



USAID Corporate Governance and Business Investment Project
Bosnia and Herzegovina

BiH Wood Products Workforce Demand Assessment

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**USAID Corporate Governance and Business Investment Project
Wood Products Cluster Competitiveness Initiative
Bosnia and Herzegovina**

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Introduction

This report outlines the results of a workforce development needs assessment of wood products companies in Bosnia and Herzegovina (BiH), carried out between June and July 2003. The first section provides background information on the survey methodology, followed by a section outlining the survey's results. The third section draws implications based on survey results for ongoing efforts to foster sustained private sector led economic growth in BiH.

The USAID's Corporate Governance and Business Investment Project (CGBIP) Wood Products Cluster Competitiveness Initiative prepared this assessment as part of its efforts to contribute to improving the international competitiveness of BiH wood products companies. One of USAID's strategic objectives in BiH is to encourage economic transformation and the development of a vibrant private sector. The Mission has pursued activities to advance these objectives, including providing financing and business assistance to companies; and supporting financial, legal, and regulatory reform, and the privatization process. To further these objectives, the USAID and CGBIP are now placing a renewed focus on establishing competitive industry clusters capable of driving growth. This targeted approach combines firm-level assistance with cluster-level activities aimed at strengthening the competitive platform on which firms operate. This collaborative approach takes advantage of economies of scale to generate potentially greater impact in terms of increasing income-generating activities.

This workforce development needs survey is intended to contribute to these goals by identifying specific workforce needs of BiH wood products companies. This information will serve as a framework for stakeholders as they consider actions that could be taken to strengthen the BiH wood products workforce development system. It will further be used to inform the design and implementation of ensuing CGBIP cluster-level activities.

Methodology

In order to assess the workforce development needs of wood products firms, the CGBIP team developed a needs assessment questionnaire, used that questionnaire to survey 108 wood products companies, and analyzed the resulting data. The goal of this effort was to construct an information base of workforce and training needs of the wood products sector that would inform future cluster-level activities.

The Survey Questionnaire

The survey questionnaire was developed to solicit information on companies' perceptions of the skill gaps of their workforce, new employee needs, and companies' views of faculties and other training institutions. A draft assessment questionnaire was circulated among relevant industry business associations and educational institutions, including the BiH Foreign Trade Chamber, FBiH Chamber of Commerce, RS Chamber of Commerce, DRVO BiH, mechanical engineering and economics faculties in Sarajevo and Banja Luka, and CIPE. The comments and suggestions of these organizations were used to finalize the survey, included in Attachment 2 of this report.

Sample Population

Since there are significant economies of scale in activities aimed at improving the workforce, the overall objective was to develop a representative sample of wood products companies that are positioned to be driving sources of growth in the future. The criteria initially used were that companies be privately owned, produce value added products (this excludes sawmills without drying and steaming capacity), and employ at least 15 production staff.

Most of the business associations and educational institutions mentioned above considered these selection criteria to be too restrictive, and thought that few companies in BiH would meet them. Additionally, in the absence of an accurate register or a database of wood products, it proved impossible to verify ownership, products, or employees for most companies. Consequently, the CGBIP instead developed a sample population based on recommendations from business associations, faculties, and companies previously known to CGBIP. This list was loosely based on the initial selection criteria, though many borderline cases were included. This initial sample included 198 companies (see Attachment 1).

According to some wood products sector studies, the number of wood products companies in BiH could be approximately 2,000¹. The CGBIP experience in developing a sample for this study suggests that this number may be significantly overstated as only several hundred firms could be identified.

¹ According to the GTZ Sector Study: Wood and Furniture Industry, November 2001, the approximate number of companies was 1,966, including companies of all sizes and types of ownership structure.

Survey Administration

The USAID CGBIP attempted to contact and distribute the survey to all of the 198 companies in the sample described above. Of those, 90 companies could not be reached either because of inaccurate contact information, inaccessible managers, or because they were out of operation². The questionnaire was forwarded by e-mail and/or fax to senior managers at the remaining 108 companies, requesting that completed surveys be returned by e-mail or fax. The USAID CGBIP made follow-up phone calls, and some direct visits to solicit responses, and was further available to answer questions from firms as they filled out the survey.

A total of 30 companies submitted completed surveys, for a response rate of 28%. This response rate is lower than expected, considering the considerable follow-up efforts were made by CGBIP staff. Typically, the results of surveys with response rates below 30% are treated with caution as this can be an indicator of selection bias. Survey selection bias occurs when only certain types of respondents answer a survey, and thereby bias the results. In this case, perhaps only those firms already concerned with workforce development issues responded to the survey. This can influence the interpretation of survey results, as discussed below.

Most questionnaires, about 65%, were completed by wood products companies' general managers or deputy managers. The remaining questionnaires were filled out by the heads of legal and development departments, a bookkeeper and a general secretary.

Of the 78 companies contacted that did not respond, close to 22% stated they were not interested in the workforce initiatives. The remaining companies simply never responded.

² This lends further doubt as to the accuracy of the company data that is currently available for the wood products industry.

Executive Summary of Survey Results

The results of the *BiH Wood Products Workforce Demand Assessment*, described in the *Assessment Findings* section of this report, can be summarized as follows:

- Secondary technical schools and 2-year colleges offering wood industry-related programs of study are a key supplier of skilled production workforce to the wood products sector in BiH. Universities offering wood industry-related degrees are providers of qualified production supervisors and managers. Non-wood industry related universities are a significant supplier of administration staff and business managers in the BiH wood products companies.
- Top five training needs of different profiles of wood products companies' staff are as follows:

<u>Production Staff</u>	<u>Production Supervisors</u>	<u>Managers</u>
Wood Drying & Steaming	Continuous Improvement & Lean Manufacturing	Sales & Marketing
New Products	Machine & Equipment Maintenance	Market Research
Sawmilling	Internet & Computers	Continuous Improvement & Lean Manufacturing
Wood Surface Processing	Financial Incentives for Planned Goals	Quality Assurance
Quality Management	Work Safety	Product Development

- Wood products companies' spending on employee training has been relatively low, and that trend is expected to continue. Selected individual companies are willing to invest in their employees' training somewhat more than the prevailing majority of other companies.
- There is a high number of job vacancies in production, followed by a significantly lower, but steady demand for production supervisors and sales staff. Wood products companies will continue to demand well-trained and experienced individuals to fill those vacancies. Production staff will have to have a wood-industry related technical training and a working experience in the wood industry. Production supervisor candidates will also have to satisfy the same educational and work experience criteria as production staff, but those with a university, wood-industry related degree will be preferred. There will be a growing demand for company managers with a university, wood-industry related degree, and with a previous supervisory working experience in the same company.

- Educational programs relevant to the BiH wood products industry are considered to be of good quality, but significant improvements could be made to provide even better qualified workforce. Linkages between the educational providers, universities and technical schools, and wood products companies seem to be very weak. Their strengthening is a precondition for further enhancement of educational programs and graduates' skills.
- The wood products companies' level of awareness of relevant training institutions is very low, as is the number of companies who use training and research institutions' services. Work safety, product quality, and machine operations are most frequent areas of work for which the training and research institutions' services are being sought. The key reasons for not using the training and research institutions' services cited by respondent companies include: (a) lack of services needed; (b) high service price; (c) lack of information on service providers; and (d) lack of interest to provide services on behalf of the relevant institutions.
- A large majority of wood products companies in BiH is willing to establish a closer cooperation with relevant universities and technical schools. Most companies are interested in either enhancement or introduction of internship programs considering their current fairly low level of seasonal student employment. Somewhat lower, but still significant percentage of companies would like to participate in a panel or an advisory group to improve the quality of relevant educational programs.

Recommendations for Workforce Development Activities

In response to the BiH wood products workforce demand needs presented in the *Executive Summary*, several types of workforce development activities should be considered:

- Meet the immediate training needs of wood products companies focusing on top training needs of all three employee categories presented in the results section of this report.
- Initiate establishment of a working relationship among relevant educational institutions and wood products companies in BiH (forum, meeting, round-table, etc.) which would result in implementation of agreed activities. Some of those activities could entail:
 - **Continuing Education:** Relevant educational institutions, both secondary and higher education, should examine their existing or, if non-existent, consider launching continuing education programs designed to meet the immediate, short-term training needs of wood products companies (e.g. short courses and seminars). These programs should be designed to meet the needs of busy, experienced working individuals who require solutions to very specific problems they encounter on the job.
 - **Enhancement & Promotion of Training, Research, and Consulting Services:** Educational, consulting, and research institutions should assess their current services available to wood products companies with respect to their versatility, quality, and price, and implement necessary improvements. Proactive self-promotional activities are highly recommended. The latter could also include university fairs at selected technical secondary schools to attract higher number of applicants to wood-industry related higher education programs.
 - **Internships and Other Forms of Practical Training:** Partnerships between interested wood products companies and relevant educational institutions (either secondary or higher education) could be formed to implement internships or other forms of practical training programs. Individual companies and training institutions could serve as a model, as it likely that internship programs will be implemented locally, in communities and regions where both an appropriate school and a successful wood products company is located.
 - **Curriculum Advisory Board:** Interested wood products companies and relevant educational institutions would start a dialogue on necessary curriculum modifications based on current industry needs. Both secondary and higher education institutions could be involved in this initiative. Curriculum reform efforts could result in enhancement of existing courses, introduction of new ones, modification of teaching methods, mandatory requirements for practical training, etc.

Wood products industry business associations could be instrumental in motivating their company members to initiate or join some of the above workforce development activities. Business associations could act as ‘a matchmaker’ of demand and supply side, expanding that way their portfolio of services. Additionally, the associations could provide logistical support needed for realization of workforce development activities, including:

- Regular surveys of wood products sector needs;
- Host occasional or regular meetings of educational providers and sector companies to discuss relevant issues (provide facility, secretarial assistance, etc.);
- Disseminate to their members information on training, research, and consulting services offered by relevant institutions.

Assessment Findings

This section presents the survey results, beginning with a description of the companies who responded to the survey, followed by a discussion of the results of each of the main segments of the questionnaire – current employee characteristics, firms’ perceptions of the skill gaps of their workforce, new employee needs, and firms’ views of faculties and other training institutions. Full tabulated results are also included in Attachment 2 of this report.

Care should be taken in interpreting these results. First, the survey as a whole suffered from a low response rate. Second, respondents were not selected at random. As discussed previously, the sample was developed through the recommendations of business associations, faculties, and through the experience of the CGBIP team. As such, answers do not necessarily reflect the views, attitudes, and needs of the entire wood products industry in BiH.

Nevertheless, results do reflect the views of key section of the industry that is concerned with workforce development, that is primarily involved in value-added activities, and that is private or in the process of being privatized. This is exactly the group that is likely to be at the vanguard of future growth, and should be considered priority clients of workforce development activities.

Profile of Wood Products Companies Surveyed

Ownership Structure

A large majority of respondent companies (80%) is in private ownership, followed by those in mixed ownership, with still prevailing percentage of state-owned equity, ranging between 51-67% (see Chart 1).

