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THE ROLE OF SOCIAL INTERACTIONS IN DESIGNING AND MANAGEMENT OF COMPLEX UNDERTAKINGS IN THE CONTEXT OF GLOBAL SUSTAINABILITY

Summary. Social interactions between different groups of stakeholders play crucial role in designing and successful implementation of complex undertakings, in particular environmental projects based on the principles of sustainable development.

The purpose of this paper is to discuss these interactions analyzed within the framework of research project ‘The integrated system of management of neutralization of asbestos in underground stockyards in the context of sustainable development of Eastern Poland’, and their impact on the process of designing complex undertakings and projects.

Moreover, the paper presents possible forms of integration of activities performed by different groups of stakeholders in these projects.

Keywords: social interactions, global sustainability, sustainable development, ecosystem of innovations

ROLA INTERAKCJI SPOŁECZNYCH W BUDOWANIU I ZARZĄDZANIU ZŁOŻONYMI PRZEDSIĘWZIĘCIAMI W KONTEKŚCIE GLOBALNEGO ZRÓWNOWAŻENIA

Streszczenie. W kontekście globalnego zrównoważenia dla tworzenia i zarządzania złożonymi przedsięwzięciami regionalnymi na rzecz poprawy środowiska znaczenie mają interakcje społeczne pomiędzy różnymi grupami interesariuszy.

Przedmiotem artykułu jest analiza interakcji społecznych i ich wpływu na tworzenie złożonych przedsięwzięć na przykładzie realizowanego projektu. Analiza ta została przedstawiona na podstawie wyników przeprowadzonych w ramach projektu badań i konsultacji społecznych. W artykule zaprezentowano również sposoby integracji działań różnych grup interesariuszy uczestniczących w realizacji przedsięwzięcia oparte na współczesnych kierunkach uwzględniających zasady zrównoważonego rozwoju.

Słowa kluczowe: interakcje społeczne, globalne zrównoważenie, zrównoważony rozwój, ekosystem innowacji

1. Introduction

Globalisation is a powerful stimulant that contributes to the growth and solving global issues. However, currently the global economy is starting to show more and more negative phenomena which result in the fact that the necessity of implementing changes is becoming inevitable. Therefore, globalisation should be paired with instruments and solutions allowing to avoid or minimize these negative effects. The sustainable development is one of the answers to these needs. The principles of sustainable development have to be implemented not only globally, but also regionally and locally through carrying out various undertakings and initiatives. In a global view, sustainable development is connected, among others, with political decisions, distribution of resources, limiting degradation of ecosystems, putting hazardous waste to appropriate use and neutralizing it, counteracting climate changes, fighting with poverty, providing access to healthcare and education in developing countries. It is necessary to continue efforts in key fields in order to develop common principles which should be effectively implemented and monitored. Such initiatives, although carried out regionally and locally, may also have a mass character and cause significant changes, contributing to solving problems on a global scale.

Sustainable development should be a real goal for every organisation and institution involved in implementation of environmental projects and undertakings. In order to achieve it, a cooperation and unanimity in the decision-making process at various levels by different groups of stakeholders is required. It needs primarily the analysis of necessities and aims of every group of stakeholders but also integration, consistent activities and verification of achieved effects. These topics were taken up in the framework of the development project “The integrated system of management of neutralization asbestos-containing products in underground stockyards in the context of sustainable development of Eastern Poland”

financed by the National Centre for Research and Development¹. The aim of the project is to develop comprehensive solutions encompassing coordination of every activity connected with elimination of products containing asbestos from the regions of Eastern Poland through developing effective management system. Thanks to including the principles of sustainable development the implementation of the project should contribute to improving the quality of living, healthcare and population protection and bring economic, ecological and social benefits.

The article attempts to indicate key actors of this process and analyse social interactions and their impact on working out complex undertakings using the implemented project as an example. This analysis was presented on the basis of results gained from research conducted in the project's framework. Using modern directions encompassing principles of sustainable development as guidelines, methods of integrating actions of various stakeholder groups participating in carrying out the project 'The integrated system of management of neutralization of asbestos in underground stockyard', have been presented in this article.

2. Significance of sustainable development in designing complex pro-ecological projects

Aspects of sustainable development are becoming more and more significant in the process of building and managing complex undertakings, in particular environmental projects. Nevertheless, it has to be emphasized that sustainable development is far exceeding the narrowly understood environmental protection. It is a new philosophy of global, regional and local development opposing the narrowly understood economic growth². "There is no exaggeration in the statement that common good in the macro scale (global sustainability) consists of a couple of lesser individual micro-developments that strengthen and supplement each other"³.

