Protection and on Environmental Impact Assessment’ stipulates the right of access to information. A great variety of institutions identifies and monitors environmental hazards, from both the health and the environment sides, resulting in a scattered monitoring approach. There is considerable information but not a uniform approach to preparing, analyzing and reporting to support health and environment policy action. The data are scarcely shared between institutions. The National Institute of Public Health – National Institute of Hygiene routinely collects health indicators. But monitoring focuses on either health or environment, and integrated health and environment information is lacking. This is also true for HIA and for EHIA.

The major areas of the NEHAP for 2000–2005 were: • improving the development and implementation of the state policy on environment and health; • improving the planning and management of environmental health preventing and improving actions aiming at reducing specific environmental risks; • involving the economic sector in prevention activities; • improving international cooperation; • implementing environmental health action plans; and • monitoring the efficiency of environment and health activities.

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<sup>24</sup> The country is divided into 16 provincial administrative units called voivodships. The central government appoints the voivod, the administrator of each voivodship

**Analyzing the experience of the Poland of this sphere it can be recommended for Armenia** that first of all it should be strengthened dialogue between different sectors, particularly private and international cooperation on environmental health. Particularly as in Poland it is critical to involve a great variety of institutions to identify and monitor environmental hazards, from both the health and the environment sides, resulting in a scattered monitoring approach. Secondly, to create Armenian National Environment and Health Action Plan. Since, as it is obvious in Poland via this action plan it will be possible to make better the planning and control of environmental health avoiding and improving actions purposing at decreasing certain environmental risks and also monitoring the efficiency of environment and health activities.

## **2. Environmental legislation and Health Impact assessment process in Sweden.**

In Sweden SIDA has no formal procedure for HIA. Environmental considerations are instead given on an ad hoc basis to a growing number of aid projects both in the planning process.

The overall objectives of the efforts to achieve sustainable development are to protect human health, to preserve biological diversity, to minimize the utilization of natural resources to ensure sustainable use and to protect the natural and cultural environment. These objectives correspond closely to the objectives of the Environmental Code.

“Independently of the Environmental Code, Parliament has adopted 15 national environmental quality objectives which describe environmental states that are a precondition for sustainable development. According to Parliament, it should be possible to achieve these objectives within one generation, or by the year 2025. The overall objectives of the efforts to achieve sustainable development are to protect human health, to preserve biological diversity, to minimize the utilization of natural resources to ensure sustainable use and to protect the natural and cultural environment. These objectives correspond closely to the objectives of the Environmental Code.<sup>25</sup>”

From this aspect Armenian is not exception since the mining is considered one of the long-term goals of the RA government: “Armenia’s Strategic Plan for Long-Term Development 2012–2025 sets the country’s development priorities<sup>26</sup>.”

“There is a wide range of businesses and activities that falls under inspection and control according to the Environmental Code. The responsibility for supervising the legislation is, in most cases, placed on local authorities on regional and local level (regional governments and

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<https://www.svk.se/siteassets/english/stakeholder-portal/dam-safety/environmental-code-and-ordinances---a-summary.pdf>

<sup>26</sup> See the details in the 1-st chapter of this research paper, pages 8-9

municipalities). Each authority at the local level is autonomous and enforces the legislation with its own personnel and makes decisions and demands according to the legislation. The decisions can then be appealed in higher court.

Since the Environmental Code includes a wide range of issues there are several central/national agencies involved in both inspection but mainly guiding local authorities in inspection and enforcement. In this case it means that the Swedish Energy Agency is responsible for guiding local authorities when it comes to enforcing demands on energy efficiency and using renewable energy. Self-auditing is a vital component of the Environmental Code. This is supported by the rule that the business has the burden of proof of whether they comply with the legislation. The authorities are then supposed to inspect the self-audit system of a business, activity or measure. The extent of self-audit system and documentation is based on the environmental and health impacts of the business and that also includes energy aspects. A large business should have a more extensive self-audit. If the business is subject to permitting or reporting requirements the self-audit should be documented<sup>27</sup>.

### 3. Environmental legislation and HIA **process in Germany.**

In Germany, HIA was first introduced in the late 1980s. The Ministry of Research and Technology funded a HIA research and development project in 1992; project results included a generic HIA model, several case studies and a book publication. HIA is now required by law in several German states. German HIA activities are usually associated with EIA procedures at a project level. In 2001 the first national HIA workshop was held in the context of the National Environmental Health Action Plan. This was seen as a starting point for an alliance between EIA and HIA professionals.<sup>28</sup>

In Germany there is no legal basis for HIA at the federal level. The legal basis for health in EIA is the Federal EIA Act. Article 2 stating that EIA comprises the identification, description and evaluation of the direct and indirect project impacts on i) human beings, including human health; ii) flora, fauna and biological diversity; iii) soil, water, air, climate and landscape; iv) material assets and the cultural heritage; and v) interaction between these factors.

