

DEFINITION OF FIRST BATCH OF PHASE II INTERVENTIONS

1. The CREDO project

The Development Agency for the North East Region (NERDA) of Bosnia and Herzegovina (B&H) based in Tuzla, needs support for process and capacity development during the implementation of the CREDO (Competitive Regional Economic Development) project. The CREDO project is financed by SIDA (Swedish International Development and cooperation Agency).

NERDA is responsible for coordination of economic development in the North East Region of B&H (NER B&H) as well as creation of the conditions for access to EU development and structural funds. The CREDO project is a complex and long-term regional development effort involving a large number of stakeholders. In order to effectively manage and run the project NERDA needs to complement its own resource base with various competencies.

As a part of the Lot II of the first phase of the CREDO project the Terms of References (ToR) states that the development potential within predefined regional sectors was identified. For this task three international sector experts within Metal-, Wood-, and Food processing have been employed to plan and implement sector studies. For each sector NERDA provided a local consultant to support the sector experts in their work.

For gathering of information are used following methods:

- Background documentation;
- Meetings with NERDA and NERDA related resource persons;
- Semi-structured open interviews;
- Information compilation and value-chain mapping;
- The role of the Boards/Task forces.

For each sub sector a board of sector stakeholders was engaged in order to manage the change process in cooperation with NERDA and to support and advice the sector experts in their work. At the same time the sector expert was used by the Board to extract an expert opinion based on previous experiences in comparison with the situation in the NER B&H. Continuous Board meetings are held during the lifetime of the CREDO project and the sector experts are participating as required.

2. What is GAP Analysis?

In business and economics, GAP analysis is a resource assessment tool enabling a company, organization or geographical area to compare its actual or *current* performance with its potential or *future* performance. Certain indicators are defined and used in order to measure the performance.

At the core of GAP analysis there are two questions:

- Where are we?
- Where do we want to be?

The GAP analysis process involves determining, documenting and approving the variance between business or other requirements and current capabilities. GAP analysis therefore naturally relates to [benchmarking](#) comparisons and other assessments. Once the general expectation of performance in the industry is defined, it is possible to compare that expectation with the level of performance at which the company currently functions. The same comparison can be made based on current data on performance from a company or organization as compared to future targeted performance. This comparison becomes the GAP analysis. GAP analysis provides a foundation for measuring investment of time, money and human resources required to achieve a particular outcome.

3. GAPS identified

The GAP analysis has been done as an important step in the CREDO Project, where NERDA, the international sector expert and the local sector expert are the key resources.

Information gathered by the international sector expert:

1. Analysis of 11 companies based on interviews with the owner or a centrally placed manager (normally the Managing Director of the company);

List of 11 visited metal-processing companies NER B&H: Unis TOK Kalesija, Institut za zavarivanje Tuzla, Elektromont dd Banovići, Herceg doo Srebrenik, Netz doo Gradačac, Cimos TMD Ai doo Gradačac, Alfe-Mi Živinice, Metalmont doo Zvornik, Alpro ad Vlasenica, Deling doo Tuzla and MASS szr Gračanica.

2. Study visits to 6 metal-processing companies in Hungary and dinner-meetings with additional metal-processing company representatives in Hungary and evaluation of these;

List of 6 visited metal-processing companies from Hungary: Borsodi, Kantor, CNC rapid, Ipartechnika and Galaktika.

3. Discussions with NERDA representatives and other international experts;

NERDA, within its previous activities, has made research through questioner about metal-processing sector and, results are presented in Excel sheets “North-east Bosnia and Herzegovina. Metal Sector Profile” in which the growth potential of the Metal-processing Industry of the NER B&H was shown. The international and local sector experts have of course used their respective experiences from the metal-processing industry in northern Europe and in B&H.

