

ANDRZEJ PODOBIŃSKI*

Methods of data collection about foreign markets for minerals

Key words

Marketing research, mining company, export, foreign markets, marketing strategy, marketing research plan

Abstract

The paper outlines the direct and indirect methods of gathering information about foreign markets for minerals. The division of information sources into internal (within the companies) and external ones (outside the company) is taken into account. Furthermore, the categories of domestic and foreign sources of information are considered.

The sources and methods of gathering information are reviewed, revealing a number of diverse methods. When used properly, they ensure that all vital information is available to mining companies.

Properly conducted foreign market research determines the selection of an effective strategy for exports of minerals or metals. A number of marketing research methods are currently available. New methods go well beyond the purely economic context, involving psychological, sociological and engineering aspects as well. That is so because marketing itself is a interdisciplinary field. Accordingly, those performing the analyses of foreign markets have to resort to interdisciplinary methods to ensure fully reliable results.

Selection of marketing research methods to the analyses of foreign markets for minerals or metals is determined by:

* Professor of the Department of Marketing and Production Management, AGH University of Science and Technology, Kraków, Poland.

- 1) type of mineral,
- 2) specificity of the mining company,
- 3) distinctive features of the foreign market,
- 4) scope and objective of the market research,
- 5) level of detail,
- 6) accessibility to reliable data about the potential foreign market,
- 7) type of acquired data,
- 8) potentials for data quantification,
- 9) organisational capacities of the researching unit,
- 10) qualifications of personnel.

Research methods fall in two main categories:

- 1) data acquisition methods,
- 2) data processing and drawing conclusions.

The purpose of this study is to acquaint the readers with methods to be applied when gathering information about potential foreign markets for minerals i.e. the first group of methods. It is worthwhile to mention that data gathering methods can be broadly categorised into two main groups:

- 1) indirect methods, also referred to as desk research,
- 2) direct methods, known as field research.

Accordingly, the associated sources of information about the potential foreign markets are termed the indirect and direct sources. While classifying the information sources we mention the sources inside the mining companies and those outside the company (in the company environment), there are domestic and foreign sources. Summing up, there are the following sources of information about foreign markets:

- 1) internal direct sources,
- 2) internal indirect sources,
- 3) external domestic direct sources,
- 4) external domestic indirect sources,
- 5) external foreign direct sources,
- 6) external foreign indirect sources.

These sources of information about the foreign markets enable the exporting companies to conduct the reliable analyses of export conditions to the given foreign markets.

The starting point in the marketing research and foreign market analyses should be the analysis of available indirect sources, that is why these sources are on top of the list. This approach involves the utilisation of indirect methods for the analysis of the given foreign market whereby the information is sought without the need to reach the data origins and without commissioning any research survey to be conducted for the purpose of the specific study. Indirect acquisition of information involves the use of data and resources which have appeared independently from the currently performed analysis. Those responsible for research may utilise information which can be obtained whilst sitting behind the desk, and hence the English terms *desk research*. Taking into account the type and accessibility of data

about foreign markets for minerals, the available indirect sources can be divided into the following categories (Podobiński 1994):

- 1) magazines and books on the subject of minerals,
- 2) publications in magazines about minerals,
- 3) bibliographies and references (dictionaries, reference lists, encyclopaedias) on the subject of minerals,
- 4) published statistics (statistical yearly, publications of the Central Statistical Office, publications of the extractive sector, professional bulletins),
- 5) research data from the sector-based and interdisciplinary research units, inter-departmental, central and regional market research centres, industrial laboratories in the extractive sector,
- 6) research data from research and development units whose research areas include the minerals production (universities, research units, Polish Academy of Sciences),
- 7) bulletins released by professional associations, conferences and international organisations,
- 8) materials issued by government agencies, expert panels, certification and standardisation agencies having relevance to the minerals sector,
- 9) bulletins and price listings from the stock markets,
- 10) mining and trading companies' reports and documents (catalogues, invoices, reports),
- 11) monographs on minerals and metal markets and about specific minerals or metals published by (domestic and foreign) research and development units, specialised bureaux, banks, press agencies,
- 12) address books, catalogues from fairs as well as domestic and international exhibitions.