The concept of sustainable development is not easy to identify. According to B. Poskrobko it means sustainable, permanent (stable) and self-maintaining development. It is the necessity of reaching and permanently maintaining the best development effects, both

¹ The project No. 0990/R/H03/2010/12 financed by the National Center for Research and Development under contract No. 11 073 10/2010. The project has been carried out from 1st December 2010 to 30th November 2013 by 5 teams from 5 higher education institutions in Poland: Lublin University of Technology – project coordinator, Silesian University of Technology, Wrocław University of Technology, Maria Curie-Skłodowska University in Lublin, The John Paul II Catholic University of Lublin and Central Mining Institute in Katowice.

² On the basis of: Żelazna-Blicharz A., Bojar M.: From Social Responsibility to Sustainable Development, [in:] Bojar E. (ed.): Eco-Management for Sustainable Regional Development. Dom Organizatora, Toruń 2011 p. 120-144.

³ Venkatesh G.: Triple Bottom Line Approach to Individual and Global Sustainability. "Problemy Ekorozwoju – Problems of Sustainable Development", Vol. 5, No. 2, 2010, p. 30.

in qualitative and quantitative terms⁴. In subject literature, there are multiple definitions determining the concept of sustainable development. However, it is most commonly understood as:

- economic growth encompassing the requirements of the protection of the environment, treated as higher form of environmental protection,
- ecologically modified development of specific forms of social life (environmental policy),
- a change (postulate of implementing new principles) of relations between states, human societies in the context of creating globalized humanity,
- a change in current social paradigm, ecological revolution, a new social vision based on principles adjusted to capabilities of nature and simultaneously implementing ideals of self-governance and universal morality – a high-quality social utopia,
- a necessary stage on the road to forming an ecological society (Society of Ecological Era), during which there is going to be a crucial transformation of people's awareness, economic and technological processes and political relations between states on a global scale⁵.

Pawłowski indicates multidimensional character of layers of understanding the concept of sustainable growth. He argues that the fundament of deliberations on this issue should be a subject's ethical reflection that would be a base for further actions. The second layer is equal treatment of ecological, social and economic issues. The third layer encompasses technical, legal and political matters⁶.

Sustainable development is a global challenge, but also one of the primary goals of the European Union. "Sustainable development means fulfilling the needs of current generation without affecting the capabilities of fulfilling the needs of future generations – and, pursuant to the Treaty on the European Union it is the absolutely fundamental goal. It is an imperative concept underlying all the politics, actions and strategies of the European Union. It requires creating and implementing economic, environmental and social policies in a way so that these policies strengthen one another. However, activities connected with these matters cannot be limited exclusively to the EU. Sustainability remains a global challenge"⁷. Advanced progress in the field of knowledge and technology plays a key role in implementing a balance between the economic growth and sustainable social and environmental development. There

⁴ Poskrobko B.: Zarządzanie środowiskiem. PWE, Warszawa 2007, p. 22.

⁵ Hull Z.: Filozofie zrównoważonego rozwoju, [w:] Papuziński A. (red.): Zrównoważony rozwój od utopii do praw człowieka. Oficyna Wydawnicza Branta, Bydgoszcz 2005, p. 56.

⁶ Pawłowski A.: The Sustainable Development Revolution. "Problemy Ekorozwoju – Problems of Sustainable Development", Vol. 4, No. 1, 2009, p. 65.

⁷ Komunikat Komisji dla Rady i Parlamentu Europejskiego, Przegląd Strategii Zrównoważonego Rozwoju UE na rok 2005: Wstępne podsumowanie i przyszłe kierunki realizacji. Bruksela, 09.02.2005, <http://eurlex.europa.eu/Notice.do?mode=dbl&lang=en&ihmlang=en&lng1=en,pl&lng2=cs,da,de,el,en,es,et,fi,fr,hu,it,lt,lv,mt,nl,pl,pt,sk,sl,sv,&val=395228:cs>, accessed on 10.02.2013.

are numerous examples of synergy between the innovation for quality and effectiveness and innovation which purpose is to optimize energy consumption, disposing waste and security⁸. Sustainable development should be treated as a model enabling the coexistence of business and natural environment thanks to which the socio-economic development harmonized with the environment is possible. Such model may have a crucial meaning for integration of various stakeholder groups from economic, scientific, public and environmental sectors in the project.