According to gathered information, impressions, realised study visit to Hungarian companies in metal-processing sector, accomplished interviewees and visits to selected metal-processing companies in NER B&H are defined following GAPS:

1st GAP: Knowledge

2nd GAP: End-user approach

3rd GAP: Quality Assurance (QA) Certifications

4th GAP: Research and Development

5th GAP: State of Machinery

According to carried out activities current state of metal-processing sector in NER B&H in general can be characterise through: absence of development strategies, low knowledge about markets, small number of major customers, insufficient foreign language knowledge, insufficient knowledge from some specific business and skill areas, insufficient number of skill workers on market (especially engineers and some specific occupations), insufficient potential for developing of new products or for improving of existing one, most of companies are "lego" producers – loan jobs, absence of direct coordination between metal-processing sector companies and R&D institutions (Universities, Faculties, R&D Institutes), etc. Of course there are some good examples of practice, despite to the limited markets they act on. These companies are capable of gaining a lot of customers on their respective European markets, if they would identify it and address it.

3.1. Skilled workers

During the phase I of CREDO project visits to 11 metal-processing companies NER B&H was carried out. Companies are chosen in wide range of development, size and turnover with the aim to present current average situation in metal processing sector in NER B&H. In chosen companies semi-structured interviews with manager or owner are done. Most frequent and consider answer on the question what is the main obstacle or constraint will be for fulfil their mid-term plans (3÷5 years) was labour. By labour asked manages/owners was normally meant access to skilled labour in general and the possibility to hire and keep well educated

engineers in particular. This situation on the labour market is outcome of many different influences and request serious and systematic approach.

Current situation can be viewed through two different approaches. First approach to the current situation can be consider through educational system (Secondary Technical Schools, Technical Faculties and Universities) and it usually take in to account young employees involved in regular educational process. Those young workers usually have significant knowledge from new production technologies and IT technologies, but they don't have any experience or they don't have some specific knowledge important to employers. Second approach to the current situation can be considered through view of middle aged employees or unemployed workers (for a long time). In most cases those workers have certain level of experience but they don't have knowledge in new production technologies, IT technologies, new trends, etc, and it is possible to say they are "out-of-date". Mentioned limitations are reasons why those workers are not interested for employers in most cases.

Another important limitation to better performance of metal-processing companies NER B&H on global market, especially if they are interested in growth of their own business at foreign markets, noted during the visits, is poor knowledge in foreign languages of employees (at all levels). This is considerable weakness particularly when highly international character of metal-processing sector is taken in to account. In most cases metal-processing companies are not "speaking" partners to buyers/customers and frequently this is a big obstacle to future development and finding of new buyers/customers. This weakness is significantly important on engineer and manager level. Good indicator of current situation is the fact that from 11 visited companies only 3 of interviewed managers/owners spoke some foreign language, mostly English or German language.

If we consider current situation through afore mentioned limitations we will notice: significant absence of young skilled workers (especially mechanical graduated engineers) on labour market, absence of skilled specialised workers, absence of certain knowledge important for employers, absence of government support to educational programs, absence of long life learning educational institutions, absence of strategy to fulfil labour market demands for skilled workers, absence of coordination between educational institutions and metal-processing companies NER B&H, disinterested young people for careers in metal-processing sector, constant "brain drain" to EU and other countries, etc.

With the aim to overcome and improve current situation in metal-processing sector NER B&H connected to this GAP, Action plan - fields of interventions are developed and presented at table 1. Established action plan is oriented towards:

- analysis of current needs and training capacities;
- enabling to young inexperience, middle-aged and unemployed workers to acquire new specific knowledge – long life learning;
- improving coordination between metal-processing companies and educational institutions;
- promotion of career and opportunities in metal-processing sector;
- financial support to the educational – training programs, etc.

Successful application of proposed activities – fields of interventions will be reasonable to expect improving of current state defined by this GAP. By this way companies will have opportunity to gain educate employees or to improve their knowledge according to their own specific requirements. At the end implementation of proposed activities will enable to metal-processing companies NER B&H to increase the company's ability to respond to the global market requirements and to improve their competitive abilities.

3.2. End-user approach

According to the same semi-structured interviews with managers/owners of 11 chosen metal-processing companies in the B&H region, mentioned before, second place at the list of main obstacles or constraints for achieving of mid-term plans (3÷5 years) was market issues. During the interviews some common consideration was noticed: lack of reliability and confidence, lack of skilled management, unfair competition, low knowledge about value chains, etc.