Despite 25 years of EA experience there continues to be a lack of good methods for assessing health effects within EA. To date HIAs have been limited to rare cases and are not regularly undertaken alongside or integrated within EAs. Human health is mostly considered

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<sup>27</sup> Martina Berg “The Swedish Environmental Code – one legislation, several ways of enforcement”

<sup>28</sup> Debbie Abrahams, Lea den Broeder, Cathal Doyle, Rainer Fehr, Fiona Haigh, Odile Mekel, Owen Metcalfe, Andrew Pennington, Alex Scott-Samuel “Policy Health Impact Assessment for the European Union: Final Project Report, August 2004, page 8.

alongside environmental factors such as air, water and soil pollution and the transmission of harmful substances through them. Compliance to air, water and soil standards (value limits) is judged by regulators to be sufficient to manage public health issues related to plans and projects. There has also been no satisfying way of operationalizing vulnerable groups; hardly any use of (higher) standards than the national legal limits in assessments or decision-making; and no good approach to cumulative impacts and positive impacts.

[....There is no regular participation of health authorities in EIA while within SEA health authorities have to be involved regularly as it is a legal requirement.[.... In recent years work has been undertaken to improve the practice and use of HIA. A working group of the German EIA Association in cooperation with the North Rhine-Westphalia Centre for Health has developed a guidance document.

The guidance focuses on five broad categories of determinants: chemical, physical, biological, natural, and social environment. It discusses potential health effects of changes to these determinants, useful indicators and the scales and standards that could be used to assess and monitor health effects. The guidance provides an introduction to tools and procedures such as HIA; quantitative health risk assessment; human bio monitoring; impact assessment and sustainability assessment; climate proofing and vulnerability assessment; and local community level health plans. The next step for the working group is to prepare sector and project specific guidance on for example infrastructure projects and land use and spatial plans<sup>29</sup>.

Internationally a host of IA has emerged and the list of IA for which names has been coined is long and growing. [....Many of these IAs is not least partially related to human health, especially EIA and SIA. On Germany there are traditions of EIA and SEA engaging with health. [....However, taken as a whole coverage of health in EIA is still limited in Germany].

[...In Germany the potential of “explicit” HIA for health protection and promotion is under-utilized. Recently, there have been indications of a growing interest in HIA and the topic is now covered in a variety of sources, but Germany may still be regarded as a country on the “threshold” of HIA. [...In Germany, HIA needs to be seen as a flexible tool that can be adjusted to suit the different situations in which, it may applied. HIA offers significant opportunities to promote and protect human health. These opportunities can constitute a key element of regional and local health policy, if used systematically and efficiently. Mapping the legal basis and current practice of HIA would make a welcome contribution to further development of HIA in Germany.

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<sup>29</sup> <http://www.euro.who.int>

**In conclusion, taking into account the analyses of the experience of this sphere,** obviously interest in HIA increases not only in European developed countries, but also in other developing countries, so, Armenia should not be an exception. Indeed, international best practices can be feasible in the Armenian context. There is need to develop institutional capacities in the HIA sector through training programs to train health experts and field professionals how to assess and conduct health impact assessment and monitoring. Based on the experience of Poland and Germany it will be better to make Armenian National Environment and Health Action Plan. For, it will promote us to plan and control environmental health preventing and improving actions to decrease explicit environmental risks and also monitoring the efficiency of environment and health activities. Moreover, as in Poland it is necessary to have close collaboration between members of the private sector and representatives of international field followed by continuing education, providing possibilities for a dialogue around the HIA tools, in order to ensure the quality of the processes. Based on Sweden's experience, it might be relevant for Armenia to implement self-auditing in this sphere, since as in Sweden the extent of self-audit system and documentation is based on the environmental and health impacts of the business. Moreover, the burden of proof, whether the legislation is complied has equally shared between the representatives of business and authorities.

### **Chapter 3**

#### **HIA Methodologies: Recommendations Feasible within Legislative and Institutional Context of Armenia**

The health of the society may be effected by many sphere of public rules which have not customary been evaluated for their health influences. This has brought to the establishment of HIA models to evaluating the influences on health of policies, programs, projects with a view to decreasing the negative impacts and strengthening favorable consequences. The methodology of HIA is presently in development process and the connection between approaches of HIA and their outcomes, and the most efficient methods of implementing HIA are still being generally studied.