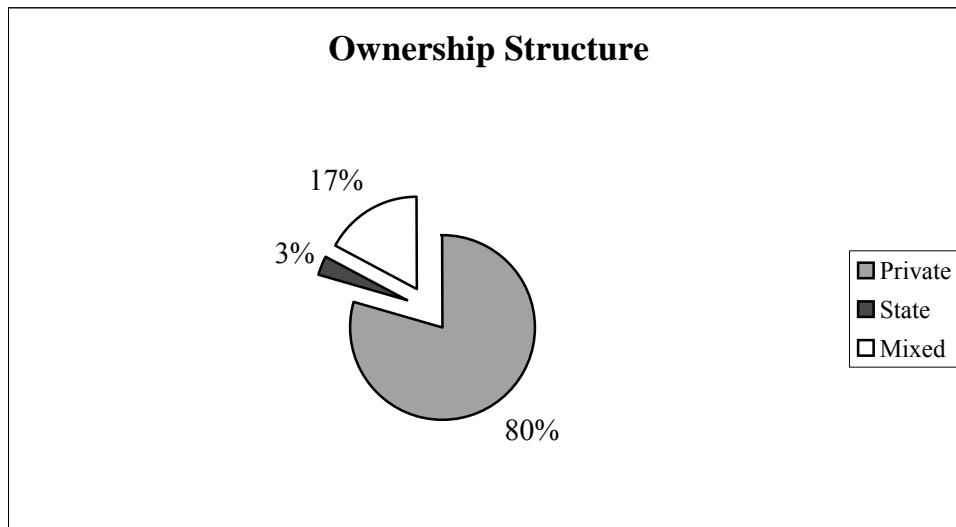


Chart 1

The non-private companies include (some companies indicated they are in mixed ownership, but did not specify the percentages of equity in state or in private ownership):

Non-private Companies Surveyed

Company	% Private	% State
Krivaja, Zavidovići	0	100
Hercegovina Drvo, Čitluk	?	?
Sana, Sanski Most	33	67
Supčanica, Olovo	49	51
Vrbas, Banja Luka	37	63
Kozara, Kozarska Dubica	?	?

Products

Respondents were asked to list their companies' products. More than 50% of respondents produce some type of furniture, ranging from solid wood, panel, and case to upholstered furniture, intended for residential, office, or school use. Lumber and joinery are the second and third most cited products among respondents. Most furniture manufacturers produce solid wood furniture or a combination of solid wood furniture and panel or upholstered furniture. Respondents' product profiles are consistent with the CGBIP initial goal of focusing on manufacturers of higher value added products (see Chart 2).

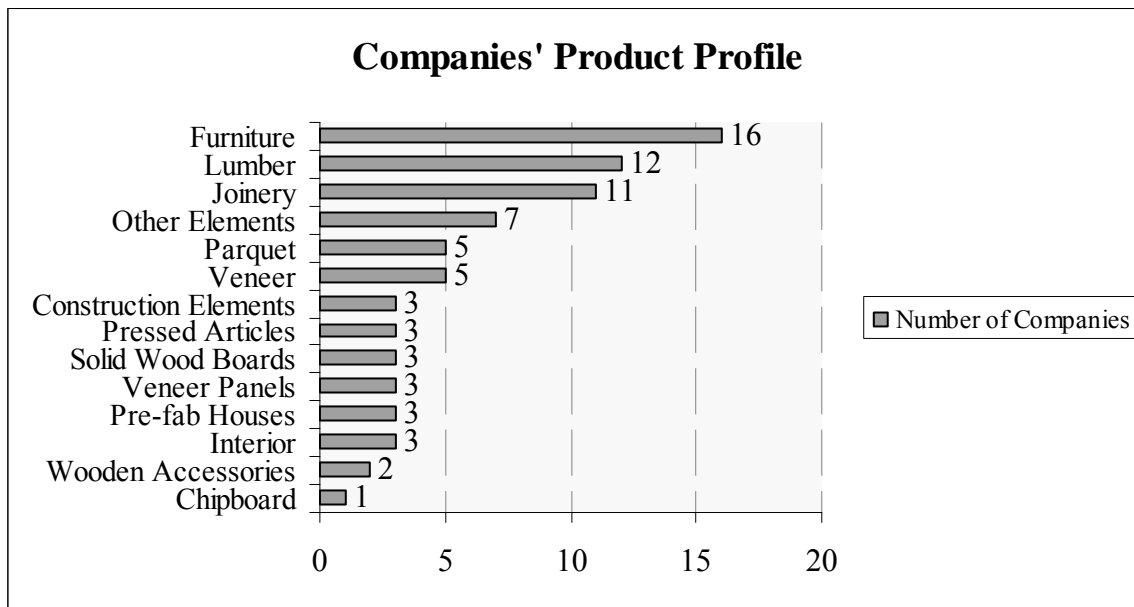


Chart 2

The product categories shown in the chart above were created based on companies' own description of their products; no pre-defined answer options were provided. In some cases, a respondent company reported it produced a certain product (e.g. chipboard) simply because the plant was originally designed to produce it, or used to produce it some time ago (before the war), but the company may not produce it today due to outdated technology and financial constraints preventing its modernization.

Number of Employees and Level of Education

Respondent companies employ a total of 10,078 employees: 8,255 in production, 362 production supervisors, and 1,013 administration and management staff (see Chart 3). Employment among respondents is highly skewed, with a few very large companies and many more numerous, smaller companies.

Six respondent companies that are still fully or partially state-owned employ 61% or 6,195 of all employees. The remaining 39% or 3,883 employees work for privately owned wood products companies. Only four (4) companies account for 67% of all employment. These companies include three large companies with majority state-ownership (Krivaja, Stupčanica, and Vrbas with 3,739, 927, and 919 employees, respectively), and a company that has recently privatized, but is still not restructured (Konjuh with 1,213 employees).

Almost 37% of all respondent companies employ up to 50 employees. The next highest concentration of companies is in the category of 101-200 employees (approx. 17%), and in the category of 51-100 employees (13%).

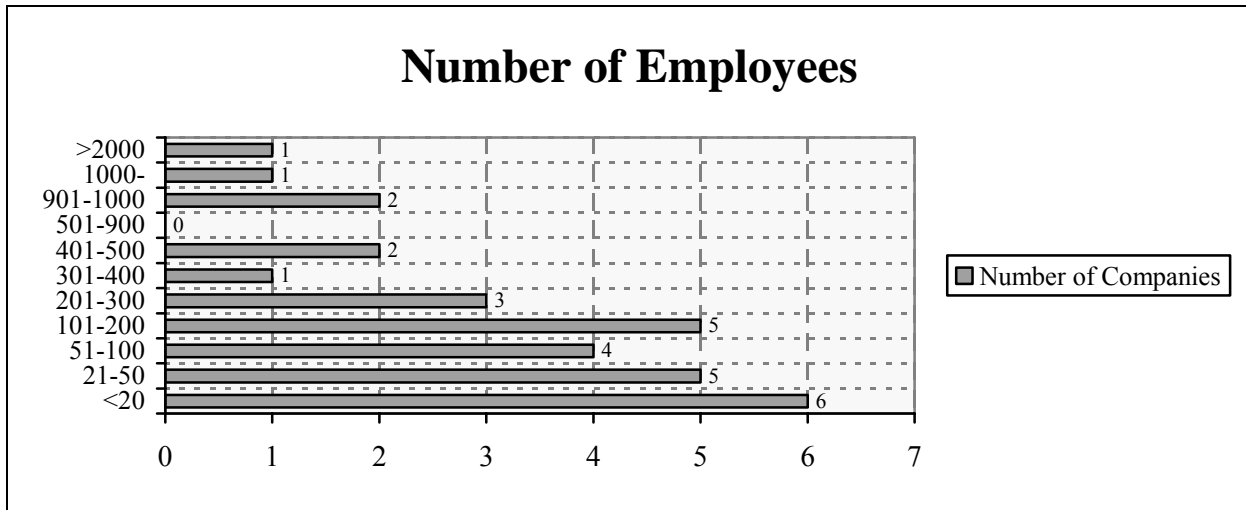


Chart 3

The educational profile of all three key groups of employees (production staff, production supervisors, managers) demonstrates that a large majority of all employees in the wood products industry has at least high-school education. While the questionnaire included two-year college programs with high-school, the assumption is that very few employees have completed such two-year programs, because there are very few of them available³.

Ninety-six percent (96%) of production staff employed by all respondent companies completed a high-school or a two-year college program; a majority of them completed a program related to the wood industry (see Chart 4).

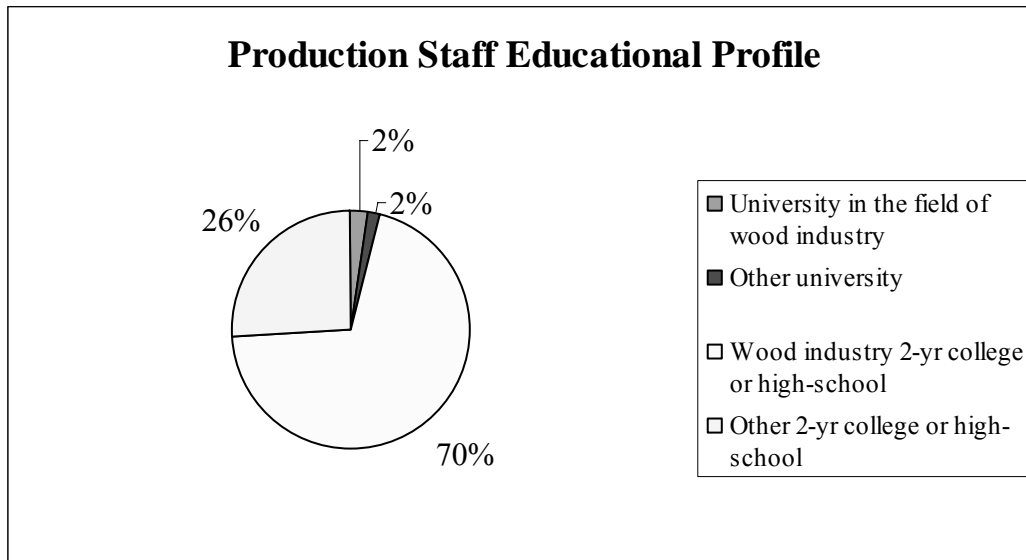


Chart 4

³ Further research is necessary to determine the exact number of two-year programs in the field of wood industry offered by BiH institutions of higher education (e.g. Technical Faculty, Bihać).

Production supervisors have received both more education, and more specialized education, with 14% having completed university studies related to the wood sector, and a large proportion having received wood industry-specific training at the two-year college or high-school level (see Chart 5).