Current situation in metal-processing sector in the B&H region connected to this GAP can be considered through many aspects.

One of them is limited awareness of the benefits of having several major customers and the risks of having only one. It is interesting when we compare situation connected to this aspect between visited Hungarian and in the B&H region metal-processing companies. We will notice significant difference between numbers of consumers. Namely, Hungarian companies have greater number of customers in average than in the B&H region metal-processing companies and usually they have fairly equalized percent of capacity usage and turnover distribute to the several customers/buyers. From another side, most of in the B&H region metal-processing companies have only one strategic partner, and all their activities are oriented according to its requests. In most cases strategic partner is not end user; it is only mediator (reseller) in business and presents bridge between metal-processing companies in the B&H region and end-users. By this way of business metal-processing companies in the B&H region, in most cases, are "lego" producers without any R&D activities, or have R&D activities where somebody else (strategic partner-reseller) present end-users needs.

Absence of direct contact to end-user can be treated as second aspect of current situation in metal-processing sector in the B&H region. Most of interviewed and visited companies don't have direct contacts with the end users of their products and in most cases they don't invest any effort to get in contact with them. Reasons for this are many, e.g. limited awareness of the benefits knowing all potential customers/markets, their needs, current customers and suppliers' activities in detail, low access to Human Resources that can perform the necessary information gathering and analysis and approach to potential customers – "speaking" partners, etc. All those limitations are especially important if we taken in to account end-user (pull, competence) approach to the marketing activities.

With the current state as a mainly "lego" producer and without significant R&D activities within the companies most of metal-processing companies in the B&H region are ready to accept any kind of business engagement (compatible to core business activities) with the aim to fulfil their current obligations towards to: salaries, taxes, maintenance of equipment, raw material purchase, etc. By this approach most of metal processing companies waste a lot of resources and don't have opportunity to concentrate on defined products/market/end users needs.

Connected to above mentioned aspects of current situation in metal processing sector in the B&H region general impression is that the managers and owners often have little or no information about potential customers/buyers, potential markets, end-users needs, some of the "down-stream" steps in the value-chains for their products and usually gave to this questions low priority (within the companies).

According to current situation in metal-processing sector in the B&H region connected to this GAP and according to well known marketing strategies where two main approaches are distinguished:

- end-user (market, competence) focus and pull business strategy;
- reseller (component, product) focus and push business strategy,

, it is possible to conclude that most of metal-processing companies in the B&H region use "reseller" approach in their daily business. Of course both approaches have certain advantages

companies. In certain minor number of metal-processing companies NER B&H reasons for absence of any activities is implementation of QA-certification programs are connected with financial issues. For undersigning of whole picture connected to this GAP, it is necessary to adduce the fact there are certain programs (governmental, NGOs, etc.) for financial and expert support in implementation of QA-certification programs. However, implementation and application to those funds are frequently connected with some obstacles:

- those support programs are not well known to the metal-processing companies NER B&H;
- different conditions for application in different area of NER B&H (Federation of B&H, Tuzla Canton, Brčko district, Republic of Srpska);
- certain number of metal-processing companies NER B&H don't have satisfactory knowledge for appropriate applications;
- frequently there are some manipulation by QA experts;
- etc.

Despite to afore-mentioned obstacles, support programs had a good influence on implementation of QA-certification programs in companies. To improve current situations in metal-processing companies NER B&H connected to this GAP there are some additional tools which are shaped and presented in this paper through fields of interventions. Those interventions are oriented to:

- analysis of current situation;
- raising awareness between metal-processing companies NER B&H about importance of QA-certification, through: round table meetings, visits, best practice examples, etc.;
- promotion of QA-certification programs;
- support to metal-processing companies NER B&H in application on existing QA-certification programs;
- education in QA-certification procedures, methods of implementation, etc;

Through implementation of suggested activities – fields of interventions it is reasonable to expected increase number of metal-processing companies NER B&H with implemented QA-certification programs what will open new possibilities/markets and will cause in business expansion and prosperity.