Unlike most scientific health research, which examines narrowly defined questions related to one specific health outcome using a single methodology, HIA places a high value on addressing all potentially significant outcomes, even if they are difficult to ascertain<sup>30</sup>.

HIA has taken on a wide variety of forms depending on the sociopolitical environment of the place where it is conducted, characteristics of the particular policy questions to which it is

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<sup>30</sup> <http://www.who.int/hia/tools>

applied, disciplinary backgrounds of practitioners, and expectations of stakeholders who use its results<sup>31</sup>”.

**The goal of this chapter is to analyze and present approaches and methodologies of HIA, based on the international best practice that would be feasible to be implemented within Armenian legal and regulatory framework. Recommendations will be provided how to address existing gaps with respect to HIA methodologies as well as to generally support development and implementation HIAs in Armenia.**

There are different methodologies of HIAs and each of them has dissimilar purposes and expresses various approaches.

1. **“Risk analysis and the quantitative/analytic approach to HIA;** from the perspective of policymaking, the power of this means is the simplicity to which it provides itself to the differentiation of choices and its supposed impartiality. Actually, the quantitative/analytic course to HIA can be extremely time and cost-intensive. Time, capital and information restrictions frequently bound its claim to a point of exclusive, uncertain, non-aggregate publicity and only one or a few consequences. Despite the fact that it can be more unbiased than other methodologies, this approach integrates countless cost and version-based presumptions that are not constantly clear.

2. **Community-Based Health Promotion and the Participatory Approach to HIA;** the force of this method is more procedural rather than final-directed. It can contribute an explicitly structure for community involvement and the transparency of the decision making process of the government. One of the main restrictions, anyhow, is that the taken data may be given not much legality in some communal circumstances, for example in a judicial legal structure that mainly based on quantitative “academic” source of information. Distinctions between differences and with principles are complex, since there are no standard dimensions. Obviously, this method of HIA is a better appropriate for study of local programs, not wide plans and strategies that impact greater geopolitical parts.

3. **EIA and the Procedural Approach to HIA;** Combining elements of the other two approaches to HIA, the procedural approach to HIA, like EIA, puts a premium on efficiency and is driven by procedural concerns to comply with bureaucratic mandates to perform an impact assessment” [...the procedural approach to HIA uses whatever mix of methods is most expedient

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<sup>31</sup> Methodologies for Realizing the Potential of Health Impact Assessment, Brial L. Cole, DrPH, Riti Shumkhada, MPH, Jonathan E. Fielding, MD, MPH, MBA, Gerald Kominski, PhD, Hal Morgenstern, PhD, American Journal of Preventive Medicine, Volume 28, Number 4, page 383

in producing information relevant to a particular regulatory mandate, whether the mandate specifies consideration of a specific impact, such as impacts related to air pollution, or the application of a specific technique, such as modeling traffic-related injuries. But the main force of the procedural approach to HIA “...is that the assessment can be performed in a relatively transparent, reproducible manner with methods that are broadly disseminated and understood<sup>32</sup>”

The main advantage of the procedural method to HIA is that the evaluation can be presented in a comparatively open, reproducible type with approaches which are widely spread and realized. Hypothetically, it can be comparatively speedy and effective, but in reality laws and regulations state subjects and approaches in circumstantial may substantially raise source demands for this kind of evaluation.

**Another group of HIA methodology consists of the following assessments; prospective, retrospective or concurrent.**

**Prospective evaluations** are commonly carried out throughout the cultivation process of a program. A Prospective evaluation can support to establish the potential health effects of a project may have, as well as help in deciding any important alterations which may need to be implemented to decrease/abolish disclosed hazardous health effects and to strength positive ones.

It can be believed that prospective approach to HIA is somehow methodologically “more attractively” than the retrospective HIAs, as they permit the likelihood for alleviate of negative health effects (or strengthen of positive one), a possibility which may be missed if only retrospective HIAs are implemented.

**Retrospective evaluations** are used in the assessment of available policies, programs or projects (PPPs), to decide the health effects and outcomes effecting from their realization. A retrospective evaluation can help to disclose the health biased effects of available PPPs, and can consequently be make use of to notify forthcoming steps when progressing alike suggestions<sup>33</sup>.