As it was mentioned before, indirect methods and sources utilised in the course of marketing research supply the input information about the potential foreign markets. All market research should begin by gathering this type of info, hence its might be worthwhile to consider the benefits and drawbacks of indirect techniques. The chief advantage of the indirect information sources is that they save time and money which would otherwise have to be spent to obtain information. That is why when the required information can be obtained from indirect sources, they should not be disregarded. Those conducting the research should, in the best interests of the company they represent, do what they can to shorten the market research procedure to get the results and conclusions before their major competitors. The only savings can be made by clipping the time required to gather information about the distinctive features of the potential foreign market. Gathering the required data by utilising the twelve types of indirect sources of information usually lasts no more than several days and enables vast cost-reductions, not possible otherwise. If the same data were to be gathered by those conducting the research, the classical procedure would involve the working out of the questionnaire, preliminary testing of the questionnaire, selection of the representative sample, data gathering, evaluation of reliability and adequacy of the test, followed by data processing and analysis. It goes without saying that the whole procedure would have to last several months and the costs would be far from minor. When indirect information sources are

utilised, the costs have been already borne by institutions that gathered and processed the data before while the users participate in some portion of costs, i.e. they bear the costs of purchase of the given publication or pay for a licence to use the source. Those conducting the research should first of all make sure whether the required information about the given foreign market can be obtained from available indirect sources. It has to be emphasised that even when fully satisfactory indirect information cannot be obtained, partial data may be most useful, too as they can help the analysts to better understand the problems to be encountered on the given foreign market and to help find the optimal solution by indicating better methods of data types. They sometimes serve as comparative data allowing a careful interpretation of indirect information.

One has to bear in mind, however, that the adequacy of indirect information is limited in that they are usually gathered to serve some specific purpose and rather rarely does this information fit other purposes. That is the key shortcoming of indirect information, apart from the fact that it was collected in previous periods so might be outdated so its role is reduced. Certain doubts are raised as to the level of accuracy of indirect information utilised for market research. Notwithstanding these obvious drawbacks, indirect sources and methods have to be tackled first while gathering information about a potential foreign market. Afterwards direct methods and sources should be sought whereby those conducting research have to gather the necessary data by way of direct contacts with informants.

This compilation of information sources shows they could be either internal or external. Internal sources (inside a mining company) provide vital information about potential foreign markets to which the company already exports its products, though their role is sometimes underestimated when we come to think how much information is available there. The data stored at the accountancy and export units within an organisation handle all documents and business correspondence to record all transactions on the given foreign market. A thorough scrutiny of those documents yields a whole body of valuable information enabling a reliable comparison of the present levels and structure of exports to the given market and current prices and allows the company to draw conclusions as to major tendencies on the market and the access conditions. When those documents are supported by periodic statistical reports or periodic market reports, their importance is really far from minor. The company's own indirect sources include reports submitted by business representatives and agents from foreign business sectors. Apart from seeking potential importers of company's products and organising the promotion, the basic duties of business representatives acting as intermediaries between mining companies and a given foreign market include making and submitting reports on the current situation on the market, the main tendencies in the market conditions, particularly as regards the level and structure of demand for the products exported by the mining company. These reports ought to contain the information about competitors' products, the level of processing, their financial conditions, the tendencies of importers' requirements and legal regulations having relevance to the trading on the given foreign market. One has to bear in mind, however, that when one agent represents several companies his/her information might be biased, and hence of lesser importance. In such case

the supplied data must be verified against other sources. Valuable information is contained in reports from foreign trips and those sent in by company's representatives abroad. This is a vital source of information for the mining company as those reports, though often subjective and statistic-oriented, typically contain very precise and detailed information particularly as regards supply and demands for products exported by the mining company. In extreme cases these information can be obtained by administrative orders from the company's management.