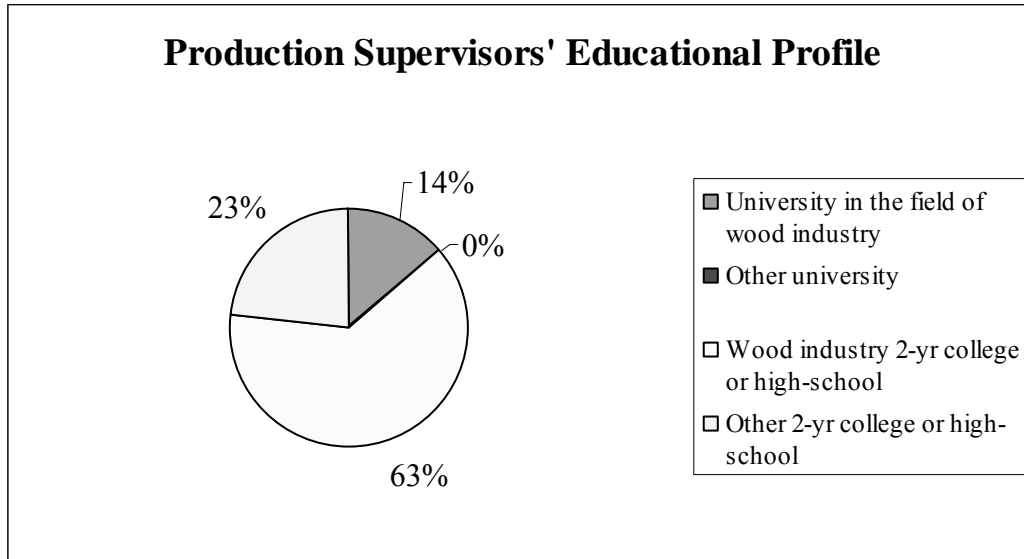


Chart 5

Over 70% of administration staff⁴ completed a high-school or a two-year college program; majority of them completed a program that is not related to wood industry (see Chart 6). Somewhat less than 30% of administration staff obtained a university degree, largely in a field other than wood sciences.

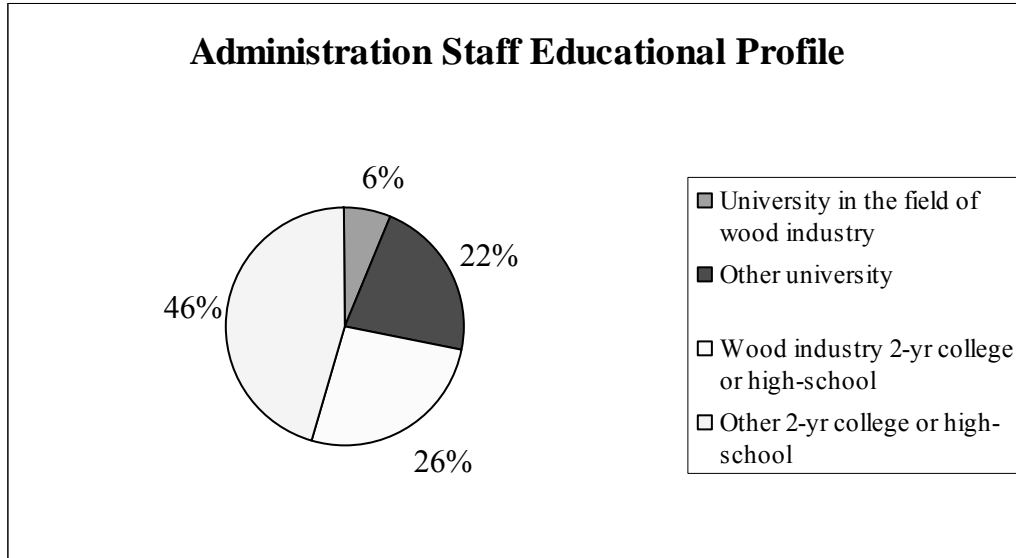


Chart 6

Secondary education institutions and two-year programs of higher education have been a key supplier of skilled workforce. More than two thirds of all production staff and supervisors, and almost a third of administration staff at respondent companies completed a secondary school program related to wood industry. While universities are a significant provider of education to production supervisors and administrative staff, even at these levels, the majority of employees do not have more than a secondary schools or two-year college education. It could be the case that the university-level programs are less accessible to potential students due to geographic location, and the relative immobility of students in BiH. Both secondary schools and universities offering programs of study that are not specific to the wood industry are significant suppliers of office and business administrators employed in the wood products companies in BiH.

⁴ Administration staff refers to office and business administration employees.

Current Employee Training Needs

In the questionnaire, the companies were asked to indicate the types of training that are most needed by production staff, production supervisors and managers. For each sub-group, a menu of training topics was offered, and the respondents were asked to indicate their top three priorities. The list of training topics was developed to be near-comprehensive, though firms were also given the option of specifying other training needs. Additionally, companies were asked to indicate the number of employees who would need training for each topic.

An analysis of responses in this section provides a useful indication of the sector's priority training needs. A weighted index was developed based on the number of companies indicating that a given topic was one of their top three priorities, with a greater weight given to top priority votes than to second and third priority votes⁵. All rankings of top training priority needs were performed on the basis of the number of companies who demand specific training, rather than the total number of staff who are in need of training. The number of companies should be more indicative of overall sector needs, while the number of actual trainees could change quickly as a result of privatization, business restructuring, and downsizing. The exact number of companies and potential trainees for all training topics is provided in Attachment 2.

⁵ Specifically, a given topic's score is equal to the number of companies indicating a given topic was their top priority plus 0.8 times the number of companies indicating that topic was their second priority, plus 0.6 times the number of companies indicating that topic was their third priority. This approach places a higher weight to those topics which are highly rated by the most firms.

Production Staff

Production staff refers to all employees working in manufacturing operations. The ranking of top ten training needs of production staff, based on the companies' responses, is shown in Chart 7. A complete ranking is included in Attachment 3.



Chart 7

Forty percent (40%) of respondents stated that drying and steaming of wood was their first priority production staff training need, and an additional 40% of companies ranked it as either their second or third priority. Most of the companies demanding this type of training are joinery, elements, or flooring manufacturers and a few of them are furniture producers.

Introduction of new products is a training topic equally interesting to both joinery and furniture manufacturers. Many of the companies requesting this training are struggling to develop a clear strategic vision, and require general assistance with selection of product mix and target markets. Others are rather successful, but they are considering expansion of their current operations.

Both woodworking in a sawmill and wood surface processing are rated as first priority production staff training need by approximately 40% of all respondents. The latter one is of special interest to the former and current BiH wood industry giant – Krivaja (Zavidovići) – estimating that 300 of their production staff may need training in wood surface processing.

Quality management is of concern to 40% of respondents, including both large companies and small-medium sized businesses. It is equally mentioned by both joinery and furniture manufacturers.

Production Supervisors

Almost 67% of respondents specified continuous improvement and lean manufacturing as first priority training need for their production supervisors (see Chart 8). This is consistent with the CGBIP findings that most wood products companies in BiH are concerned with their production costs, and are trying to do all they can to improve their production efficiency, cut production expenses in order to make their products more competitive on both domestic and international markets.

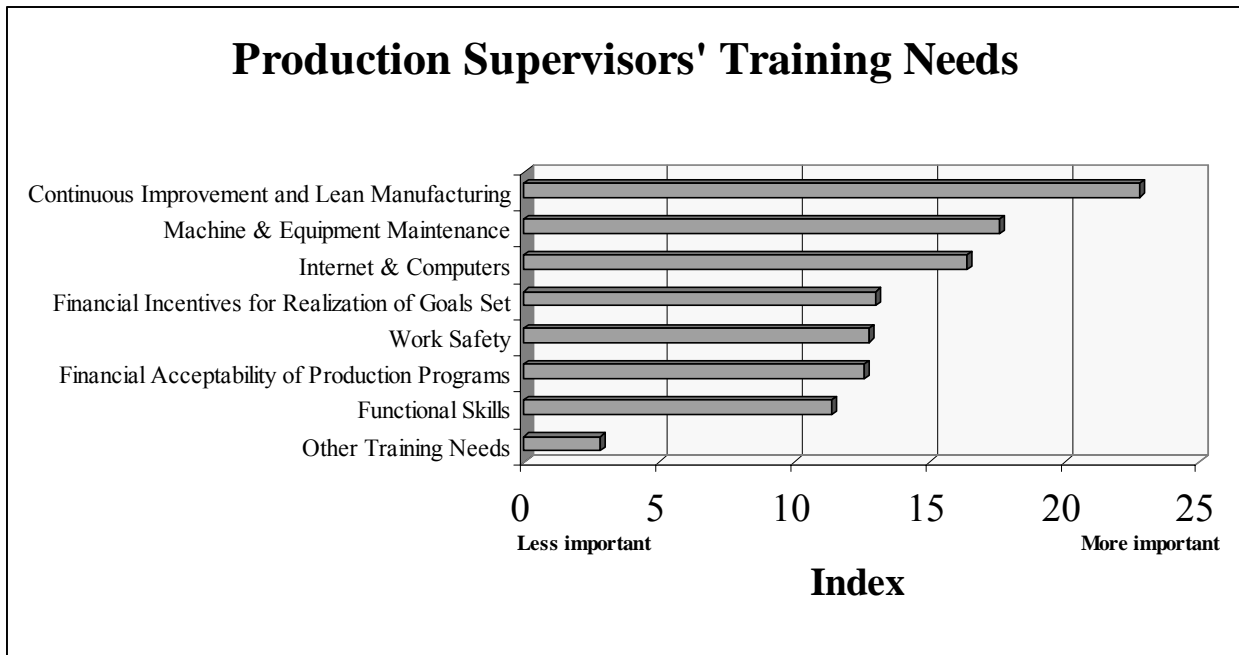


Chart 8

Machine and equipment maintenance rates second on the top training needs list; one among first priorities for approximately 37% of respondents. Many wood products companies require more modern equipment, and most of them find it rather difficult to obtain financing under favorable terms. Being faced with post-war, outdated machines and equipment on the one side, and financing constraints on the other side, more and more companies are starting to realize that the proper maintenance may postpone the need for large investments, ensure product quality, and decrease production costs.

Internet and computer training rates third on the importance list. It is assumed, for production supervisors, that this refers to the general use of Internet and computers so that the production supervisors could operate more efficiently in the new information age. Further consultations with companies are needed to identify whether this training entails use of special software for certain production supervisors’ tasks.

Managers

Sales and marketing ranks first among managers’ training needs⁶ (see Chart 9). A complete ranking of managers’ training needs is included in Attachment 4. Many companies have lost their pre-war export markets, as well as marketing staff who were knowledgeable about those markets. Consequently, knowledgeable and experienced marketing managers are on demand. Market research skills, which rate second, are an important input for successful marketing and sales programs on both BiH and international markets.



Chart 9

Continuous improvement and lean manufacturing seems to be equally important to managers and production supervisors. By reducing the time needed to manufacture customer orders and amount of non-value added waste in the production process, wood products companies will reduce their production costs, improve their productivity and customer service, and enhance the overall competitiveness of their products.

⁶ Marketing is a key concern of more than 83% of USAID CGBIP wood products company clients that are receiving firm-level consulting assistance.

Quality assurance refers to desired introduction or improvement of existing product quality control mechanisms. Acceptable internal product quality control is typically one of the pre-requirements for obtaining internationally recognized product certificates that, in turn, assist product export.

Product development skills are needed to improve companies' marketing practices. A growing number of BiH wood products companies realize they need to pay more attention to customers' needs by producing only those products customers really want. To achieve that, the companies' staff needs to learn about strategies for either selling existing products to their current or new customers, or introducing new products to sell to current or new customers.