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<sup>32</sup> Methodologies for Realizing the Potential of Health Impact Assessment, Brial L. Cole, DrPH, Riti Shumkhada, MPH, Jonathan E. Fielding, MD, MPH, MBA, Gerald Kominski, PhD, Hal Morgenstern, PhD, American Journal of Preventive Medicine, Volume 28, Number 4, page 384-385

<sup>33</sup> This is an example from real life carrying out a few kinds of methodology to HIA. “It was agreed with the Mayor that, as part of his statutory duty to consider the health of Londoners within the mayoral strategies, the London Health Commission (LHC) will carry out independent HIAs. These will be passed to the strategy development teams, which will consider incorporating the recommendations. The LHC’s HIAs used a participatory approach, with a rapid appraisal format including an evidence review and large-scale stakeholder workshops. They resulted in the presentation of a report and recommendations to the Greater London Authority’s (GLA) strategy development teams. The LHC commissioned an external process evaluation of its HIA work, including concurrent evaluation of two HIAs, and retrospective evaluation of a further two. The evaluation aimed to establish how effective the particular model of HIA was in terms of influencing the final strategies; changing participants’ attitudes about health and wellbeing; and involving stakeholders. It was also hoped that by publishing and disseminating the findings, the evaluation would contribute to the development of HIA methodology nationally. The evaluator used an action-based research methodology and worked with the HIA team members as they planned the rapid appraisal workshops. Changes made included fewer presentations,



**Concurrent evaluations** are usually assessing the health impacts of PPPs throughout the process of their realization. The data supported via concurrent HIA evaluations can assist PPPs implementations to take quick penitentiary means to call upon any dissenting health effects which may originate.

The next group of HIA methodology is a six-step procedure, which has been already discussed in the 1st chapter of this research. This Methodology for an HIA follows a series of key stages, each with their separate main tasks.

“The starting point for any HIA is deciding when it is needed – commonly referred to as **“screening”**. The HIA begins with a selection process – screening – in which a proposal is quickly assessed for its potential to affect the population’s health, and a decision is made about whether or not to undertake an HIA]. [...HIA can be undertaken at a rapid, intermediate or comprehensive level.....] [...Systematic screening involves subjecting all the proposals and developments within a given area to a screening process, to establish the need to subject either a whole package of proposals, or specific options, to full HIA.....]. Screening for HIA is recognized by many practitioners as providing a systematic way of deciding whether an HIA could usefully be undertaken, and whether it is the best way to ensure health and health inequality issues are effectively addressed within the appraisal process.....][... screening helps ensure that resources (money, staff, organizational time) are used to maximum effect, by making sure only the proposals with the most significance for health and health inequalities are subjected to HIA and, in turn, that HIAs are not carried out on proposals that have little relevance to health. The screening process also provides an early opportunity to lay the practical foundations for any future HIA, by beginning to indicate the likely resources required and identifying priority areas on which it should focus. [...Successful screening for HIA requires a number of factors to be considered. One of them is to be clear about purpose and methods to be used.]”<sup>34</sup>

“Policy-makers must answer three screening questions to determine whether the proposal will require a full health impact assessment. These questions are:

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reducing the complexity of the information sent to participants beforehand, and tighter focusing of the questions and topics for appraisal. The concurrent evaluation included baseline surveys of participants and longer interviews, and looked at the process. Alongside this work, LHC and GLA staff tracked which of the recommendations were incorporated by the strategy development teams. Early messages from the evaluation suggest that the HIAs have been successful in influencing strategy development.”  
<http://www.who.int/hia/evidence/en/practice.pdf>

<sup>34</sup> [http://www.impactsante.ch/pdf/NHS\\_HDA\\_Deciding%20if%20HIA%20is%20required\\_%202003](http://www.impactsante.ch/pdf/NHS_HDA_Deciding%20if%20HIA%20is%20required_%202003)

- Will your policy have a significant impact on human health by virtue of its effects on the following wider determinants of health? Income, crime, environment, transport, housing, education, employment, agriculture and social cohesion.
- Will there be a significant impact on any of the following lifestyle-related variables? Physical activity, diet, smoking, drugs or alcohol use, sexual behavior, accidents and stress at home or at work.
- Is there likely to be a significant demand on any of the following health and social care services? Primary care, community services, hospital care, need for medicines, accident or emergency attendances, social services, health protection and preparedness response.

If two or more questions have the answer “Yes”, a health impact assessment is required.

If two or more questions have the answer “No”, it must be stated on the template why the health impact assessment is not required. If it is decided not to conduct a specific health impact assessment, stakeholders can challenge that decision during the following consultation process<sup>35</sup>.

The second step to HIA process is **scoping**. “Scoping sets the boundaries for, and considers how the HIA appraisal stage should be undertaken, as an example is presented the HIA scoping study of contract farming in Thailand. The study was designed to scope a potential HIA with a particular focus on stakeholder participation, and provide a HIA capacity building experience for local workers.