Beside business documents mentioned previously as being of major importance as company's internal sources of information are quotations, offers, business contracts and invoices. It has to be emphasised that quotations and offers contain a host of vital information, particularly useful when analysing the competition on the market and the sales conditions. Quotations and offers contain most important information too, having relevance to quality of minerals, prices, terms of payment and delivery, transport, reception and acceptance of minerals, arbitration procedures. Similarly, a business contract is a most valuable and accurate source of information about the prices of exported minerals and the price levels are set forth. What is more, a contract specifies the terms given in the quotation. An invoice contains key information about the detailed prices of individual minerals, their total value, date and way of shipment and sometimes even the manner of transport. When the business contract does not specify the final price but contains only a price fluctuation clause (associated with the prices on the world markets) whereby the purchaser shall pay the current price quoted on the specified stock exchange on the particular date, as it is often the case in minerals trading, the invoice grows in importance as the information source (Podobiński 2005).

External sources of information about potential foreign markets include statistical data, press materials and descriptive analyses available to the mining company. One has to bear in mind, however, that statistical data are the major source of information about the foreign market. They can be categorised in three groups (Schroeder 1992):

- 1) materials published by Statistical Bureaux and other UN bodies,
- 2) materials published by international business associations,
- 3) materials published by government agencies in individual countries.

UN publications are typically very general. Released in the form of a yearbook, quarterly or a monthly, they are regarded as fairly objective and hence most useful in evaluation of business trends in the importers' sectors and in the world trading of minerals. Statistical yearbooks and monthlies containing a host of business statistics such as *Statistical Yearbook*, *Monthly Bulletin of Statistics*, *International Financial Statistics*, *World Economic Outlook*, *World Economic Survey*, *World Energy Supplies*. *Coal Statistical International* and further on publications on the level and structure of national product and industrial production, such as *Yearbook of National Accounts Statistics*, and international trade statistics: *Yearbook of International Trade Statistics and Commodity Trade Statistics*. Periodicals and bulletins issues by UN regional economic committees, such as *Economic Survey for Europe*, *Economic Bulletin for Latin America*, *Bulletin for Asia and Far East* contain the studies of

business cycle and conditions on the regional markets, the main development trends on those markets and in the countries of the region. That is why they are important sources of information about potentials of exports of given minerals to a target country.

The data published by international business associations usually have a local character. Among publications about business and commerce are very detailed statistical analyses of foreign trade. For example, the EU Statistical Bureau publishes a quarterly *Commerce exterieur: Tableaux analytiques*, focused on international trading in various commodities, including minerals. The publication by the OECD *Trade by Commodities* provides data about the level and structure and mineral trading in OECD countries.

Valuable information about minerals trading is found in professional yearbooks published by government organisations. The available data give a sufficiently accurate and objective picture of the mineral trade in the given countries and sometimes in whole regions. That is so because semi-official bodies, such as business and commerce chambers publish a host of statistical data to be used in analysis and evaluation of various segments of the regional markets.

The other group of external information sources to be used by mining companies and descriptive analyses. They contain processed information and the interesting fragments are most useful in the analysis of minerals trade in importing countries. Similar to statistical publications, they are issued by regional UN economic committees, international business organisations or governmental institutions. The descriptive materials can be categorised in two groups (Schroeder 1992):

- 1) general monographs focused on individual countries,
- 2) monographs relating to specific minerals or metals.

The latter publications are of paramount importance as they provide valuable information about minerals market, both world-wide and in the regional context. They contain information about the technologies of minerals or metals production and processing, production and consumption levels and the export and import figures and structure. They enable a fairly objective evaluation of business conditions on specific markets and monitoring of competition tendencies on those markets (Podobiński 2005).

Accordingly, the next group of external sources contains press materials. Their main advantage is that the information is updated. These sources include commercial and economic magazines, sector-oriented and professional publications, daily papers and periodicals. The key feature of professional and economic magazines is that they are read by relatively large groups of people. Addressed are the basic economic issues relating to minerals markets and the problems related to particular minerals or metals: major producers and importers, problems encountered in international trade, price fluctuations on the world markets, supply and demand on the world markets both in long- and short-time range. These magazines typically publish quarterly or yearly lists of contents, so that vital information can be easily found. The group of economic and business journals include *The Economist*, *Financial Times*, *The Economic Journal*, the professional magazines are: *Metal Bulletin*, *World Metal Statistics*, *Mining Annual Review*, *Mining Magazine*, *Mineral Facts and*

Problems. The daily papers and periodicals are widely available and the readers are numerous. On the Polish market there are two journals worth mentioning: *Rynki Zagraniczne*, (*Foreign Markets*) and *Rynki Węglowe* (*Coal Markets*) which contain specialist information about mineral markets.