Training needs ranked five to ten on the chart above, point out that the BiH wood products companies' managers recognize the need for continuous personal development in the field of general business and management. This includes, but may not be limited to the use of Internet and computers, accounting, financial management, strategic planning, management, and organization.

Training Budget

Companies were asked to estimate the percentage of total income in year 2002 spent for training purposes, as well as the amount budgeted for year 2003 (see Chart 10). Of 30 respondents, 8 companies did not respond to this question, and 3 did not provide the percentage range for either year 2002 or 2003.

Approximately 62% of respondents spent less than one percent of their total company's income for training purposes in year 2002. In year 2003, 50% of respondents plan to invest the same percentage of total income in training activities (<1%). A small increase in spending on training activities is expected in year 2003 for spending categories of <5% and 5-10%, but only one additional company plans to move to each of these spending categories. The number of companies planning to spend 10-15% or >15% of total income on training in year 2003 remains the same as in year 2002.

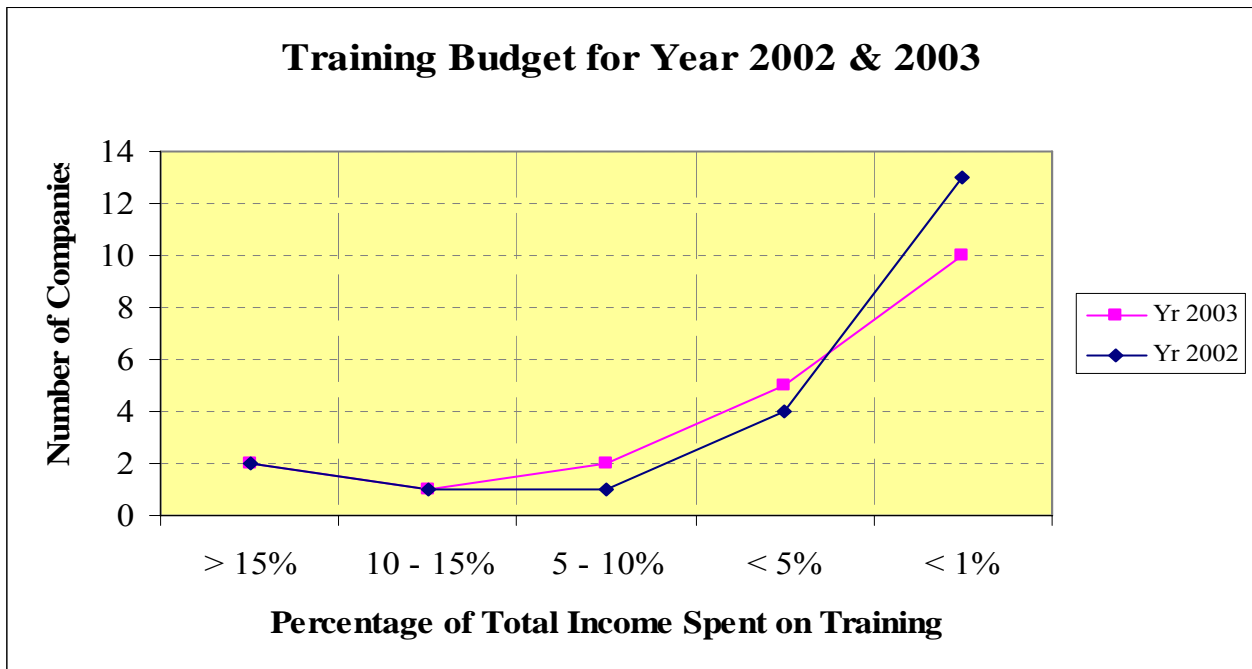


Chart 10

The wood products companies' spending on training in 2002 is not very high, and it is not expected to rise very much in 2003.

Recruitment/New Employee Needs

Companies stated that the highest number of current job vacancies is in production, with a total of 70% of all job vacancies in that category, 13% in production supervisory posts, and 12% in sales (see Chart 11).

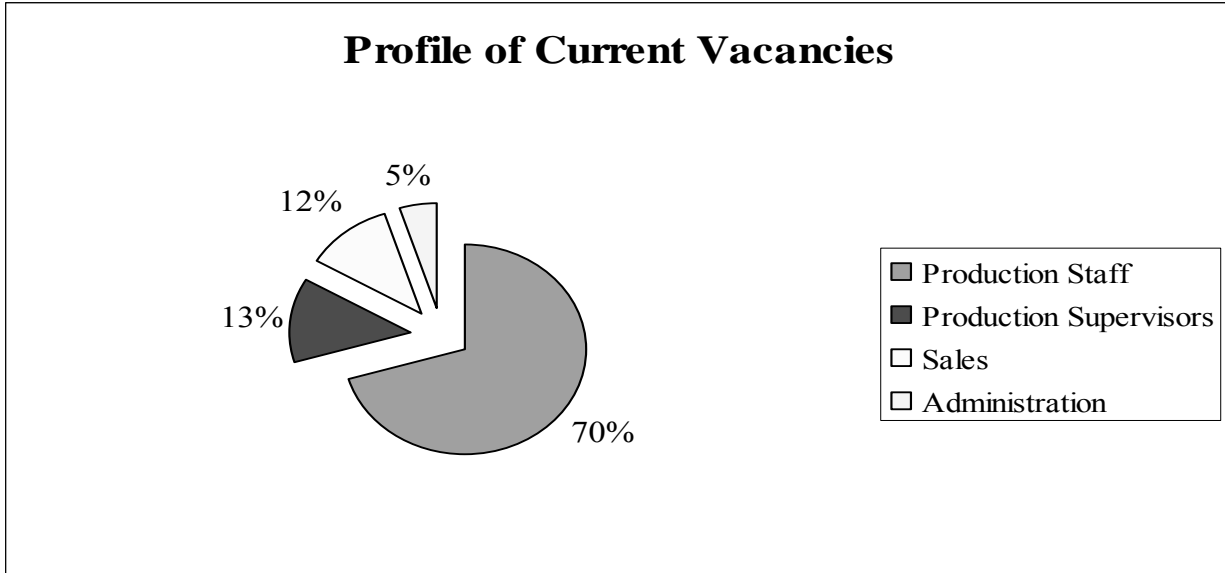


Chart 11

Companies were asked to indicate the type of education and work experience they require when hiring staff for production, supervision of production, and management positions. A menu of choices was provided. For positions in direct production, close to 80% of companies require that their employees possess a wood industry-related technical education. A majority of respondents (59%) also requires that their production employees have work experience in a wood processing firm (see Chart 12).

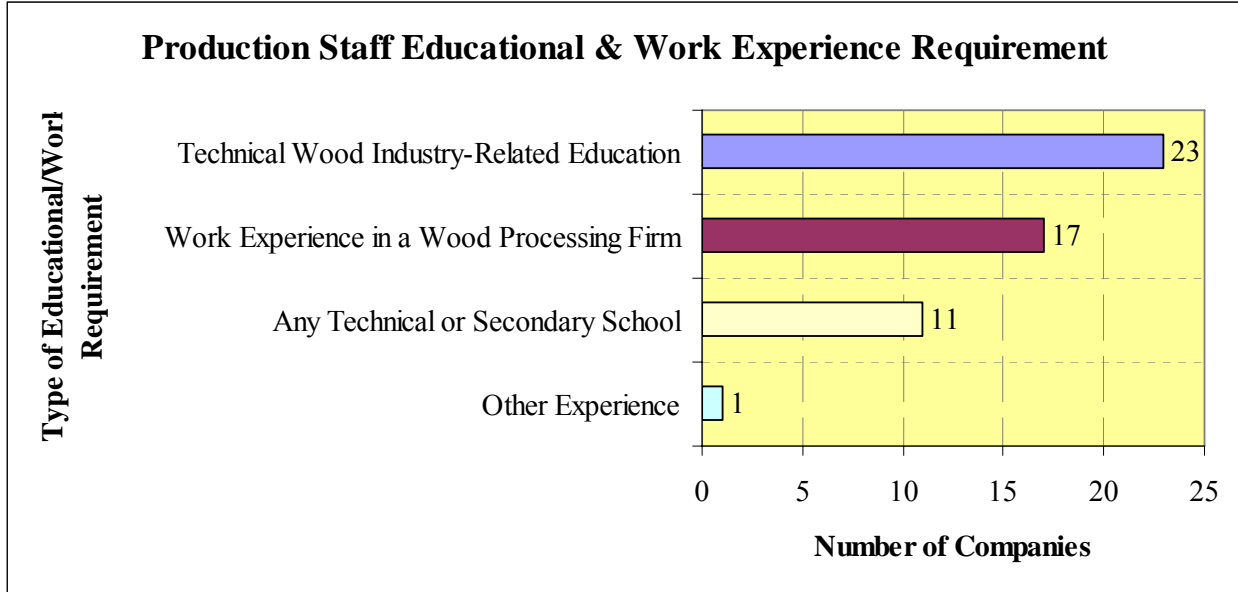


Chart 12

For production supervisor candidates, a university degree or a technical school in a wood industry-related field is a preferred educational requirement; indicated by 83% and 69% of respondents respectively. Most companies (62%) require that individuals who want to assume the production supervisor position possess working experience in a wood processing firm (see Chart 13).

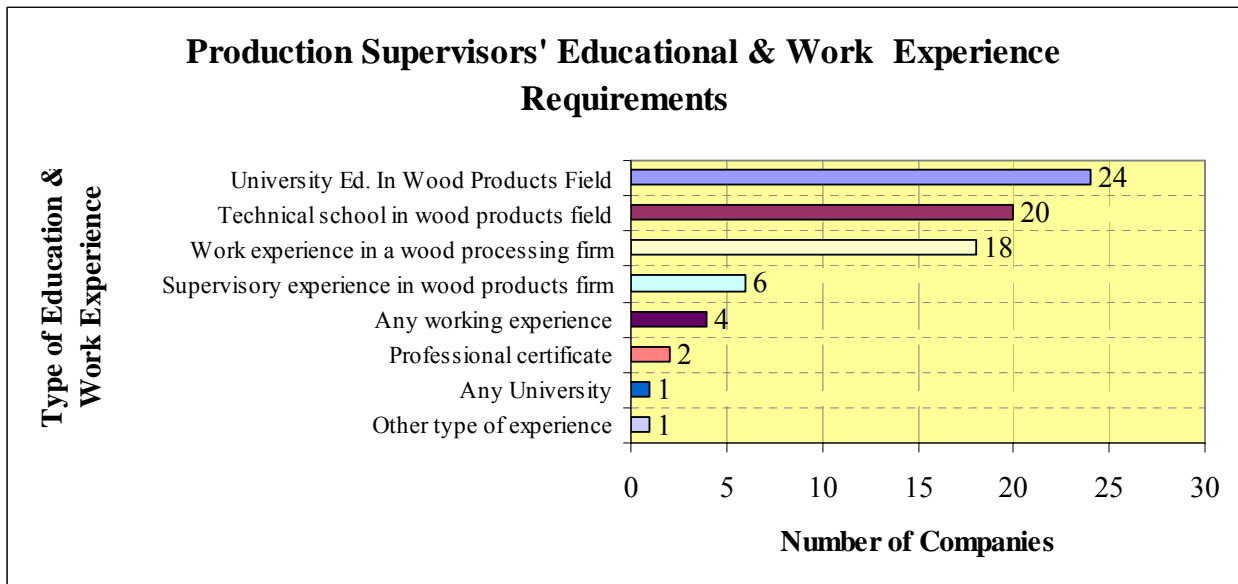


Chart 13

For managerial positions, 76% of respondents stated that the candidate should possess a university degree in a wood industry-related field (see Chart 14). As far as necessary working experience is concerned, managerial position candidates should preferably possess supervisory work experience in the same firm in which they are aspiring after a managerial position (according to 44% of respondents).