3.4. Research and Development

In most metal-processing companies in NER B&H there are no or there are only some indication of Construction and Development Departments in organisation structure of companies. Reasons for that are many and varied. Some of them are:

- "Lego" producers;
- Insufficient knowledge about customer/buyers needs;
- Insufficient coordination between metal-processing companies and R&D institutions (Universities, Faculties, Institutes);
- Expensive phase of Product Development;
- Non-innovative environment;
- Absence of specific knowledge in Product Development;
- Wide range of products, frequently completely different types of products;
- Etc.

Lack of buyers needs understanding, absence of creative initiatives, absence of continuous improvements of current products and initiative for their improvements accepted by buyers, lack of the "own"-brand products are the reason why most of metal-processing companies NER B&H are not recognize as R&D partners on global market and can't be market leader in their branch.

If we analyse current situations between metal-processing companies NER B&H and visited companies in Hungary we will notice that all Hungarian companies have at least one skilled worker (in most cases mechanical graduated engineer) directly in charged for development, refinement and reengineering of existing products/production systems. Those employees are speaking-partners to suppliers and buyers/costumers in daily communications and have a task to understand theirs needs and act to fulfil them. That is the reason way visited Hungarian companies have remarkable number of their products improvements accepted by buyers.

To improve current state connected to this GAP and to qualify some metal-processing companies in NER B&H for global competition it is necessary to promote idea of establishing of Construction and Developments departments, or at list engage a dedicated and well educated employee on R&D tasks within metal-processing companies. To support this approach in this paper are presented possible activities - fields of interventions. Those interventions are oriented to:

- analysis of current situation;
- promotion of R&D importance for development of metal-processing companies;
- establishing of effective cooperation between metal-processing companies itself and R&D institutions;
- development of new products;
- improving of existing products;
- establishing of metal-processing sector NER B&H as a cognizable "brand" based on: quality, reliability, accuracy, etc.

After success implementation of proposed activities, during CREDO II project, it is possible to expect that metal-processing companies NER B&H, at least some of them, will be recognize as reliable development supplier able to predict and fulfil customer/buyers needs.

3.5. State of Machinery

General impression after carried out interviews and visits about current situation of installed machinery in metal-processing companies NER B&H is that in general metal-processing companies have relatively old equipment and devices, with low level of automation, huge share of manual work, significant costs of maintenance, inadequate qualitative and quantitative characteristics, low level of utilisation degree, etc. Reasons for this situation are different but in most cases low level of products complexity and implemented low level of technology in products manufacturing are the reasons why most of companies don't have needs or can recognize needs for "state-of-the-art" equipment. Another reason for this situation can be find in the fact that most of metal-processing companies NER B&H are recognise as a "lego" producers without R&D components and for theirs businesses new High Tec equipment is not essential. Of course absence of money-investments, foreign priori, is the most important reason for current situation involve in this GAP.

It is hardly to expect that CREDO project will enable significant improvement of current situation in this GAP, but it is reasonable to expect that this project can signify and start up activities for improvement of current situation at least, through:

- Analysis of current situation in state of machinery in metal-processing companies NER B&H;
- Presentation of new equipment and its possibilities of usage and
- Visits to international fairs to see modern trends in state of machinery.

4. Action plan – fields of intervention

Those GAPs present field of interventions by which actual performance of companies in metal-processing sector in NER B&H can be improve to future targeted performance. Within each GAP certain sets of indicators are defined which can be use for measurement of performance progress during the time.

With the aim to achieve future targeted performance of metal-processing companies in NER B&H according to defined GAPs it is possible to identify field of interventions for phase II of CREDO project.

Before presentation of activities plan and field of interventions it is necessary to define some general directions and explanations of presented Action plans and interventions realisation.