Thailand began by setting up a steering group to oversee and manage the HIA, and identify the necessary stakeholders/decision makers who needed to be involved (Ministry of Agriculture staff, staff from the private contract companies, and contract farmers). The geographical boundaries and relevant population groups were chosen (two sub-districts in North-Eastern Thailand). Interviews were carried out with the stakeholders to determine the extent to which they could be involved in the HIA appraisal stage, to help determine what type of information was required (for example qualitative interviews, plus quantitative data), and to identify potential health impacts that would need investigating. For example, health impacts identified included physical fitness, neurological illness, visual acuity, malaise, fatigue, abortion, mental health issues, social health issues and spiritual health, to name a few<sup>36</sup>.

Scoping which is a formal requirement for full EIA reports in USA. It is a general requirement for EIA reports in the Netherlands, Canada and Australia. Scoping is a very strongly encouraged in the Resource Management Net 1991 and local authorities can set up their own

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<sup>35</sup> The European Union and Health Impact Assessments “Are they an unrecognized statutory obligation” Report written by: Rebecca Salay and Paul Lincoln

<sup>36</sup> <http://www.who.int/hia/tools/process/en/index1.html>

scoping procedures. It is now widely accepted that scoping helps to ensure that the relevant environmental impacts are covered in EIA reports (if not that scoping helps to eliminate irrelevant impacts), the majority of countries use scoping to identify significant impacts, key issues and to a lesser degree, alternatives to a proposal, the affected and interested population groups<sup>37</sup>.

The third step in the HIA process is **assessment**. *It is a* core step of the whole process and actual influence evaluation. *It contains* a two-step procedure that at first reports the baseline health progress of the impacted people and then evaluates possible effects.

The goal is to assess the health benefits and health hazards and to consider evidence of impact. This phase contains the accumulation and reasoning of quantitative and/or qualitative information and should result in data about the promised health effect, the course of the impact (optimistic or pessimistic), the probability and intensity of these health influences, and what the space of time is in which these health impacts can be predicted to happen. The IA can be abducted into three sub-activities:

a. policy analysis, b. description of the baseline situation, and finally c. estimation of the health impact.

“The first step is to do a full analysis of the proposed policy or intervention to understand what the interference exactly will encompass and aims to achieve, and how elements of the action may influence health and health inequalities. The second step is the description of baseline situation and its goal is to estimate the impact of the proposed action or actions, it is important to know what the baseline situation is with respect to all relevant health outcomes, health determinants and the inequalities in these health measures. The third one is the estimation of the potential health impact. The latter can for example be acquired via an evaluation of the literature and interviews with stakeholders. Such qualitative methods are valuable and provide good insights into the potential effects of the action. They can provide information about the expected direction of the impact and even about the order of magnitude of the effects. However, quantifying the expected impacts may be a useful addition to these qualitative methods”<sup>38</sup>. Quantitative assessment of effect is critical in action judgments since it concern to quantifiable aims and can be connected to economic rates<sup>39</sup>

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<sup>37</sup> Handbook of Environmental Impact Assessment: Volume 2: Impact and Limitations, Chapter 2, page 26

<sup>38</sup><https://survey.erasmusmc.nl/he2020/phase-4-impact-assessment/main-steps-of-hia/step-3-impact-assessment/step-3c-estimation-of-the-potential-health-impact/>

<sup>39</sup> For example, a reduction in smoking may be linked to quantifiable increases in population health and therefore increased labor participation and labor productivity. It could also lead to a reduction in costs for health care and social benefits. Moreover, quantitative estimates of the health impact can be used in cost effectiveness or cost benefit analysis.

The next step is the recommendations or decision making phase to HIA. “The decision making criterion states that the EIA report and comments upon it must not be the central determinant of the decision. EIA was never intended to provide the sole basis for decision making. However to meet the criterion on EIA system needs to demonstrate not only that the decision should be influenced by the EIA<sup>40</sup>”. However in practice of some countries it is still possible that decision makers can ignore the EIA. “Contrary in the Netherlands, the recommendations of the highly influential EIA Commission are published and the competent authorities are effectively obliged to except them<sup>41</sup>.”

During recommendation phase to HIA, adoption of recommendations depends relatively on the participation of decision-makers in the HIA process. Since eventually the decision-makers must balance those suggestions with the political, economic, social, and technical aspect that are appropriate to the judgment. Decision-makers must finally comment health-based suggestions into working means (for example, by reforming legislation, drafting regulations, establishing novel demands, or promoting voluntary works). So, in this regard Armenian environmental does not have any regulations, though representatives of this field during the implementation of this process are restricted only by organizing public discussions.