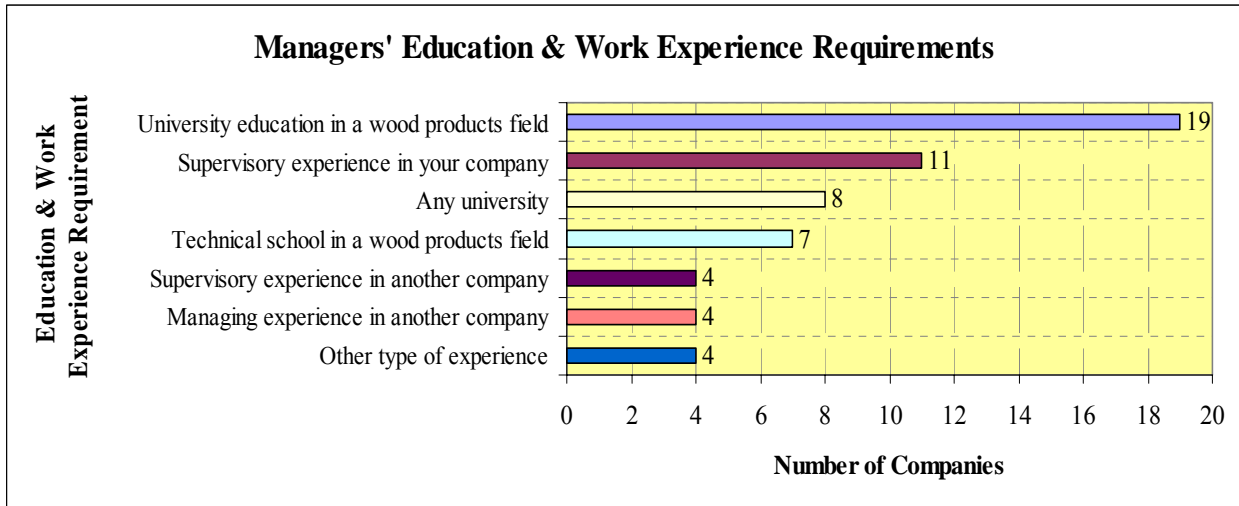


Chart 14

Additional consultations with some of the companies may be needed to understand the situation with respect to vacant positions in production. Based on the vacancies-related data provided by companies, it is not clear whether the vacancies are being created as a result of business expansions, or are current production employees leaving their posts to transfer to another company either within or outside the wood products industry due to unattractive terms of employment (low salaries, poor benefits packages, etc.). Some companies in mixed ownership have reported the latter; in order to cut their expenditures, companies are releasing their production employees.

Significant shortage in production employees reported by respondent companies may also indicate that the problem is not in the numbers of potential employees, but rather in the quality of their skills, i.e. their current production staff may not be properly trained. The companies may rather be willing to hire new, better qualified production employees than to invest in the training of their current production staff (due to costs, and a risk that the employees will leave the company soon after they obtain the training).

The respondent companies reported equal demand for production supervisors and sales staff. Based on the CGBIP knowledge of individual companies, some would like to expand their current production, but lack qualified production supervisors who could organize and manage an additional shift. There are also reports of trained and experienced production supervisors who became entrepreneurs, and started their own wood products companies.

Limited information is available about the shortage of sales staff, but considering an overwhelming need for improved marketing, the assumption is that this could be overcome by some additional, on-the-job training, or by hiring new employees who have a formal education in sales or marketing.

Faculties and Other Training Institutions

In the final section of the questionnaire, the companies were asked to specify their level of satisfaction with the existing educational institutions that are offering programs relevant to the wood products industry.

Respondents’ are almost evenly divided in two groups; one group of companies (48%) finds existing educational programs relatively satisfactory (agree or somewhat agree), although certain improvements may be desirable, and the other group (55%) thinks that more radical changes would have to be made to better meet the industry needs (disagree, somewhat disagree) – see Chart 15.

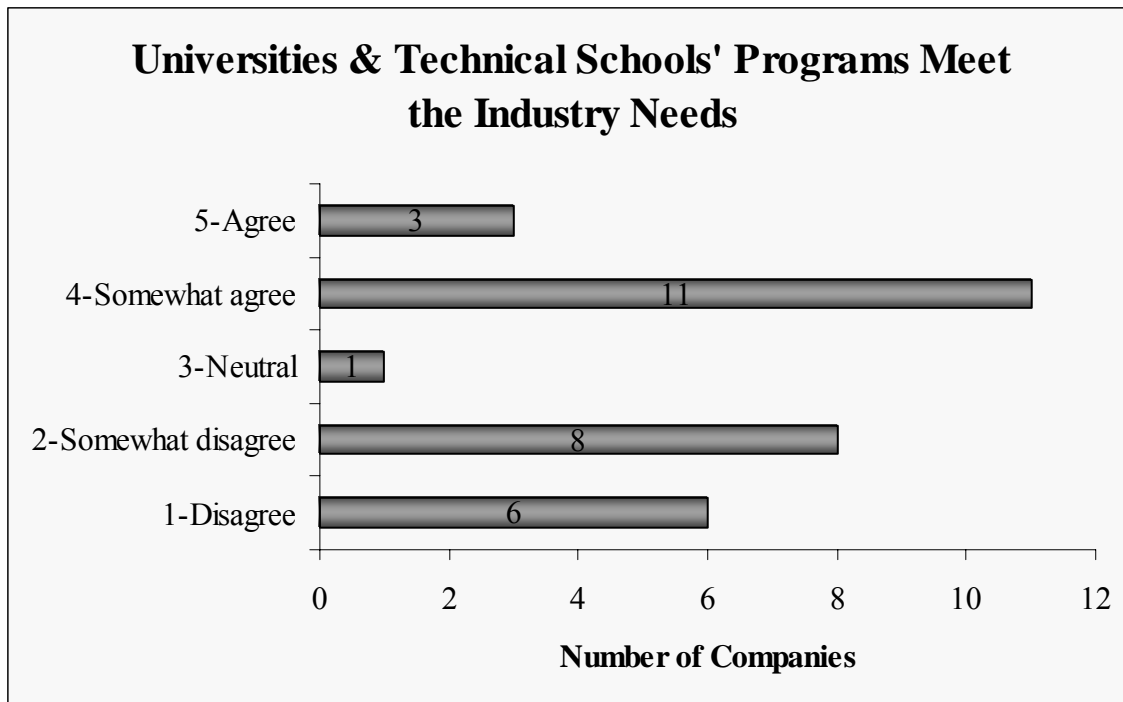


Chart 15

More than 60% of respondents are not satisfied with the working relationship of universities and technical schools with the wood products industry (disagree, somewhat disagree). Absent such working relationships, educational institutions are unable to understand the needs of the industry (see Chart 16).

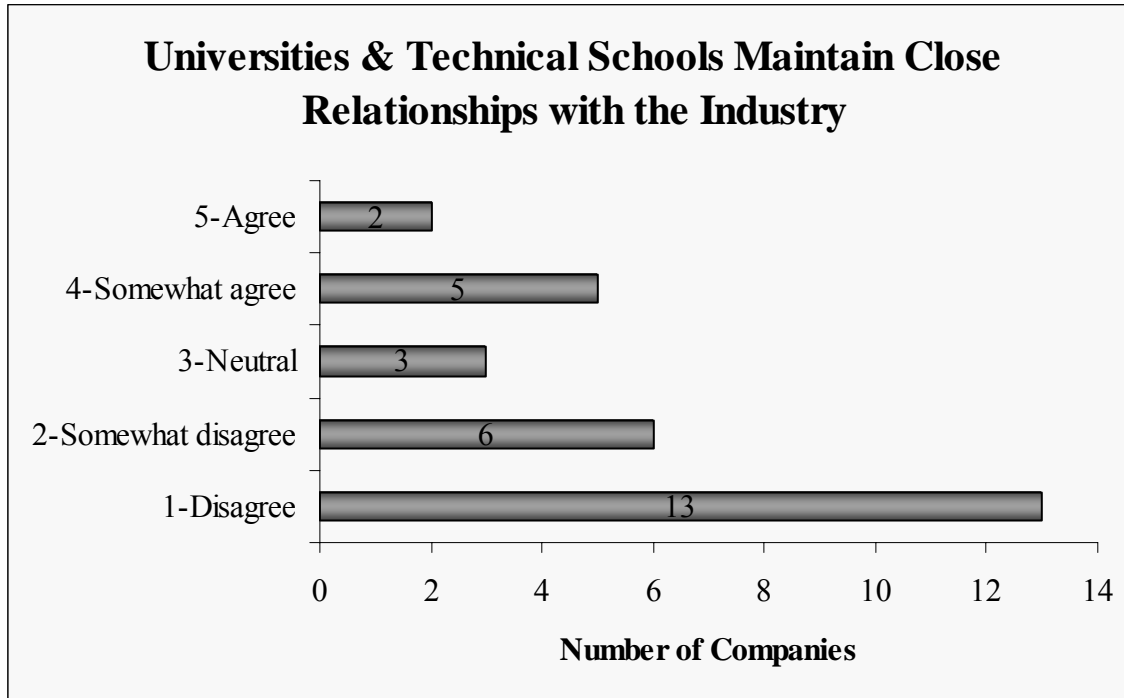


Chart 16

Although 50% of respondents are neutral with respect to the quality of skills acquired by university and technical school students, one third of respondents is of the opinion that the graduates are not or not sufficiently skilled for the job in the wood products industry (see Chart 17).