3. Analysis of social interactions based on research in the framework of creating integrated management system of neutralizing asbestos in underground storage yards

It is estimated that there are 1-1,5 tons of products containing asbestos in the province of Lublin making it one of the highest ranked regions in Poland as regards the amount of asbestos per citizen. The base for implementing the process of neutralizing asbestos in the province of Lublin is the *Regional Programme of the Removal of Asbestos in Lublin Voivodeship for 2009-2032*⁹. Effectiveness and comprehensive character of solutions in the field of removing and neutralizing asbestos products is currently one of the fundamental environmental challenges of the province of Lublin in logistic, economic and social sense. The actions taken should encompass both aspects of sustainable development and profitability of implemented solutions. In the framework of research conducted by the project team it has been established that the effective realization of tasks can be guaranteed by proper management of this project. The principle of the concept of the management process was to make the introduced solutions use good global models and be coherent with the RSI range guarantee innovative character at the level of entrepreneurs (among others: transfer of knowledge and cooperation). Most importantly, they should be open to “other ecological challenges” in the region.

From the point of view of entities responsible for carrying out the entire program, the integrated management system of neutralizing asbestos in underground storage yards is a complex system of interactions between various entities (stakeholders), among others, public administration, entrepreneurs and real estate owners and administrators as well as pro-ecological organisation (fig. 1).

⁸ Ibidem.

⁹ Program usuwania wyrobów zawierających azbest dla terenu województwa lubelskiego na lata 2009-2032. Lublin 2008.

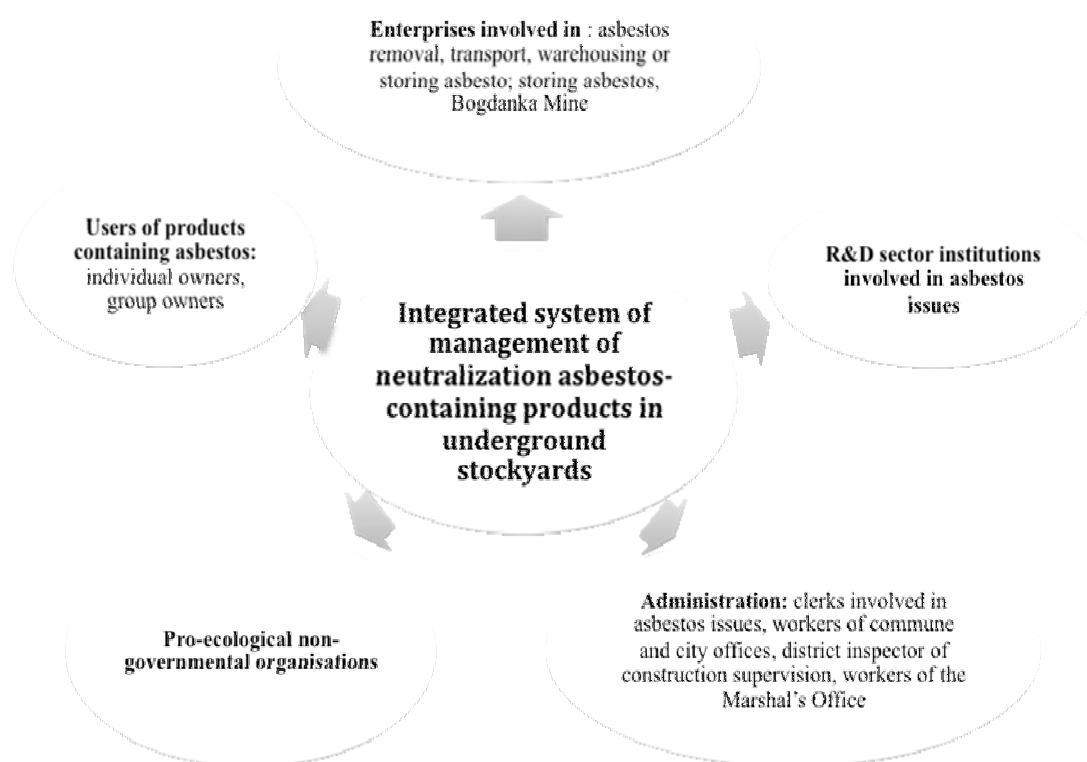


Fig. 1 . Groups of stakeholders of integrated management system of neutralizing asbestos in underground storage yards in the aspect of sustainable development of the Eastern Poland
 Rys. 1. Grupy interesariuszy zintegrowanego systemu zarządzania unieszkodliwianiem azbestu na składowiskach podziemnych w aspekcie zrównoważonego rozwoju Polski wschodniej
 Source: Author's own analysis.