The following phase to HIA is the reporting. “Reporting is the communication of the findings and recommendations of an HIA to decision-makers, the public, and other stakeholders. It includes the production and dissemination of written materials that document the HIA process, methods, findings, recommendations, and limitations of the analysis; and it includes the public dissemination of results through other channels, such as meetings with the public, decision-makers, and other stakeholders<sup>42</sup>”.

The last step of HIA process is the Monitoring and Evaluation. “Monitoring the implementation of the proposal is critical to ensure that any recommendations that decision-makers agreed to, actually occur. Longer term monitoring of the health of populations is sometimes a component of larger proposals. This long term monitoring can be used to see if the predictions made during the appraisal were accurate, and to see if the health, or health promoting behaviors, of the community have improved. Evaluating whether the HIA has influenced the decision making process (and the subsequent proposal) is an important component of HIA. As

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<sup>40</sup> Handbook of Environmental Impact Assessment: Volume 2: Impact and Limitations, Chapter 2, page 26-27

<sup>41</sup> Handbook of Environmental Impact Assessment: Volume 2: Impact and Limitations, Chapter 2, page 27

<sup>42</sup> <https://www.ncbi.nlm.nih.gov/books/NBK83540/>

with any intervention, evaluation is required to see if it has worked. Evaluation of the HIA process is also useful to answer why the HIA worked (or not)<sup>43</sup>”.

Evaluation can address the process, effect, or consequences of an HIA. A few types of assessment may be conducted on an HIA, containing the following:

- “*Process evaluation*. Considers whether the HIA was carried out according to the plan of action and applicable standards.
- *Impact evaluation*. Seeks to understand the impact of the HIA itself on the decision-making process or on other factors outside the specific decision being considered.
- *Outcome evaluation*. Focuses on the changes in health status or health indicators resulting from implementation of the proposal”<sup>44</sup>.

“There is no provision for monitoring on the UK EIA system, although some independent monitoring of impacts takes place under separate legislative provisions. The New Zealand Resource Management Act imposes a general duty upon local authorities to monitor project impacts but this is infrequently undertaken. The same is largely true of the discretionary monitoring provisions in the Commonwealth of Australia EIA system.

The Netherlands EIA system contains several impact monitoring and auditing provisions, but in practice they are often not implemented and it has been recommended that they be weakened. [...The same lack of implementation applies in Canada<sup>45</sup>”

“Many, if not most, environmental laws are never implemented. As a result, the effectiveness of a country's eco management system cannot necessarily be measured by the number of environmental laws they pass<sup>46</sup>”.

The Constitution of the Republic of Armenia foresees the right of the public to take part in the decision making process, via creating unities, NGOs and trade unions (article 28.1). Environmental field is not an exception and each citizen in our country has a constitutional fundamental right to participate in the decision making procedure. Moreover, the Law also defines wide possibilities for the public participating in that process, for instance, the article 4. 1 (20-21) defines a concept of affected community; population of community (communities), including individuals and/or legal persons, which may be potentially affected by environmental impact of mainframe paper or planned activity and stakeholder community - individuals and legal persons,

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<sup>43</sup> <http://www.who.int/hia/tools/process/en/index4.html>

<sup>44</sup> <https://www.ncbi.nlm.nih.gov/books/NBK83540/>

<sup>45</sup> Handbook of Environmental Impact Assessment: Volume 2: Impact and Limitations, Chapter 2, page 26

<sup>46</sup> Jaro Mayda “Environmental Legislation in Developing Countries: Some Parameters and Constraints” Ecology Law Quarterly, Volume 12/Issue4, September 1985

which are interested in the endorsement of the mainframe paper subject to expert examination and (or) implementation of planned activity. Moreover, the article 26.2 (1) states that public notice shall be conducted by: authorized entity – at least 7 working days before hearings of the application and reports submitted by initiator and draft expert examination conclusion. Notification shall contain information on the initiator, brief description of mainframe paper or planned activity, place of implementation, place where public can read and discuss those, conditions, periods for submission of comments and recommendations and other information (article 26.5-(3). One of the important values of the law is that it also provides that authorized entity shall ensure participation of its representative in public consultations and as a result of public consultations, initiator shall prepare minutes with the attached video recording (article 26.5.(6-7). As a guarantee of the public participation effectiveness the law also defines that reasonable community comments and recommendations shall be taken into consideration by the initiator and the authorized body, otherwise reasonable substantiation shall be provided (article 26.5.(8). **Obviously Armenian legislation is based on Community-Based environmental promotion and the participatory approach and the latter can be carried out particularly in the HIA process, as well.**

Although the Law defines demand of the assessment methods, but the absence of appropriate fixed methods and methodologies makes an uncertainty; Armenian legislation **doesn't impose a requirement particularly concerning to HIAs assessment method "scoping"**. Since for scoping method is important to foresee HIA team, sources of data, methods to be used, and alternatives to be considered. Scoping also identifies vulnerable populations, such as children, elderly people, disabled people, low-income people, racial and ethnic minorities, and people who have pre-existing health conditions.

