

BRICS cooperation program in the sphere of professional training, retraining and advanced training in the sphere of metallurgy.

For Introduction to the Centre for International Industrial Cooperation in the Russian Federation (UNIDO)

To Dr. Korotkov S.A. **Director UNIDO CIIC Moscow**

The program is dedicated to BRICS countries cooperation in training for the steel industry, for one of the priority industrial clusters of economic development of the BRICS countries, which is one of the sectors formed by the Technology Platform BRICS. The concept was developed by Professor Tulupov O.N., Doctor of Science. with the participation of Kulkov I.V., RIA Academic **Counselor**, National Expert UNIDO / BRICS project.

Proposal for the organization of cooperation in the sphere of training to support the project UNIDO/ BRICS development for metallurgical cluster, however, the principles of cooperation could be focused on other industries.

The main characteristics and the relevance of the system

The development of the technique and technology is impossible without advanced development of human resources that is why one of the strategic priorities of innovative economic development of BRICS countries is the creation of innovative system of training and retraining of personnel.

For this to be achieved, the following conditions should be fulfilled:

- Development of new, specialized flexible training programs and professional development of engineers.
- Ensure coordination between universities, factories, research agencies in the training of engineers and technicians in the training in the new conditions.
- Development of a system (complex) of modern criterias for the preparation of specialists for the mining, metallurgical and machine-building complexes.
- Development and implementation of international training programs and advanced training for metallurgical engineering and metallurgy, including the training of highly skilled engineering, technical and management personnel for companies.

Thus, for the organization of effective education and training of specialists, technicians and workers at the level of international standards for mining complex and metallurgical engineering it is necessary to create a special center, which will have a university base and industry and inter-regional status.

Connection with the BRICS programs

The system must comply with the basic provisions of targeted programs for development of BRICS, including the development of education, associated with the formation of a segment of the national innovation system of training and retraining on the base of universities, introducing new educational technologies, continuing professional education and promoting the integration of educational institutions. An example of such cooperation are international training and skills development of new production lines for the production of steel and rolled products,

implemented by the International Union "METALLURGMASH" together with the members of the Union - **Magnitogorsk State Technical University MSTU**. and Danieli (Italy).

In BRICS countries there is a problem with training engineers, which require priority consideration. Coherence among them education and the business community and the high level of technical and methodological support of educational institutions. Solving these problems are possible in close cooperation and geographical proximity specialized universities and industry sector company, leading the complex of technological modernization, including iron and allied industries.

Currently, there is increasing responsibility of countries and regions for the socio-economic development, the growth of interest in strengthening the intellectual potential of the field, the development of a regional system of education to economic expansion, increased investment and innovation policy, training and retraining of qualified personnel.

In this situation, the system of training and retraining of personnel for the mining sector should act as a key partner in the federal and regional governments, and also as large business organizations in the implementation of policies of social and economic development of the region, traditionally carrying the industrial character.

The effectiveness of the system of training and retraining is provided by:

- powerful material and technical base, significant educational and methodological funds, the active use of modern information technology, including copyrights of multimedia 3D simulators and high qualifications of the teaching staff;
- wide range of multi-level educational and research services, allowing to develop partnerships with customers, different social groups, academic and research centers, government and the public;
- implementation of certified under the international standard ISO training and retraining programs of staff for primary, secondary and higher professional education, aimed on leading enterprises, organizations and companies in the mining industry;
- experience in the research and development efforts, as well as available research schools recognized in Russian and international professional community on major aspects of the industry;
- the existence of partners in state and local government, the regional-sectoral alliances, in domestic factories, and the leading foreign companies - the developers of technologies and equipment in the industry.

Center for Professional Training in countries of BRICS

One possible implementation of this direction is the creation of a specialized training center in the countries of BRICS. The main purpose of the center is to create a system of continuous, coordinated, flexible and adaptive training and retraining of the personnel for the mining industry and mechanical engineering.

Given the various aspects of cooperation within BRICS, this center can be both sectoral and multi-purpose.

The main tasks of the center:

- Development, approval and accreditation with the employer in a public body of curricula and programs of training and retraining of personnel for the mining industry with the level of preliminary training of listeners and practical problems solved by them;

- Organization and conduction of the staff development for mining industry in various forms, preparing them for their new job functions;
- Development of professional and training standards for the mining industry;
- involvement in the learning process of foreign experts in the sphere of engineering;
- creation of the supervisory board, including representatives of the business sector and the executives;
- coordination with the industry, employment of listeners;
- consulting and expert activities in the organization and improvement of the educational process, skills, training programs and teaching methods, to the content.

The Centre should act in two areas:

- I. Organization and conduct professional training and skills development for the mining industry at the Center;
- II. The organization and coordination of professional training and further training and retraining of personnel for the mining industry on the base of universities and partner organizations.

The implementation of center's activities carried out by the complex of following activities:

- Development and implementation on a contractual basis of specialized training programs, training and retraining of the personnel for the mining industry (of varying duration: less than 72 hours, from 72 to 100 hours, more than 100 hours);
- the development of adaptive educational programs to improve skills and training to the needs of the mining industry and metallurgy industry and situations on the labor market;
- Development of educational programs (modular approach) for training to undergo the testing procedures connected with the mining industry;
- The organization of the educational process with the educational partner institutions;
- Creating customer base, networking skills development on the profile of the center;
- Preparation of educational programs for the accreditation;
- certification of educational programs;
- methodological support of accreditation;
- issuance of identity of a standard form of professional development, as appropriate;
- consulting and expert activities in the organization and improvement of the educational process skills, preparation of training programs and methods of teaching;
- Development of technical specifications for the creation of electronic educational resources (simulation trainers, e-learning systems, tests, etc.) to ensure the educational process;
- The organization of scientific and methodological activities (conferences, round tables, seminars, etc.) on the profile of the center.

Legal form of the Center may be an international non-profit partnership, defined by the founders of all the participants of the BRICS and UNIDO.

The center should have the right to engage in educational activities in accordance with the licenses of the founders of the participating countries in the sphere of additional professional education, suggesting the potential to obtain a license in their own development project.

At the work of the Centre there will have to be involved the most professional representatives of all member of countries of BRICS, the center will be able to coordinate at two other areas of cooperation: technical and technological trends and in science and innovation.

Coordination and management of the Centre

Coordination of the Center is carried by the Coordinating Board of the Centre and public bodies, including the representatives of the co-founders of the BRICS members and UNIDO members, and also a project partners.

Main controls of the center are:

President.

Presidium (Coordinating Council), composed of representatives of the founder and organizations - co-founders of the Center.

The Chairman of the Presidium is elected for one year, and each year the country, represented by the Chairman, should be changed.

Executive management of the Centre, formed on the base of human resources of the founders and approved by the President and the Coordinating Council.

The development of such a project for such a global association as the BRICS undoubtedly requires effort and experts from all interested parties and can be implemented on the base of a single specialized center BRICS for training and retraining of personnel for the industry, which will obviously include the best forces capable systematically develop the structure and document the basis of the cluster, which takes into account the interests of all stakeholders at all levels of economic and political cooperation.

The Russian side already has an experience in creating similar projects in metallurgy and engineering, bringing together both companies produce metallurgical equipment, engineering companies and research organizations developing advanced technologies for the industry.

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