These last sections evidence the richness and variability of external sources of information about the potential foreign markets for minerals or metals based on indirect methods of data gathering. In some cases, however, these sources prove unsatisfactory and ought to be treated only as the starting point for further research. Analyses of foreign markets must be supported by research based on direct methods of data acquisition, such as widely used questionnaires, whereby information is obtained from respondents who are asked to answer certain questions. It has to be emphasised that a survey based on a questionnaire can be exhaustive when they cover all representatives of a given population or not exhaustive when conclusions about the whole population are drawn on the basis of results obtained for a some part of this population, i.e. a sample. In practical applications fully exhaustive surveys are exceptionally rare. that is so for several reasons:

- 1) time allowed for information gathering, processing, analysis and drawing conclusions is to short to conduct the survey,
- 2) high costs of such survey,
- 3) low chance that all potentials participants shall really take part in the survey.

For those reasons, surveys being a part of market research are typically not exhaustive, i.e. they do not cover the whole concerned population. That is in not exhaustive tests it is necessary to determine the sample size. The sample is the part of the whole population which it represent in the survey. Accordingly, for the purpose of the survey the population of all existing and potential importers of the given mineral or metal on the given foreign market shall be represented by some part of the whole population selected in accordance with the approved criteria. The results obtained for that sample should extend to the whole population of importers. The method of choosing the sample is of key importance as it has a major bearing on the adequacy of drawn conclusions. There are four basic stages of the sample selection procedure:

- 1) identification of the tested population,
- 2) design of the sample selection,
- 3) selection of individuals,
- 4) evaluation of the applied method of sample selection.

Identification of importers of minerals or metals on the given foreign market requires that the key features of the population be first established in the context of time, space and merits. These features are of major importance both for the subsequent stages of the sample selection procedure and for evaluation of reliability of survey results. in the next stage (design of sample selection) the key methodological questions have to be answered: the applied sample selection method, sample size, admissible error levels. The design worked out at this stage allows us to proceed to stage 3 — selection of importers to make the sample. The sample selection procedure is completed after the fourth stage in which the applied method is

evaluated and verified. Table 1 summarises key problems encountered during the sample selection with the solutions.

TABLE 1
Key stages in the selection of the sample of importers representative of the population of importers of minerals on the given foreign market

TABELA 1
Podstawowe etapy w procesie doboru próby importerów charakteryzującej zbiorowość importerów surowców mineralnych danego rynku zagranicznego

Problem	Solution
<p>I. Identification of population</p> <ol style="list-style-type: none"> 1. What are the basic economic and non-economic parameters characterising importers? 2. What are the tendencies in the minerals imports volume and structure? 3. What are the opportunities to use local sources of information? 4. Which importers should be represented by the sample? 	<ol style="list-style-type: none"> 1. Learn about the economic tendencies in the importers' country 2. Learn about the plans of projected demand for the minerals imports 3. Define the features of the importers' population and the conditions necessary to conduct the survey 4. Compile those features in the form of lists, graphs
<p>II. Design of sample selection</p> <ol style="list-style-type: none"> 1. Which method should be applied to select the sample? 2. How to determine the sample size? 3. What should be the sample size? 	<ol style="list-style-type: none"> 1. Adopt a random or non-random method of sample selection 2. Define the confidence level and the maximal acceptable error 3. Define the sample size and structure
<p>III. Selection of individuals to make the sample</p> <ol style="list-style-type: none"> 1. Which importers should make the sample? 2. Which features should they exhibit? 	<ol style="list-style-type: none"> 1. Choose the criteria to evaluate the importers 2. Pre-test the sample design 3. Finally choose the sample
<p>IV. Evaluation of the sample selection method</p> <ol style="list-style-type: none"> 1. Find out whether and in what extent the sample meets the specified requirements 	<ol style="list-style-type: none"> 1. Define the adequacy of the sample selection 2. Analysis of applied statistical and econometric methods of sample selection in the context of their potential use and verification

Source: Author's own sources

The survey methods based on questionnaires are outlined in more detail elsewhere (Podobiński 1994). These methods of analysing potential foreign markets for minerals have several advantages or disadvantages. Their major benefits are low costs, eliminating the influence those conducting the survey can have on respondents, unlimited scope of research and ensuring that respondents should remain anonymous. The shortcomings include a relative low percentage fraction of returned filled-in questionnaires from respondents, the fact

that sample is not wholly representative mainly due to a small proportion of returned questionnaires, a limited number of survey questions, too long survey, and ambiguous answers when questions are misunderstood by respondents.