Pursuant to the Law, assessment is a process of comprehensive cumulative assessment of the expert impact ensuing from implementation of the planned activity (article 4 (10)). The law also defines that the IA phase includes: assessment of potential environmental impact of provisions of mainframe paper and planned activity and that general requirements to mainframe paper of strategic environmental impact assessment include information on assessment methods (article 17. 2 (1)). **So, based on the assessment phase to HIA it is very critical to be able to quantify the expected impacts with valuable qualitative methods (such as an evaluation of the literature and interviews with stakeholders) to improve social and economic benefits.**

Pursuant to the Law, report is a document, which consolidates results of strategic assessment and assessment (article 4.1 (25)). Pursuant to the article 5.2 (point 4) of the Law

principles of EIA and assessment calculation includes also ensuring completeness, accuracy and theoretical soundness of the reports. Article 18 of the Law defines the general requirements to mainframe paper of strategic EIA.

As to monitoring, the Law defines that program of monitoring of environmental impact is an integrity of activities aimed at evaluation of environmental impact, follow up analysis, implementation of the requirements of expert examination conclusion or output control (self-control) during the period of validity of provisions of mainframe paper and (or) planned activity (article 4.1 (26)).

Pursuant to the Law environmental impact monitoring program is involved in the processes of Primary Environmental and HIA with the view to preventing, reducing or eliminating it the environmental and health impacts (article 17. 2 (4)) and EIA includes monitoring and follow up analysis of planned activity (article 18. 1 (7)). So, the monitoring should be implemented not only in the time frame of certain mining project/program, but also after the mining activity is finished. Since monitoring is a critical continuous activity in the HIA process and it supports to the development and practice improvement of this sphere. **But Armenian environmental legislation does not define precisely whether the monitoring process should involve, process evaluation, impact evaluation or outcome evaluation.**

Taking into account the analysis of HIAs process based on international practice and disclosing gaps of appropriate regulations, in the frame of this research paper are presented suggestions on amendments on the Law (see Appendix 1).

In conclusion, numerous approaches to and models for HIA have been developed internationally. The ultimate goal of HIAs methods as an instrument is to promote the achievement of health system objectives and to create favorable living conditions irrespective of activity. Thus, the health system condition and country's eco management system effectiveness cannot necessarily be measured by the number of environmental laws quantity. For the purpose to have appropriate regulations and to fill the gap in Armenian environmental legislation it is important to make changes, based on the 6 step methodology to HIA described in this chapter in details and to create methodology of HIA, which will fit well to our social and economic interests and benefits. Since, HIA is a valuable tool to include health in the decision making process for a policy, plan, program or project. It is a huge mechanism and potential to reduce and redress health inequities.

## CONCLUSION

Given the analysis presented in all three chapters of this paper it can be concluded that Armenian legislative and regulatory framework does have major gaps and lack of necessary guidelines and by-laws for complete and effective implementation of the Law on Environmental Impact Assessment and Expertise. There is a need to develop and adopt proper methodologies for assessing impact on human health imposed by mining projects. Both laws and regulations need to be improved to better protect the health and safety of people working in, living near, and those otherwise impacted by historic, current, and proposed mines. Though the Government of the Republic of Armenia has recently initiated amendments of the Law, the draft does not contain any provision and regulation concerning HIA and other gaps which have already been disclosed in the frame of this research paper. Based on the research and comparative analysis of international best practices as well as literature review in the appendix 1 of this research paper a draft proposal is developed to make changes to the Law which involved all main recommendations from this paper. As a compliment to draft proposal, we also propose creating an HIA methodology based on the 6 step methodology described in Chapter 3, which obviously will fit well to our social and economic interests and benefits, since HIA is a valuable tool to include health in the decision making process for a policy, plan, program or project.

Additionally, to ensure smooth and effective implementation of the proposed changes, it is recommended to develop and strengthen institutional capacities in the sphere of HIA. Based on the experience of Poland it will be justified to create Armenian National Environment and Health Action Plan which will assist decision makers to plan and control environmental health in the long term perspectives preventing and improving actions to decrease explicit environmental risks and also monitoring the efficiency of environment and health activities.