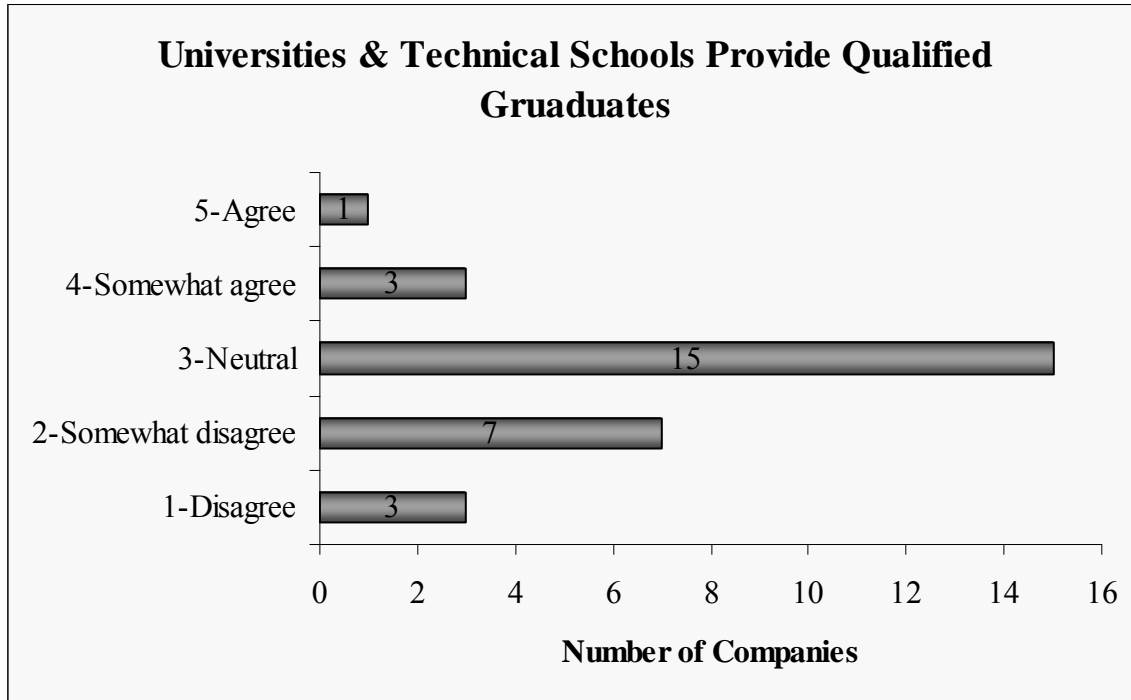


Chart 17

Overall, industry respondents felt that universities and technical schools rate best with respect to the quality of their graduates' skills, second best with respect to the quality of their curricula, and worst when it comes to their working relationship with the sector companies (see Chart 18).

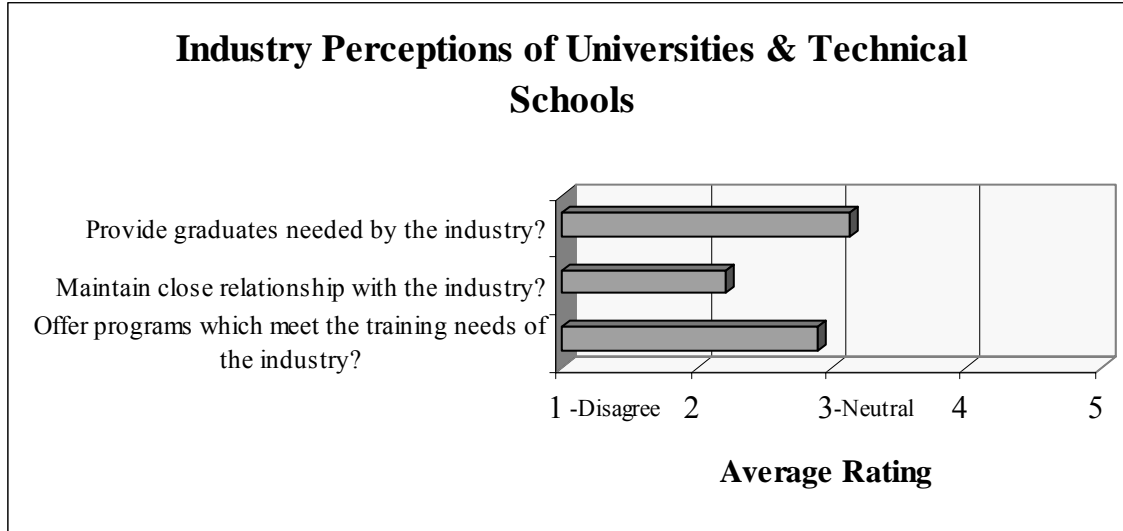


Chart 18

The level of wood products companies’ awareness about the existence of institutions that provide training on relevant topics is quite low; only 28% (see Chart 19). Further clarification of these responses may be necessary in direct contacts with respondents because there is a discrepancy in answers to the question about awareness and use of training/research service; more companies said they use such services, and fewer of them are aware of their existence! (see Chart 19 and 20)

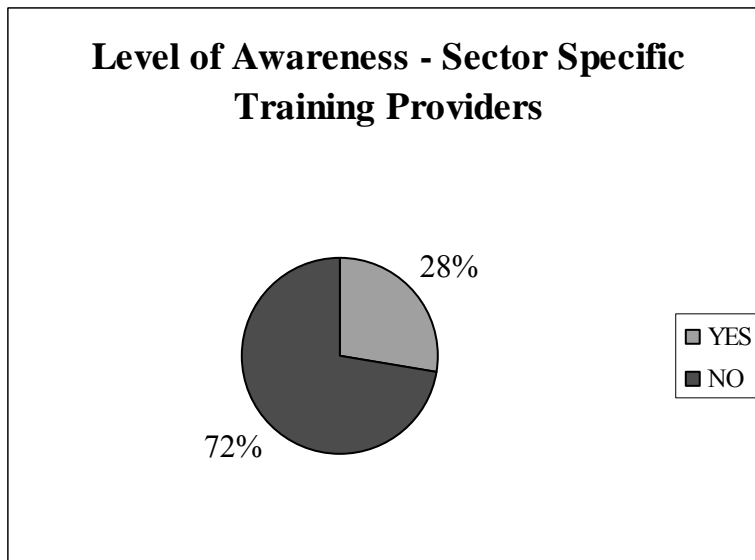


Chart 19

Of those companies who know of relevant training institutions, 17% of respondents mentioned Mechanical Engineering Faculty in Sarajevo (Wood Technology Department), and other companies individually mentioned faculty of architecture, civil engineering, economics, forestry, Faculty of Technical Studies in Bihać, Mixed Secondary School in Živinice, and the Institute for Ecology, Protection at Work and Fire Protection in Banja Luka.

In response to the question whether they use services of universities, research centers and similar institutions for training of their employee, 37% of respondents answered positively, and 63% answered negatively (see Chart 20).



Chart 20

Companies were asked to explain their reasons for either using or not using the training and research institutions' services. Sixty percent (60%) of respondents provided their explanations, and they can be grouped as follows:

Use services of training/research institutions to learn about:

- Protection at work (2 companies)
- Product quality
- Modern work methods and materials
- Machine operation
- Steam boiler operation

DO NOT use services of training/research institutions because:

- Institutions do not provide needed services (3 companies)
- Too expensive (3 companies)
- Have no information on who can provide such services (2 companies)
- Institutions are not interested in providing such services
- No appropriate institution that could provide such services
- Distant location of institutions

A large majority of respondents (96%) is ready to collaborate with universities and technical schools to assure that their graduates are well qualified to enter the wood products industry (see Chart 21). Of the 30 respondents, 27 responded positively, and one company responded negatively, but did not state the reasons for the negative response (also not required by the questionnaire).

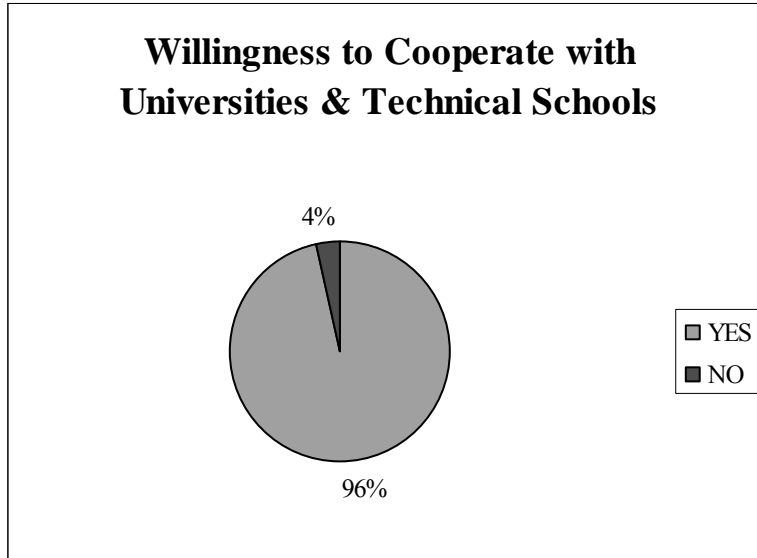


Chart 21

Most respondents who are willing to cooperate with universities and technical schools are ready to do so in the form of an internship program (see Chart 22) – 56%. Approximately 32% of companies that would like to collaborate with educational institutions through an internship program already employ students on a seasonal basis. The remaining 68% of respondents would like to participate in an internship program, but they currently do not employ students.

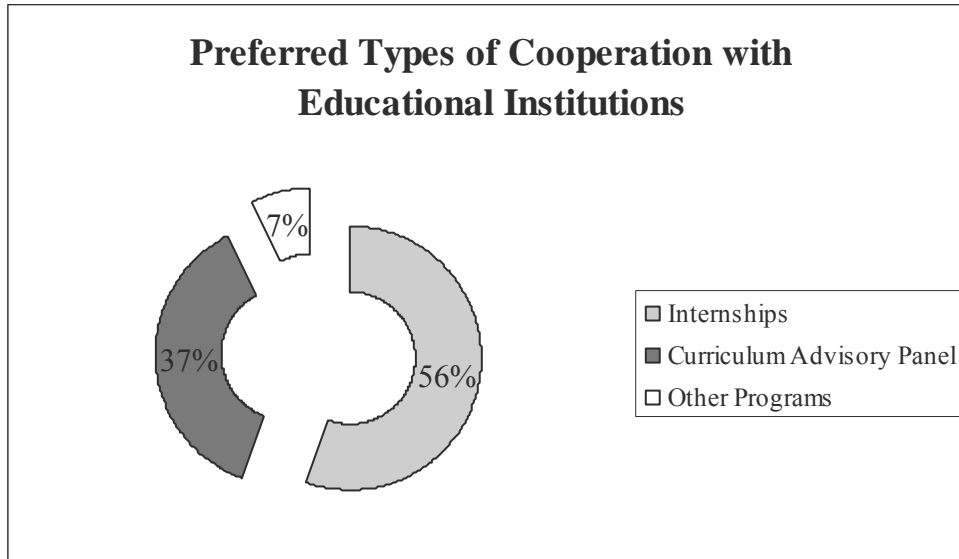


Chart 22

The second most preferred type of cooperation with educational institutions is participation in an advisory panel on school curriculum and programs – 37% of respondents indicated they would like to participate in such a panel. About 38% of all respondents indicated they would like to participate in both an internship program and an industry advisory panel. Those who chose to participate in ‘other programs’ referred to education of their existing company employees through collaboration with educational institutions (7%, Chart 22).

A total of 29 companies of 30 respondents answered the question regarding seasonal employment of university and technical school students. Over 58% of companies never employ either university or technical school students on a seasonal basis. Approximately 34% of respondents employ technical school students either regularly or occasionally, the latter being the more frequent choice. Close to 21% of companies employ university students either regularly or occasionally. Overall, wood products companies employ technical school students more frequently than university students.