Such depiction of key stakeholder groups in the field of asbestos removal allows to quickly indicate that their competences and roles are different and therefore these groups may represent discrepant interests. Table 1 includes potential goals and benefits of entities involved in the creation of integrated management system of neutralizing asbestos.

Table 1

Potential goals and benefits of entities involved in the creation of integrated management system of neutralizing asbestos

No.	Type of involved entities	Goals and benefits
1	Companies	Employment growth, economic growth in multiple fields, particularly in production of construction materials and services
2	Public sektor: local government	Removing asbestos from the territory, improving health of citizens and decreasing mortality rate caused by harmful impact of asbestos; lands, apartments and houses value growth
3	Central authorities:	National budget revenue (income tax and 8% VAT) from removing asbestos products and from storing these products, revenue from charges for the environmental protection fund, improving the aesthetic look of the country and natural environment

cont. tab. 1

4	R&D institutions	Development of directions, research level growth
5	Pro-ecological institutions	Improving condition of the natural environment
6	Owners of objects containing asbestos	Houses and lands value growth; improving their aesthetic look and the condition of the environment, improving health of citizens

Source: Author's own analysis on the basis of: Stachowicz J., Machnik-Słomka J., Bojar M.:

Dokumentacja interakcji regionalnych w kontekście oddziaływania społeczno-ekonomicznego. Raport opracowany w ramach projektu „Zintegrowany system zarządzania unieszkodliwianiem azbestu na składowiskach podziemnych w aspekcie zrównoważonego rozwoju Polski wschodniej”, 31.05.2011.

Unfortunately, such large group of entities involved in the process of implementation of complex projects may result in occurrence of numerous barriers in efficient and effective realisation of its principles. Adjusting the programme to the needs of the region, particularly guaranteeing the implementation of sustainable development, will require primarily achieving similar state of awareness of risk resulting from being exposed to the impact of objects containing asbestos on people and the environment, as well as determining entities managing the project itself, but also actions leading to eliminating barriers which may occur in the process of conducting the project. From this point of view, the proper identification of stakeholders' needs and shaping social interactions have huge impact on the success of this project. It is necessary to truly understand the issues and to be honest in taking actions. Only through such measures it is possible to combine issues of sustainable development with business goals¹⁰. Therefore, the framework of project actions include a necessity of analysis of the level of awareness, acceptance of solutions and needs of stakeholders, in wider perspective combining social, ecological and economic field in the context of the global system. In order to fulfill the requirements of creation of effective integrated management system of neutralising asbestos encompassing aspects of sustainable socio-economic development, a series of analysis, research and social consultations was carried out, the results of which were presented in the respective reports. These include:

- *carrying out social consultations with pro-ecological organisations in the field of new forms of neutralising asbestos*¹¹,
- *preparing and carrying out questionnaire research on determinants of effective asbestos removal from the territories of Eastern Poland*¹²,

¹⁰ Bojar E., Bojar M., Żelazna-Blicharz A., Blicharz P: Eco-Management in Polish Companies. „Problemy Ekorozwoju – Problems of Sustainable Development”, Vol. 7, No. 2, 2012, p. 107.

¹¹ Bojar E., Czarnocki K., Bojar M.: Raport z konsultacji społecznych z organizacjami proekologicznymi w zakresie nowych form unieszkodliwiania azbestu. Raport opracowany w ramach projektu „Zintegrowany system zarządzania unieszkodliwianiem azbestu na składowiskach podziemnych w aspekcie zrównoważonego rozwoju Polski wschodniej”, 31.05.2011.

¹² Bojar E., Czarnocki K., Bojar M.: Przygotowanie i przeprowadzenie badań ankietowych dotyczących determinant skutecznego usuwania azbestu z terenu Polski wschodniej. Raport opracowany w ramach projektu „Zintegrowany system zarządzania unieszkodliwianiem azbestu na składowiskach podziemnych w aspekcie zrównoważonego rozwoju Polski wschodniej”, 30.04.2011.

- *preparing documentation of regional interactions in the context of socio-economic impact*¹³.

From January to March 2011, a questionnaire research on determinants of effective asbestos removal from the territories of Eastern Poland (1280 filled pre-prepared questionnaire forms) was conducted¹⁴. Respondents were coming from all provinces of the Eastern Poland. Research instrument in a questionnaire form regarded:

- issues connected with stock-taking and identification of asbestos deposits,
- issues of threat perception,
- socio-demographic characteristics of a respondent.