Apart from questionnaires, another direct method of data gathering about foreign markets for minerals involves phone calls and personal interviews between the representatives of mining companies and respondents. These techniques, however, have both advantages and disadvantages. The main benefits include low costs, easy access to information, high proportion of obtained answers and little time required to gather information. The key disadvantages are: not wholly representative samples, small scope of tests, the respondents cannot remain anonymous and can be influenced by interviewers. The advantages of personal interview is that the sample selection can be precisely controlled, the respondents can give sincere and complete answers and the veracity of obtained answers can be easily verified. The drawbacks of personal interviews are: relatively high costs, major influence of interviewers on competitors, lack of anonymous answers and time-consuming information gathering procedures.

A most convenient and reliable direct source of information about foreign markets is the panel research. The data gathering technique known as the panel method involves continuous or systematic (periodic) acquisition of information from the same importers. The main purpose of panel research is to determine the structure of importers of minerals or metals, the degree to which the mining company meets the demand for imported minerals or metals on the given foreign market and the frequency of purchases by regular customers (importers) and hence the "loyalty" of importers. The panel method stipulates the occurrence of the constant representative sample: i.e. the same group of importers in all tests. In practical applications retaining the same "panel" is impossible in a long time. After a while some importers stop taking part in the trading, for one reason or another. In such cases new population members (importers) have to be added to the sample, in order to keep the same panel size. Utmost care should be taken to ensure that new importers replacing those who gave up trading should exhibit similar features, as far as possible. Though such situations are possible, it is worthwhile to continue panel research because of evident advantages of this method: great likelihood of obtaining accurate and reliable information on a regular basis, favourable conditions for dynamic analyses and good comparability of research data. The chief drawbacks include high costs associated with recruiting of importers (panel members) and the whole test procedure. Besides, it is difficult to make the importers' sample fully representative and sometimes the panel members have to be replaced.

This paper evidences the diversity of methods of data acquisition about the foreign markets for minerals. When properly applied, the methods enable efficient gathering of information about foreign markets for mining companies exporting minerals or metals. In the next stages of marketing research the collected information shall be processed and analysed using the appropriate methods and conclusions shall be drawn.

REFERENCES

- Schroeder J., 1992 — Badanie rynków zagranicznych. AE Poznań.
Podobiński A., 1994 — Podstawy marketingu, Wydawnictwa AGH, Kraków.
Podobiński A., 2005 — Badania marketingowe jako podstawa identyfikacji rynku zbytu produktów przedsiębiorstwa. Współczesne czynniki rozwoju przedsiębiorstwa. AGH Uczelniane Wydawnictwa Naukowo-Dydaktyczne, Kraków.

ANDRZEJ PODOBIŃSKI

METODY GROMADZENIA INFORMACJI O ZAGRANICZNYCH RYNKACH ZBYTU SUROWCÓW MINERALNYCH

Słowa kluczowe

Badania marketingowe, przedsiębiorstwo przemysłu wydobywczego, eksport, rynki zagraniczne, strategia marketingowa, plan badania marketingowego

Streszczenie

Praca przedstawia pośrednie i bezpośrednie metody gromadzenia danych o rynkach zbytu na surowce mineralne. Uwzględniono podział źródeł informacji na źródła wewnętrzne (wewnątrz firmy) oraz zewnętrzne (poza firmą). Rozważono dodatkowo kategorie źródeł krajowych i zagranicznych. Omówiono źródła i metody zbierania informacji, wskazując na różnorodność metod i technik, pozwalają przedsiębiorstwu na uzyskanie wszelkich niezbędnych danych o rynkach zbytu.