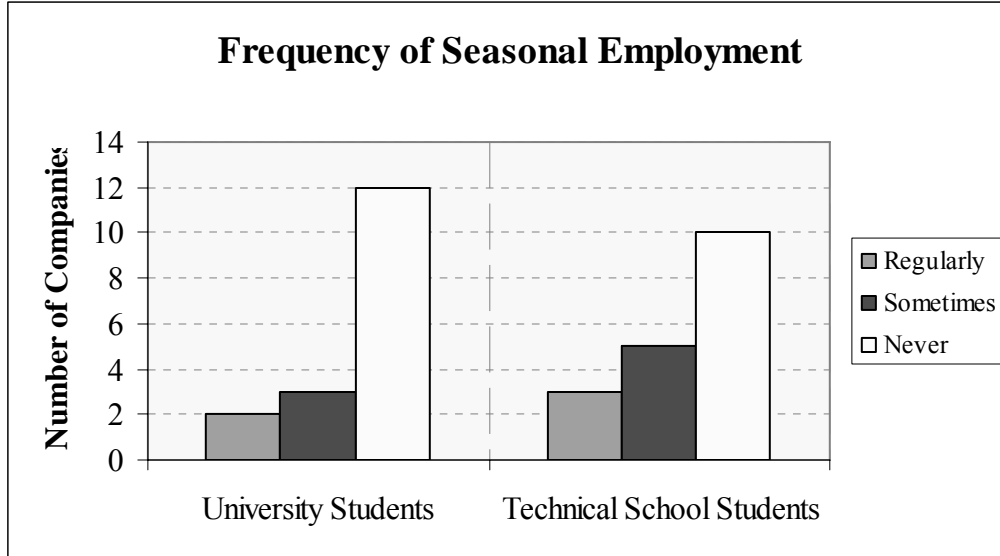


Chart 23

Attachment 1: List of Surveyed Wood Products Companies

Companies that Returned Completed Questionnaires

1. Jadrina	Gračanica
2. Konjuh	Živinice
3. Namještaj	Gradačac
4. Tomiks	Kreševo
5. Hercegovina Drvo	Čitluk
6. Janj tvornica građevinske stolarije	Donji Vakuf
7. Janj tvornica ploča i furnira	Donji Vakuf
8. Promo d.o.o.	Donji Vakuf
9. Sejdić Komerc	Odžak
10. Merceza	Srebrenik
11. Ramex	Kladanj
12. Ans Drive	Sarajevo
13. Grand	Busovača
14. Kontinental	Kiseljak
15. Files	Sanski Most
16. Finvest	Drvar
17. Hazarton	Sarajevo
18. Hulio No. 1	Ilidža
19. Krivaja	Zavidovići
20. Maomex	Hadžići
21. Sana	Sanski Most
22. Stupčanica	Olovo
23. DI "Kozara" a.d.	Kozarska Dubica
24. ŠIPAD "10. August" a.d.	Vlasenica
25. DI "Vrbas" a.d.	Banja Luka
26. Fabrika namještaja a.d. "Enterijer"	Kotorsko-Doboj
27. DOO DI "Sanica"	Sanica, Ključ
28. D.o.o. "Edra"	Bosanski Petrovac
29. "McMilan" d.o.o.	Banja Luka
30. D.o.o. "Antonić Company"	Kotor Varoš

Companies that Received Questionnaire, but DID NOT Respond

1. Begex	Hadžići
2. Rukotvorine	Konjic
3. Standard	Sarajevo
4. SZR Mate Bule	Čapljina
5. Borik	Maglaj
6. Dallas	Sarajevo
7. Hanić doo	Gradačac
8. Holc Latofleks	Lukavac
9. Jafa-Jase 4 doo	Srebrenik
10. Kalea	Ilijaš
11. Lignum	Mostar

12.	Liko Sas	Sarajevo
13.	Magram	Bosanska Krupa
14.	Mikas d.o.o.	Mostar
15.	Pogy d.o.o.	Bihać
16.	Sojkić	Zavidovići
17.	Stolarija Kraljevići	Tomislavgrad
18.	Šipad d.d. Enterijer	Sarajevo
19.	Šipad Ključ	Ključ
20.	Ukus	Tešanj
21.	Volta d.o.o.	Sarajevo
22.	Malagić d.o.o.	Živinice
23.	Agrosideks	Brčko
24.	Coral Interijer	Mostar
25.	Secom	Visoko
26.	Top Wood	Vitez
27.	Bjelašnica	Hadžići
28.	Budo Export	Novi Šeher
29.	Lokve doo	Sarajevo
30.	Mulićev Rekord	Konjic
31.	Abonos	Bužim
32.	AD Mehanička prerada drveta	Čelinac
33.	Cajevic Komerc	Sokolac
34.	Delfin trgotrans	Celinac
35.	Eurodesign	Banja Luka
36.	Eurotimber	Bijeljina
37.	Fagus	Kotor Varoš
38.	Grandy Stil	Banja Luka
39.	Grossist	Prijedor
40.	Intal	Milići
41.	Javor	Prijedor
42.	Jela	Doboj
43.	Jota Stil	Mrkonjić Grad
44.	Krnjeuša	Bosanski Petrovac
45.	Lignakon	Teslic
46.	Laser	Bihać
47.	Lignošper	Bosanski Novi
48.	Maglić	Foča
49.	Mega-Drvo	Bijeljina
50.	1. maj ad	Banja Luka
51.	PDS	Laktasi
52.	Planinsko	Han Pijesak
53.	Podgraci	Gornji Podgraci
54.	Podromanija	Sokolac
55.	Porat d.o.o.	Srbinje
56.	Prima Impex	Gradiska
57.	Promex TV	Zvornik
58.	Regent	Mrkonjić Grad
59.	Standard a.d.	Prnajvor
60.	Šikman	Mrkonjić Grad
61.	Šipad Bina	Bihać
62.	Vukelić	Laktaši

Companies that Received Questionnaire, SAID NOT INTERESTED

1. Braća Metović	Blažuj
2. Drvo inženjering	Gradačac
3. Eurodom doo	Posušje
4. Hetring	Sarajevo
5. Razvitak Export Import d.d.	Gradačac
6. Interijer Mustapić	Stolac
7. Ivigo	Mostar
8. Nobil	Nova Bila
9. Palavra	Nova Bila
10. Sabix	Hadžići
11. Zejćirović	Čelić
12. Bjelašnica	Pale
13. Drvoprodex	Banja Luka
14. Drvoretz	Banja Luka
15. NBS Group	Modriča
16. Granit	Banja Luka

Wanted to Survey, Companies Cannot be Reached

1. Hupi Les	Pećigrad
2. Saind	Sarajevo
3. Sinex	Srebrenik
4. World Trade doo	Tuzla
5. Gradel-ing	Sarajevo
6. Građevinska stolarija	Nova Bila
7. Sebešić	Nova Bila
8. Usora Holz	Usora
9. Atom	Usora
10. Timpex	Sarajevo
11. Husanović	Gračanica
12. Bosna Furnir	Visoko
13. Hidroinženjering pilana	Podlugovi
14. Impregnacija-Holz	Vitez
15. J.W.C. Boswood	Kiseljak
16. Kebir Ada	Bosanska Otoka
17. Mebl	Gornji Vakuf
18. Šedinac-Lab	Jajce
19. Šels	Travnik
20. Šipad Nova Pilana	Turbe
21. Zvijezda	Vareš
22. Agrosad	Doboj
23. Borja	Teslić
24. SPSS Borja	Teslić
25. Budućnost	Bosanski Šamac
26. Braća Zugić	Zvornik
27. Brijest	Novi Grad

28. Drvodeljjska	Banja Luka
29. Drina	Bjeljina
30. Drina	Srebrenica
31. Etos promet 2 doo	Maoča
32. Fabrika stolica i stolova	Lopare
33. Gradac	Bratunac
34. Grandbor	Srbinje
35. Inga	Bosanska Gradiška
36. Jadar	Zvornik
37. Jovanović Galanterija	Laktaši
38. Jufer	Bijeljina
39. 28. juni	Modriča
40. Lignum	Teslić
41. Lovcen	Srbinje
42. Luč	Trebinje
43. Lipa	Prijedor
44. Majevisa	Brčko
45. Manjača	Mrkonjić Grad
46. 6. maj	Milići
47. Maglić Polimka	Rudo
48. Momac Drvo	Peptrovo
49. Nevas Kompani	Skender Vakuf
50. Nova Forma	Bosanski Šamac
51. Novorez	Pale
52. Omar	Skender Vakuf
53. Omorika	Han Pijesak
54. Oštrelj	Bosanski Petrovac
55. Peulic	Bosanska Gradiška
56. Prerada drveta	Kotor Varoš
57. Razvitak	Doboj
58. Razvitak Dvorovi	Bijeljina
59. RHM Comerc	Bosanski Petrovac
60. Romanija a.d.	Sokolac
61. Sanica	Ključ
62. Servud Timber	Čajnice
63. Sjemeč	Rogatica
64. Soborad	Šipovo
65. Stakorina	Čajniče
66. Stara Gora	Rogatica
67. Stal	Bijeljina
68. Stil	Bosanski Šamac
69. Stojnić	Bosanska Gradiška
70. Stolar	Bijeljina
71. Stolarija Rapić	Bosanska Gradiška
72. Stolarija Tomić	Bosanska Gradiška
73. Tara	Srbinje
74. Unitas	Teslić
75. Varda	Višegrad
76. Velike sume	Pale
77. Velež-Botin	Nevesinje
78. Vladring	Pale

79.	Vrbas (GRADJEVINSKO!)	Banja Luka
80.	Vrbas,spec.namj.	Laktaši
81.	Vrbas-FFN	Banja Luka
82.	Zavod za ortopedsku protetiku	Banja Luka

Wanted to Survey, Companies Inactive

1.	Drvorezbarstvo	Konjic
2.	Natron	Maglaj
3.	Nova Linija	Žepče
4.	Pilana Konjic	Konjic
5.	Šipad Fojnica	Fojnica
6.	Šipad Nova Pilana	Fojnica
7.	Šipad Vranica	Fojnica
8.	Mediapan	Busovača

Attachment 2: Questionnaire and Cover Letter

Figures from all responses entered where appropriate:

GENERAL INFORMATION

Company Name: _____

Street Name and Number: _____

Post Code and City: _____

Products:

Ownership Structure: _____

First and last name of person completing the survey: _____

Function: _____

Tel: _____ Fax: _____

E-mail: _____

Internet: _____

A. NUMBER OF EMPLOYEES AND LEVEL OF EDUCATION

1. Number of employees (*complete the empty boxes*):

Employees: Total Number	10,078
Production staff	8,255
Production Supervisors	362
Management/admin staff	1,013

2. Level of employees' education (*fill in a number for each category*):

	Number of employees who completed a			
	University related to wood industry (a)	University in other academic discipline (b)	Two-year college or high school related to wood industry (c)	Two-year college or high school in other discipline (d)
Production Staff	37	29	1,081	403
Production Supervisors	42	28	190	71
Management/Admin	34	119	140	246

B. CURRENT EMPLOYEE TRAINING NEEDS

3. What type of training is most needed for your **Production Staff**?

For each type of training needed, mark with a symbol (X) one of priorities: 1-highest, 2-second highest, 3-third highest priority. For each type of training marked, regardless of the priority, write in the number of employees in your company who need that training.