The acquired data (fig. 2) concerning awareness on asbestos removal and perception of risk connected with asbestos indicate that the level of awareness on harmful impact of asbestos on human body in the analysed group does not affect the mobilisation of the respondents as regards the asbestos removal. Moreover, a large group of respondents indicated the lack of financial means for roofing replacement.

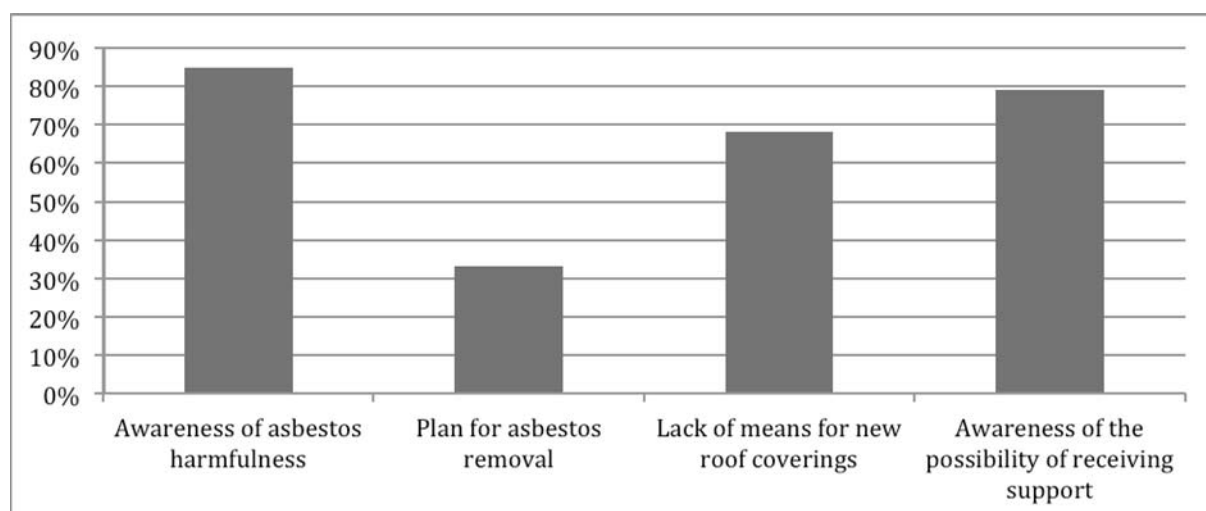


Fig. 2. Cross-sectional analysis of perception of risk resulting from the presence of asbestos in a household

Rys. 2. Przekrojowa analiza percepcji ryzyka związanego z występowaniem azbestu w gospodarstwie
 Source: Bojar E., Czarnocki K., Bojar M.: Przygotowanie i przeprowadzenie badań ankietowych dotyczących determinant skutecznego usuwania azbestu z terenu Polski wschodniej. Raport opracowany w ramach projektu „Zintegrowany system zarządzania unieszkodliwianiem azbestu na składowiskach podziemnych w aspekcie zrównoważonego rozwoju Polski wschodniej”, 30.04.2011.

¹³ Stachowicz J., Machnik-Słomka J., Bojar M.: Dokumentacja interakcji regionalnych w kontekście oddziaływania społeczno-ekonomicznego, Raport opracowany w ramach projektu „Zintegrowany system zarządzania unieszkodliwianiem azbestu na składowiskach podziemnych w aspekcie zrównoważonego rozwoju Polski wschodniej”, 31.05.2011.

¹⁴ Bojar E., Czarnocki K., Bojar M.: op.cit.

Research on correlations between the respondents' age and the level of awareness of asbestos threat indicates a significant interrelation. The awareness of immediate need of solving the problem is mostly present between 40-50 years of age.

The results of conducted research shown not only basic dangers connected with realisation of "The programme for removal of asbestos products" but also indicated fundamental directions of activities enabling increase in acceptance level and therefore effectiveness of solutions included in the project.

Assuming that effective elimination of asbestos threat requires public acceptance both in a form of understanding the significance of actions taken by authorities and full awareness regarding suggested technological solutions of effective neutralisation of asbestos, where legal regulations should guarantee public participation¹⁵, including particularly environmental organisations, in actions connected with protection of the environment¹⁶. Moreover, social consultations have been carried out in the framework of the project. These consultations were the first stage in implementing optimal technological and logistic solution, which is the integrated system of neutralising asbestos fibres. Pro-ecological non-governmental organisations participated in the aforementioned consultations. When selecting entities for the purposes of consultations an assumption was made that these pro-ecological organisations were legally listed as stakeholders of every action for consulting various projects affecting the environment. Additionally, through grouping the most active, aware members of society, these organisations are valued partners controlling the state organs' activities.