4.1. Analysis of current situations

(Points: 1.1.1; 1.1.4; 1.2.1; 1.2.2; 2.1.1; 2.3.1; 3.1.1; 4.1.1; 5.1)

As a first step it is necessary to carried out additional-deeper analysis of current needs and situations in some specified GAPs. Those analyses need to be carried out before organisation of Round table meeting – discussion of metal-processing sector NER B&H and they will be good platform for discussion. During planed analysis metal-processing companies need to be directly involved, as a mother of fact, metal-processing companies need to carry out they own analysis based on e.g.:

- ABC analysis of current and potential customers/buyers, suppliers, etc;
- Analysis of current state of equipment;
- Analysis of needed knowledge, etc.;

From another side NERDA will by the help of international and national consultants to carry out additional analysis in:

- Analysis of current situations in QA-certification;
- Analysis of current needs and training capacities;
- Analyse of current situation in R&D,
- Analysis of current state of machinery, etc;

, and will help to metal-processing companies in performance of they own analysis. According to data from accomplished analysis national experts and in charge persons form NERDA will prepare series of Reports (for each area of interest one Report) e.g.: future draft of CKTT organisations and its activities. Those Reports will be good platform for discussions and hopefully will enable to all involved parties to be absolutely aware of current situations in metal-processing sector NER B&H. Reports will be the base for planning and organisation of joint visits and presentations to international fairs, for defining of potential trainings at CKTT, for improvement of R&D components and establishing of connections between metal-processing companies and R&D institutions, etc. too.

4.2. Assistance in establishing of association WEB page

e.g. www.metal-processing-NEB&H.com

(Points: 1.3.3; 2.2.1)

According to accomplished GAP analysis there are a few reasons for establishing of functional WEB page which will become official WEB page of Association of metal-processing sector NE B&H by the time. WEB page needs to be organised in five independent sections. Those sections are:

- Home page – information about Associations of metal-processing sector NE B&H;
- ON-line database – *multilanguage* – basic information about companies in metal-processing companies in NE B&H – reasons for establishing of this section is to

utilize Internet potentials (some kind of WEB promotions) to present capabilities and potentials of companies in metal-processing sector NE B&H and potentially attract new customers and investments. At this section links to all WEB pages which can help to potential customers/investiture to find necessary data need to be incorporated: e.g. WEB pages of canton, municipalities, incubators, NGOs, etc. Reasons for this activity is obvious absence of information on about companies in metal-processing sector NE B&H on Internet (there is no WEB pages at all or WEB pages are not updated regularly);

- ON-line database with detail list of potential suppliers and customers – this sections need to assure easy way to find potential suppliers and customers and in the same time will enable to users to have at list base for establishing of Value-chain for its companies;
- Sections with announced contests for job positions in companies in metal-processing sector (regularly updated). This section can be done in coordination with some of existing WEB advertisement companies e.g. www.posao.ba. This section will offer to graduated students, unemployed workers, and to other to find potential job positions, in the other hand this section will enable to educational institutions, government, agencies and NGOs to collect necessary data for track trends on labour market in metal-processing sector;
- ON-line database with lists of Certification companies in B&H, QA consultants, with procedures, requirements, example of best practice, recommendations, lists of funds (in B&H) which supports certification of companies with their application procedures, etc.

In establishing and maintenance of presented WEB page national consultants and NERDA staff will take proactive approach and will assist in all activities connected to this task.

4.3. Organisation of round table meeting - discussions

(Points: 1.1.2; 1.2.2; 2.1.2; 2.3.2; 3.1.2; 4.1.2)

With the aim to intensify communications between all parties interested in metal-processing sector NE B&H it is necessary to organise round table meetings - discussions on which will be invite all metal-processing sector companies in NE B&H, technical secondary schools, technical faculties, governmental organisations, NGOs, etc. That means it will be necessary to organise several kinds of round table meetings e.g. one general meeting and a few meetings for every identified GAP.

General meeting need to be organised in one plenary session, and three sub-sessions with exactly defined topics, proposals for:

- Plenary session
 - o Foundation of Association of metal-processing sector in NE B&H;
 - o Establishing of Coordination and Administrative Board (selection of members);
 - o Start activities for creation of Development strategy for metal-processing sector in NE B&H – activities will be done by established Coordination Board of Association for metal-processing sector in NE B&H;
 - o Signify and start of activities for solution of current problems in metal-processing sector with Governments (e.g. long period for payment for finished projects) – activities will be done by established

Coordination Board of Association for metal-processing sector in
NER B&H;

- Sub-session 1: Establishing of Centre for Knowledge and Technologies Transfer - CKTT;
- Sub-session 2: QA and certifications;
- Sub-session 3: Cooperation between metal-processing companies and R&D institutions;