	Training Topic	Priority			Number of Employees who Need Training
		1	2	3	
A	Structure and Properties of Wood	2	7	2	51-70-9
B	Regulation and Program Management	3	4	2	6-10-4
C	Measurement Technique	2	3	3	6-5-7
D	Woodworking Machines and Tools	8	4	4	77-23-165
E	Organization and Economics of Wood Processing	6	4	4	22-13-7
F	Quality Management	12	4	2	137-10-4
G	Drying and Steaming of Wood	12	8	4	34-15-28
H	Mechanical Wood Processing Systems Design	0	3	4	0-8-5
I	Wood Industry Power Supply Systems	2	1	5	3-0-4
J	Woodworking in a Sawmill	12	2	6	45-3-15
K	Surface Wood Processing	11	4	4	362-8-15
L	Wood Finishing	9	6	3	248-35-14
M	Wood-based Veneers and Boards	5	8	5	25-19-4
N	Furniture Constructions	5	5	2	18-17-9
O	Board Furniture Manufacturing	7	2	3	35-4-7
P	Solid-wood Furniture Manufacturing	10	5	1	87-3-9
Q	Joinery	5	2	4	32-5-8
R	Gluing of Wood	6	7	5	20-12-9
S	Innovations	6	4	1	10-14-0
T	Introduction of New Products	11	5	4	31-13-5
U	Design	8	4	1	18-24-0
V	Other types of training, <i>please specify</i>	2	0	0	1-0-0

4. What types of training are most needed for **Supervisors in Production**?

	Training Topics	Priority			Number of Employees who Need Training
		1	2	3	
A	Work Safety	8	3	4	23-8-87
B	Internet and Computers	11	3	5	42-8-114
C	Functional Skills (<i>specify</i>)	9	3	0	34-4-0
D	Continuous Improvement and Lean Manufacturing	20	2	2	198-5-3
E	Machine and Equipment Maintenance	11	6	3	26-10-53
F	Financial Acceptability of Production Programs	8	5	1	25-9-0
G	Financial Incentives for Realization of Goals Set	6	8	1	108-108-108
H	Other Training Needs, <i>please specify</i>	2	1	0	9-2-0

5. What type of training is most needed for **Managers**?

	Training Topics	Priority			Number of Employees who Need Training
		1	2	3	
A	Customer Service	6	1	1	15-2-3
B	Quality Assurance	12	3	0	51-6-0
C	Market Research	16	5	1	45-9-2
D	Internet and Computers	10	3	2	40-19-7
E	Finance and Accounting	9	4	2	20-13-2
F	General Business Management	7	5	2	17-14-3
G	Sales and Marketing	22	2	1	50-16-3
H	Continuous Improvement and Lean Manufacturing	11	6	1	39-37-1
I	Presentation and Communication Skills	3	6	1	6-25-0
J	Product Development	9	6	1	32-16-3
K	Strategic Planning	8	3	4	82-8-7
L	Technology of Resolving Specific Problems	3	4	3	0-8-6
M	Decision-Making	3	3	2	3-14-70
N	Project Management	3	6	3	3-17-10
O	Human Resource Management	4	3	5	12-12-12

	Training Topics	Priority			Number of Employees who Need Training
		1	2	3	
P	Self-organization (organization of own work)	6	3	4	25-13-26
Q	Functional Skills (<i>Please specify</i>)	0	1	0	0-2-0
R	Profit Projection for Organizational Unit or Production Programs	6	2	1	21-3-2
S	Organizational Prerequisites for Implementation of Strategies Adopted	3	4	1	8-12-2
T	Method of Reporting, Information and Control Systems in the Process Control	3	4	0	9-16-0
U	Other Types of Training, <i>please specify</i>	1	0	0	0-0-0

6. What percentage of company's total income was spent/is planned to be spent for employee training? *Circle appropriate percentage for year 2002 and 2003.*

Spent in 2002: (a) >15% (b) 10-15% (c) 5-10% (d) <5% (e) <1%
2 **1** **1** **4** **13**

Planned for 2003: (a) >15% (b) 10-15% (c) 5-10% (d) <5% (e) <1%
2 **1** **2** **5** **10**

C. RECRUITMENT / NEW EMPLOYEE NEEDS

7. What is the current number of openings? *Indicate a number for each category.*

- 144** (a) Production Staff
- 27** (b) Production Supervisors
- 24** (c) Sales
- 10** (d) Administration

8. What kind of education and work experience do you require for **Production Staff**? *Mark with the symbol (X) all you require.*

- 23** (a) Technical education related to wood industry
- 11** (b) Any technical or secondary education
- 17** (c) Working experience in another wood processing firm
- 0** (d) Working experience in wood processing sector is not necessary
- 1** (e) Other experience, *please specify*

9. What type of education and work experience do you require for **Supervisors in Production**?

Mark with the symbol (X) all you require.

- 24 ___ (a) University education in a wood products field
- 1 ___ (b) Any university
- 20 ___ (c) Technical school in a wood products field
- 4 ___ (d) Working experience in any firm
- 18 ___ (e) Work experience in a wood processing firm
- 6 ___ (f) Supervisory experience in another wood products firm
- 2 ___ (g) Professional certificate, *please specify* _____
- 1 ___ (h) Other type of experience, *please specify* _____

10. What type of education and work experience do you require for **Managers**? Mark with the symbol (X) all you require.

- 19 ___ (a) University education in a wood products field
- 8 ___ (b) Any university
- 7 ___ (c) Technical school in a wood products field
- 11 ___ (d) Supervisory experience in your company
- 4 ___ (e) Supervisory experience in another company
- 4 ___ (f) Managing experience in another company
- 0 ___ (g) Professional certificate, *please specify* _____
- 4 ___ (h) Other type of experience, *please specify* _____

D. FACULTIES AND OTHER TRAINING INSTITUTIONS

11. Using the table below, indicate the extent to which you agree or disagree with each statement:

		1= Disagree 2= Somewhat disagree 3= Neutral 4= Somewhat agree 5= Agree
A	Universities and technical schools offer programs which meet the training needs of the wood products industry	1(6) 2(8) 3(1) 4(11) 5(3)
B	Universities and technical schools maintain close relationships with the wood products industry and understand current needs	1(13) 2(6) 3(3) 4(5) 5(2)
C	Universities and technical schools produce graduates with the skills needed by industry	1(3) 2(7) 3(3) 4(15) 5(1)

12. Are there any training institutions that provide specific training in your sector? **YES-8 NO-21**

If yes, *what are those institutions?*

13. Do you use services of universities, research centers and similar institutions for training of your employees? *Circle the appropriate and explain.*

YES **11** NO **19** Explain why?

14. Are you willing to collaborate with universities and technical schools to make sure they will produce graduates that are well qualified and well trained to enter the industry? *Circle the appropriate.*

YES 27 NO - 1 (proceed to question number 16)

15. What kind of collaborative programs between industry and schools would you be willing to participate in? *Mark the appropriate with the symbol (X).*

- 21** _____ (a) Internships
- 14** _____ (b) Industry advisory panel on school curriculum and programs
- 3** _____ (c) Other programs (*please specify*)

16. How often do you employ seasonal workers from universities or technical schools? *Mark the appropriate boxes with the symbol (X).*

		University students	Technical school students
A	Regularly	2	3
B	Sometimes	4	7
C	Never	18	16

17. Other remarks or recommendations either as an addition to one of the questions from this questionnaire or supplementary information not asked for in the questionnaire, but you consider important.

PLEASE SUBMIT THE COMPLETED QUESTIONNAIRE BY E-MAIL OR FAX:

E-mail: **xxxxxxxxxxx**

Fax: **xxxxxxxxxxx**

Cover letter:

Dear Sir/Madam,

We would like to invite you to participate in the analysis of workforce needs in the wood products sector in BiH. Please complete the questionnaire attached to this letter and **submit it to us by July 10 by e-mail or fax as indicated in the questionnaire.**

What is the analysis of workforce needs in the wood products sector and why is it conducted?

The analysis is gathering of information about the existing situation of employees in the wood products sector in BiH. Information asked for relates to the number of employees, their level of education, training needed, profile of required new employees and the quality of existing relevant education. The goal of the analysis is preparation of programs that would meet the needs of BiH wood products employees' needs through improvement of educational programs: (a) in the short-term by organizing seminars and workshops on topics of highest priority, and (b) in the long-term by building various kinds of cooperation among educational institutions and companies in the sector.

Who is participating in the analysis? Why should one participate, what are the benefits?

The questionnaire will be sent out to several hundred companies in the wood processing sector. Those companies that submit a completed questionnaire can directly influence the type and quality of training programs that the analysis organizers will be providing in the coming months, and may be invited to participate in training. Through participation in this analysis, the companies can also contribute to the improvement of educational programs provided by faculties, colleges and high schools in BiH, relevant to the wood products industry.

Who is conducting the analysis of workforce needs in the BiH wood products sector?

The analysis is being organized and implemented by the **Corporate Governance and Business Investment Project**, financed by the United States Agency for International Development (USAID), in cooperation with the economics and mechanical engineering (department of wood technology) faculties in Sarajevo and Banja Luka, the BiH Foreign Trade Chamber, FBiH Chamber of Commerce, RS Chamber of Commerce, the Association DRVO BiH and CIPE (a USAID program).

Where can I obtain more information about the organizer and this initiative?

USAID Corporate Governance and Business Investment Project
Sarajevo or Banja Luka address, phone, fax, E-mail: xxxxxxxxx
Contact Person: First – Last Name

Sincerely yours,

Robert Moore, Project Director

Attachment 3: Production Staff Training Needs

Ranking of production staff all training needs based on companies' responses:

Training	Weighted Priority
1 Drying and Steaming of Wood	20,8
2 Introduction of New Products	17,4
3 Woodworking in a Sawmill	17,2
4 Wood Surface Processing	16,6
5 Quality Management	16,4
6 Wood Finishing	15,6
7 Gluing of Wood	14,6
8 Solid Wood Furniture Manufacturing	14,6
9 Wood-based Veneers and Boards	14,4
10 Woodworking Machines and Tools	13,6
11 Design	11,8
12 Organization and Economics of Wood Processing	11,6
13 Board Furniture Manufacturing	10,4
14 Furniture Constructions	10,2
15 Innovations	9,8
16 Joinery	9
17 Structure and Properties of Wood	8,8
18 Regulation and Program Management	7,4
19 Measurement Technique	6,2
20 Wood Industry Power Supply Systems	5,8
21 Mechanical Wood Processing Systems and Design	4,8
22 Other Types of Training	2

Attachment 4: Managers' Training Needs

Ranking of managers' all training needs based on companies' responses:

Training	Weighted Priority
1 Sales and Marketing	24,2
2 Market Research	20,6
3 Continuous Improvement and Lean Manufacturing	16,4
4 Quality Assurance	14,4
5 Product Development	14,4
6 Internet & Computers	13,6
7 Finance and Accounting	13,4
8 Strategic Planning	12,8
9 General Business Management	12,2
10 Self-organization	10,8
11 Project Management	9,6
12 Human Resource Management	9,4
13 Presentation and Communication Skills	8,4
14 Profit Projection for Organizational Unit or Production Programs	8,2
15 Technology of Resolving Specific Problems	8
16 Customer Service	7,4
17 Organizational Prerequisites for Implementation of Strategies Adopted	6,8
18 Decision Making	6,6
19 Method of Reporting, Information and Control Systems in the Process Control	6,2
20 Other Types of Training	1
21 Functional Skills	0,8