The purpose of the carried out consultations was to describe the issues of removing products and waste containing asbestos to pro-ecological organisations in the social, information, technical, economic and environmental aspects on one hand, and attempt to assess the level of acceptance of the designed solutions on the other.

15 entities participated in the research, 13 of which operate on the territory of whole Poland. The remaining organisations' area of activities is limited to a region. Direct actions in the field of "asbestos issues" are taken only by 2 consulted entities, one of which operates in cooperation with authorities. An attempt to determine *the role that should be played by environmental organisations in the "asbestos removal" process* indicated that, according to the interested parties, environmental organisations should not be limited to being training units. Instead, they should also play the consultative role both for the authorities and citizens.

¹⁵ Ustawa z dnia 24 kwietnia 2003 r. o działalności pożytku publicznego i wolontariacie (DzU 2010, Nr 234, poz. 1536, t.j.).

¹⁶ Minister Środowiska, Polityka ekologiczna państwa w latach 2009-2012, z perspektywą do roku 2016, Warszawa 2008.

Every system requires a competent personnel responsible for its implementation and realisation, which would guarantee success and allow to optimally manage the complex system. According to the respondents from pro-ecological organisations, *the most effective organisation of implementing undertaking connected with asbestos removal will ensured by* – communal administration units (11 for – 3 against) or regional administration units (9 for – 5 against). In respondents' view, the least effective form of coordinating activities would be one carried out by central administration (3 for – 11 against). Respondents claimed that coordination of actions conducted by independent institution or institution isolated from administrative organs will not be effective.

One of the fundamental challenges in the context of asbestos removal is to raise the awareness of citizens. According to the respondents, the *most effective forms of transferring information* are special information materials, posters, leaflets (11 for – 3 against), media broadcasting (TV, radio) (10 for – 4 against), press (9 for – 5 against). Ranked respectively 4th and 5th were trainings for citizens and contests with prizes (8 for – 5 against). In respondents' view, the less effective form of addressing citizens, yet still accepted by over a half of respondents, is the use of the Internet (8 for – 6 against). The least effective are training meetings with experts (6 for – 8 against).

The evaluation of priorities that should be taken into consideration in the process of asbestos removal indicated that almost every pro-ecological organisation participating in the survey claimed that the implemented solutions should most of all consider natural environment, sustainable development and be most beneficial for the society. The guarantee of instant results of the activities is not among the key aspects that should be, according to the respondents, considered when selecting solutions. In respondents' view, the worst solutions were preferring the cheapest solutions and solutions guaranteeing potential reuse of asbestos in future.