The study of various international practices shows that it will be better to strengthen dialogue between different sectors, particularly private and international cooperation on environment and health. Moreover, it is critical to involve a great variety of institutions to identify and monitor environmental hazards, from both the health and the environment sides, resulting in a scattered monitoring approach. Monitoring is an essential tool and particularly for the HIA process it also has a critical role. In the frame of this research recommendation is made to implement the monitoring not only in the time frame of certain mining project or program, but also after the mine



closure. Since monitoring is a critical continuous activity in the HIA process and it supports to the development and practice improvement of this sphere.

It is also worth to emphasize that the mining is considered one of the long-term goals of the government of the Republic of Armenia: “Armenia’s Strategic Plan for Long-Term Development 2012–2025 sets the country’s development priorities. Mining is identified as a key priority for Armenia. Moreover, the constitution of the Republic of Armenia enshrines that the state shall promote the preservation, improvement and restoration of the environment, the reasonable utilization of natural resources, guided by the principle of sustainable development and taking into account the responsibility before future generations. It would be challenging to achieve these goals without prioritizing protection measures of human health and community well-being. We hope that the recommendations of this paper will be discussed and will be taken into account by all relevant stakeholders: state institutions, civil society representatives, academia as well as independent experts, and will promote further improvement of environmental legislation for the benefits of present and future generations.

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## Appendix 1

### **Proposal on Draft Amendments to the Law on Environmental Impact Assessment and Expertise of the Republic of Armenia**

#### **Article 1**

##### **Add a new 8.1 article to the law**

##### **Article 8.1 National Environmental and Health Action Plan of Armenia**

National Environmental and Health Action Plan of Armenia (hereafter` national plan) is worked out by the plenipotentiary body, pursuant to the procedure provided by the law about Normative Legal acts. National plan is composed for the term of 5 years and provides planning of possible negative impacts on environment and human health for better planning and control of environmental and health protection, decreasing certain environmental risks and monitoring the efficiency of environment and health activities. National plan is approved by the Government.

#### **Article 2**

##### **Add a new 17.1 article to the law**

##### **Article 17.1 Assessment Methodology**

1.The estimation of possible impact on human health is carried out in the frames of assessment method through implementation of the following phases: screening, scoping, assessment, recommendations and monitoring.

2. In screening stage of the possible impacts on environment can be initiated by plenipotentiary body, interested body of the state government system, as well as NGOs acting in a human right defense in the environment and/or health sphere.

In this phase, necessary information to disclose potential negative impact on human health should include a description of the proposed policy, program, plan, or project, a statement of why the proposal was selected for screening, required time, human and material resources. Analysis of possible impacts, as well as other important information, which will give possibility rapidly, simply and transparently forecast in the result of committing activity possible impacts on human health. In this phase public discussions are mandatory.

3. In Scoping stage the scope of estimation of impact assessment on human health is confirmed, such as impacts on likelihood, identifying vulnerable populations, such as children, elderly people, disabled people, low-income people, racial and ethnic minorities. It also should include facts and evidences including scientific researches and experts conclusions, as well as people and organizations involved in the estimation activity. In this stage must be clearly defined engagement and participation of appropriate stakeholders as well as their cooperation with decision makers.

4. In assessment phase should be defined information about baseline health status, as well as social-economic, and environmental conditions that are important to health. Should be analyzed possible changes of specific indicators its character, qualitative and quantitative approaches) potential favorable and unfavorable changes in health status. Stakeholders should take place in the works of this stage.

5. In recommendations phase should be explicitly identified specific actions that could be taken to avoid, minimize, or mitigate harmful effects identified during the course of the HIA or to take maximal advantage of opportunities for a proposal to improve health. The offers should be drafted taking into account available all evidences. Based on presented proofs appropriate suggestions must be presented to stakeholders and plenipotentiary body.

6. Monitoring must be implemented in three phases. In the first phase of monitoring is disclosed whether the HIA was carried out according to the plan of action and applicable standards. In the second phase must be understood the impact of the HIA itself on the decision-making process or on other factors outside the specific decision being considered.

The third stage focuses on the changes in health status or health indicators resulting from implementation of the proposal.

### **Article 3**

#### **Add a new 28.1 article to the law**

#### **Article 28.1 Training of Expert**

1. Training as a consistent improvement of the professional knowledge and working skills of the health field of the Expert is implemented, organized and coordinated, as well as all training programs is approved by the Ministry of Health.
2. Expert shall be subject to mandatory training at least once every year.
3. In the result of training expert will be granted appropriate certificate. The trainings can be conducting by the Ministry of Health or by other professional educational institutions according to the order defined by the Ministry of Health.
4. The expenses connected with the training of Expert shall be made at the expense of the resources of the state budget, as well as of other resources not prohibited by the legislation of the Republic of Armenia.