Besides, general round table meeting it will be necessary to make a several round table meetings – discussions, during CREDO II project implementation, dedicated to specific topics:

- Quality assurance – at those meetings will be presented best practice examples, promotion of QA- certificate importance in global market, etc.
- Skilled workers - at organise meetings will be discuss about: definition of targeted topics for trainings in CKTT, needs for Skilled workers in metal-processing sector, future entry policy on Faculties of Technical Science and Secondary Technical Schools, etc
- R&D – at meetings will be discus about: possibilities of cooperation between metal-processing companies NER B&H, improving of current R&D/production capacities and products through mutual activities, purchase of new measuring instruments, devices and equipment for mutual usage, establishing of technological parks, etc.

4.4. Establishing of Centre for Knowledge and Technology Transfer

(Points: 1.1.3; 1.1.4)

According to potential needs of companies in metal-processing sector NER B&H expressed through GAP analysis and carried out analysis of current situations done by companies itself, NERDA, national and international consultants to improve current state of employee's knowledge in certain areas it will be useful to establish certain body as Centre for Knowledge and Technology Transfer - CKTT. Currently in NER B&H there is no such kind of institution in which on systematic and acceptable way unemployed or employed worker can find some specific knowledge on wide scale. This Centre will not be competition to existing training institutions, language schools, secondary technical schools and faculties but will be coordination body between all present training institutions (?? member of Association ??) and will support theirs activities. What that mean? That mean CKTT will used available capabilities of mentioned training institutions (**on market conditions**), but from another hand it will have opportunity to carry out some special trainings for interested metal-processing companies which not exist in any of presents training institutions or existing training institutions are not interested to be involved in. In some cases it will be necessary to involve international experts in form some specific fields-trainings. By this way metal-processing companies and interested workers will have opportunity to collects new knowledge and implement them in their practice. This Centre can be useful tool for overcome situations when we have needs for new knowledge or specific trainings but we can find appropriate institutions for organisation of education/trainings. Moreover, this Centre by its activities can fill the gap in education of middle age engineers and workers who are "weary" and don't have newest knowledge from IT technologies, production technologies, organisation skills, etc. and can not find theirs place at Universities, technical faculties or secondary technical schools. All education/trainings need to be approved by Coordination Board. Way of registration and financing of Centre activities will be discuss and adopt at Round table meeting. But for full success of this activity it will be necessary to financially support Centre activates at least at

beginning on some base e.g. 50% metal-processing companies+50% grants (form CREDO project, from governmental funds, etc.)

4.5. Offer assistance with approach to potential major customers in Europe through

(Points: 2.1.2; 2.2.1)

With the aim to assure to metal-processing companies in NER B&H good approach to potential customers/buyers/markets according to theirs specific needs it will be necessary to enable support and assistance in all activities connected to this goal. Support – assistance activities will be based on:

- creating of conditions for meetings with potential customers/buyers/markets;
- preparation and organisation of potential customers/buyers visit to this region and metal-processing companies;
- preparation and organisation of joint visits to international fairs;
- preparation of presentations to potential customers/buyers/markets;
- etc.

, all mentioned activities can be performed though different tools usage: match making, internet conference, advertisement in abroad, etc.

4.6. Promotions activities

(Points: 1.3.1; 1.3.2; 2.1.2; 3.1.3; 3.2.3)

With the aim to promote: activities performed within the CREDO II project, improvement of conditions within identified GAPs and improving of global situation in metal-processing sector NER B&H it is necessary to organise well planed campaign of promotional activities. Goal of campaign will be:

- promotion of opportunities and potentials of metal-processing sector NER B&H;
- promotions of existing funds for assistance in implementation of QA;
- promotion of QA- certificate importance in global market;
- promotion of fund (R&D, scholarship) activities and achievements;
- promotions of new technologies/methods and best practice in their usage;
- promotion of career in metal-processing sector;
- etc;

, through: best practice presentations, presentations and disseminations of brochures, Internet promotions – WEB marketing, visits to exhibitions at fairs, direct contacts with potential partners, etc.