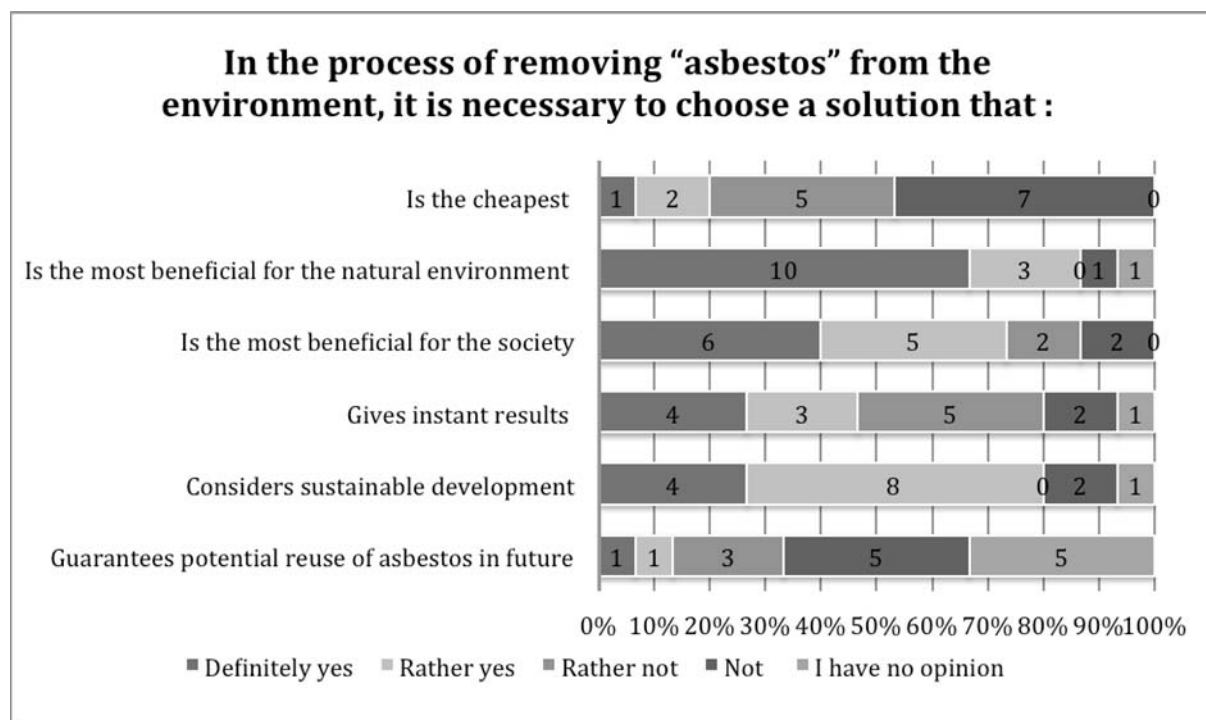


Fig. 3. Analysis of priorities that should be taken into consideration in the process of asbestos removal
Rys. 3. Analiza priorytetów, które powinny być brane pod uwagę w procesie likwidacji azbestu
Source: Bojar E., Czarnocki K., Bojar M.: Raport z konsultacji społecznych z organizacjami proekologicznymi w zakresie nowych form unieszkodliwiania azbestu. Raport opracowany w ramach projektu „Zintegrowany system zarządzania unieszkodliwianiem azbestu na składowiskach podziemnych w aspekcie zrównoważonego rozwoju Polski wschodniej”, 31.05.2011.

4. Methods of integrating stakeholders’ activities in the framework of complex pro-ecological undertakings considering principles of sustainable development

Establishing social relations with stakeholders has to be treated as a long-term strategic goal that should contribute to creating long-lasting relations built on trust. Due to multi-dimensional character of issues regarding efficient neutralisation of asbestos threat, it is necessary to involve the greatest possible number of entities and consider their goals, needs and roles. In order to implement the integrated system of managing environmental issues of the region it is necessary to present the concept of its functioning to a wider social group. Integrated approach may give permanent benefits for involved participants from various groups, create values for the society and ensure financial success. Methodology of designing process of this undertaking should consider not only principles of sustainable development included in global sustainability concept, but also modern directions in management sciences.

Therefore, in order to integrate activities of various stakeholder groups, the integrated management system of neutralising asbestos should primarily take into consideration:

- the use of various instruments of social influence shaping the pro-ecological awareness,
- the use of communication and consultation tools with stakeholders involved in the undertaking,
- social responsibility for integrating activities,
- network, cluster approach based on interrelations between involved entities pursuant to the triple helix concept,
- actions leading to creating an Ecosystem, incorporated in global networks.

For the purposes of integration of actions in the system's framework, it is necessary to *use communication tools*, involve and mobilise stakeholders and promote good practices. In order to encourage various stakeholder groups to active participation, it is necessary to introduce certain standards in the field of social communication and consultations with interested parties and promote social responsibility and sustainable development. In order to promote sustainable development it is important to implement mechanisms of effective transfer of information between local, regional and state and international initiatives. These goals can be achieved through system transparency and good governance at various levels. In the framework of this undertaking, it is necessary to take further actions for increasing awareness and involvement of interested parties at various level and building institutional capabilities and dialogue.

Therefore, it is vital to use multiple *instruments of social influence*. These instruments include every tool, that on one hand shapes the pro-ecological ("eco-development") awareness of units and social groups (such as education), and on the other – is a symptom of this awareness (instrument allowing to use the right to information on the environment)¹⁷. These are fundamental instruments of this group:

- education and ecological propaganda,
- negotiations, contracts and agreements,
- forms of direct pressure and direct social initiatives,
- lobby instruments,
- service tools, such as running information centres or providing free legal services,
- complementary actions tools – understood as a totality of actions complementary to existing procedures or repeating these procedures independently from official organs¹⁸.

¹⁷ Borys T.: Poradnik dla gmin i organizacji pozarządowych. Jak budować program ekorozwoju. Informacje ogólne. Agenda 21 tom I, Warszawa-Jelenia Góra 1998, s. 92.

¹⁸ On the basis of: Borys T.: Poradnik dla gmin i organizacji pozarządowych. Jak budować program ekorozwoju. Informacje ogólne. Agenda 21, tom I. Warszawa-Jelenia Góra 1998, s. 92.

The aforementioned instruments should serve the purposes of socialising the implementations of activities connected with eco-development.

The organised system should also be synchronised in time and *socially responsible*. This gives a better chance to implement principles of sustainable development at the lowest possible level of enterprises, entrepreneurs, employees and local residents¹⁹.

Actions in the framework of highlighted elements of sustainable development should contribute to economic, social and environmental integrations of goals in the context of the created system. The optimal cooperation between respective participants can be ensured by the triple helix model which assumes cooperation between three types of organisations: R & D sector institutions, public institutions and enterprises in the process of organising and managing complex environmental projects²⁰.

Taking a *network, cluster approach* can have a significant impact on organisations of the management system, communications, transfer of knowledge, implementing common projects and solving common problems by respective partners of this undertaking. Stachowicz J. and Stachowicz-Stanusch A. put an emphasis on the fact that organising clusters is the “solution” of the paradox between: global character of mankind’s activity (almost every organisation, institution and enterprise act in the global network) and local generating and fulfilling people’s needs²¹. Creating clusters allows to better exchange knowledge and form stronger relations based on cooperation²². However, it is important to encompass certain clustering dynamics in the implementation context and aspects concerning innovative character of this undertaking. For clusters operating in the field of state-of-the-art technologies, it is important to have access to human capital and design a cluster ecosystem based on local resources.

Ecosystem can be a very important factor in integrating actions around such projects. Due to innovative character of building *an integrated management system of neutralising asbestos*, the so-called *ecosystem of innovations* may turn out to be particularly important. Ecosystems of innovations regard primarily innovative regions, new branches of industry and IT platforms. There is relatively not many groundbreaking theories regarding ecosystems of innovation in comparison to previous concepts, such as e.g. clusters. New concepts and conceptualisations such as “ecosystems of innovations” often mean abandoning old reality and pursuing current one. They present fundamental changes in main existing thinking trends

¹⁹ Żelazna-Blicharz A., Bojar M.: From Social Responsibility to Sustainable Development, [in:] Bojar E. (ed.): Eco-Management for Sustainable Regional Development. Dom Organizatora, Toruń 2011, p. 127.

²⁰ Ibidem.

²¹ Stachowicz J., Stachowicz-Stanusch A.: Kłustry – współczesną i przyszłościową formą organizacji potęgującej wiedzę i wartości. Kwartalnik Naukowy „Organizacja i Zarządzanie”, nr 4. Politechnika Śląska, Gliwice 2011.

²² Machnik-Słomka J.: Znaczenie klastrów wiedzy w komercjalizacji wyników badań z uczelni. Kwartalnik Naukowy „Organizacja i Zarządzanie”, nr 4. Politechnika Śląska, Gliwice 2011.

aimed at a new paradigm²³. These activities get closer and closer to new global network economy.

5. Summary

Social interactions in implementation of complex pro-ecological undertakings should be viewed in a wider perspective, combining social, ecological and economic dimensions in the context of global sustainability. Entities managing such projects should therefore base their actions on three fundamental principles of sustainable development: stimulating the economy, social development and respect for the environment. Solutions that meet the aforementioned requirements can be more easily accepted by both citizens and pro-ecological organisations.

The process of implementing complex pro-ecological projects should be carried out with active involvement of multiple stakeholders pursuant to the triple helix concept and network cooperation. However, this requires unanimity and cooperation in the field of taking actions at various levels by different stakeholder groups. In order to achieve this, it is necessary to identify needs, roles and goals of every stakeholder group and design proper integrating solutions. Preparing an undertaking like that requires specific comprehensive approach from the part of regional and local governments, supporting institutions, scientific institutions and enterprises²⁴.

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²³ Ptak K.: Ekosystemy innowacji, www.pi.gov.pl/Polityka/chapter_95499.asp, downloaded on: 10.02.2013.

²⁴ Stachowicz J., Machnik-Słomka J., Bojar M.: Dokumentacja interakcji regionalnych w kontekście oddziaływania społeczno-ekonomicznego. Raport opracowany w ramach projektu „Zintegrowany system zarządzania unieszkodliwianiem azbestu na składowiskach podziemnych w aspekcie zrównoważonego rozwoju Polski wschodniej”, 31.05.2011.

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