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EXITO and the industries it supports are indebted to Chris for the enthusiasm and professionalism she brought to the task.

EXITO's Report on the National Survey of the New Zealand Bentonite Mining Industry

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1. Executive Summary

Industry Response

It has been a pleasure to carry out the survey work with the Bentonite mining industry. Everyone involved has been most helpful. This was much appreciated.

Thank you to all participants for your commitment to the survey. You have ensured we received data that provided many insights into the staffing and training and development needs of the industry which will impact very significantly on future planning for industry training.

Purpose of Survey

During June and July 2004 the Extractive Industries Training Organisation (EXITO) national Bentonite Mining Industry survey was conducted.

The Tertiary Education Commission had charged all Industry Training Organisations to take a leadership role in identifying and meeting future skill needs in the industries they represent. As a result the Extractive Industry Training Organisation (EXITO) decided to conduct a national survey of the Bentonite Mining Industry to carry out research to enable planning of the future training needs of the industry.

It is envisaged at the completion of this project that EXITO will be able to improve its responsiveness to the needs of the Bentonite mining industry in terms of current and future skill needs.

Methodology

Firstly a draft questionnaire was designed and circulated to the EXITO Executive Director and industry experts for their comment. Amendments were made based on their feedback.

Next a pilot-test was conducted with a cross-section of miners/operators who fitted the profile of the final group to be surveyed. Finally the questionnaire was amended to take account of all the pilot-test information and as a result 2 questionnaires were produced – one for operators/miners, and one for managers, professionals and technical staff.

Survey Response Rate

The design and pilot-testing of the questionnaire made it easy for respondents to participate fully. There were very few questionnaires missing specific data. The response rate from the miners/operators questionnaire was outstanding in that an 86% return was achieved.

We also surveyed the manager of the Bentonite mine site and his senior company manager.

Demographic Data – New Zealand Bentonite Mining Industry

Men made up 94% and women 6% of the Bentonite mining population. The average age was 47 years.

Gender

Only 6% of the operators/miners work force were women.

Ethnicity

Only 6% of the operators/miners work force were Maori.

Over the last 20 years Maori have made very significant changes to their educational achievement levels, particularly Maori women. With this greater knowledge and qualification uptake one would expect to see this reflected in the Bentonite mining workforce. This is not the case.

Pay Rates and Conditions

Lower pay rates contribute to the difficulties of attracting people into the industry.

Age of Work Force

The age of the workforce does not appear to be a major issue for the Bentonite mining industry. The average age of workers was 47 years. Despite this succession planning is an important factor when employees retire or leave the workforce.

Relevant Experience/Qualifications before Entering the Industry

87% of respondents had no relevant experience/qualifications before entering the Bentonite industry.

Encouraged to take On-Site Responsibility

53% of operators/miners are encouraged to take on-site responsibility.

Training

Most respondents were attracted to doing training. Predominantly they saw the benefits as an opportunity to improve skills and qualifications.

72% of respondents reported they were consulted about their training needs and 28% said they were not. Of those who were consulted 85% agreed there was a match between what the company perceived were their needs and what they themselves thought were their needs while 15% said there was not a match of perceived needs. It is important to recognise the benefits of consulting on training needs as a way to increase training motivation levels.

92% of Bentonite operators/miners felt encouraged to undertake training - this is a very high proportion of respondents.

Respondents' report how training is sold to them has an big impact on how they participate in training and what they learn. There is a variety of ways training is sold to employees ranging from being ordered to attend, to asking employees what they would like to participate in. The respondents who were told to attend training were less enthusiastic about participating in training than those who were able to participate more in making the decision.

90% of respondents indicate that training goals are set with them before they attend training.

Of those (who have training goals set with them prior to training) 100% say the training outcomes match what they actually wanted from the training. This appears to be a very important factor for training success. Managers need to be encouraged to set training goals with staff before they attend training. This is a very cost effective action to take which would increase training effectiveness.

62% of respondents say they do enough training and 38% say they do not. Of those respondents 83% report the training is relevant.

Future Delivery for EXITO

Operators/miners respondents want improvements made to the current EXITO industry training system particularly improvements to the organisation of training, trainee record keeping, setting training goals and trainee follow up.

Recruitment and Retention

There are recruitment problems within the industry because of the isolated location and lower wage rates. As well the company requires managerial skills overlaid with a specific technical background.

The skills/occupations likely to be most significantly under-supplied in the future are semi-skilled labour and technical expertise. Those likely to be over-supplied are legal, accounting and professional expertise.

Training Issues for the Company

Respondents report the barriers to adequate provision of training are unclear training paths, cost of training, employee commitment and effective training delivery.

Specific training is needed for supervisors to make the transition from operational work to managing staff.

Respondents report they are not getting what they want from staff being trained because of gaps in leadership training and because there is a lack of industry specific training other than in-house training. Only 40% of training in the Bentonite mining industry is run through EXITO. By organising more EXITO based training the industry could be supported to provide more training for staff.

How well unit standards link to real on-the-job work may need revision. New unit standard qualifications have been suggested for the roles of:

- geological field technician
- mine surveyor
- sampling technician

With advances in computer technology all levels of staff will need to possess good computer skills. Technicians and more senior staff will need intranet training as well as some operators.

The importance of environmental management and health and safety is increasing and all staff will need training in this area.

Respondents report that poor literacy skills affect 20% of staff and say there is not sufficient investment in training to improve core generic skills (e.g. literacy, numeracy, problem-solving, and relationship management skills.) EXITO can offer help in this area.

Growth is forecasted over the next 5 to 10 years for existing professional occupations. This will need to be factored into the professional development requirements for this industry. Greater cross-functional skill sets and occupations will be needed with increased skills in the technology area.

As the Bentonite mining industry is relatively small respondents suggest organising more combined training with similar organisations.

By 2010 respondents want internationally recognised qualifications that are transportable and a link between EXITO training and tertiary education to allow smooth transition into traditional education systems thus giving school-leavers a second chance learning once some maturity has been gained in the workplace.

2. Overview

During June and July 2004 the Extractive Industries Training Organisation (EXITO) Industrial Minerals Mining Industry survey was conducted throughout New Zealand including, Bentonite, Iron Sands, Zeolite and China Clays.

The Tertiary Education Commission had charged all Industry Training Organisations to take a leadership role in identifying and meeting future skill needs in the industries they represent. As a result the Extractive Industry Training Organisation (EXITO) decided to conduct a national survey to carry out research to enable planning to be carried out on the future training needs of the industry.

The purpose of the research was to:

- Identify industry skill needs for the future
- Identify areas of skill shortage/skill gaps
- Identify how to ensure equity of access to all learners
- Identify how to extend industry training to more trainees
- Gather accurate information to be able to establish a system of training which responds to current and future skill needs for the Bentonite mining industry.

It is envisaged at the completion of this project that EXITO will be able to improve its responsiveness to the needs of the Bentonite mining industry in terms of current and future skill needs. It will continue to have an ongoing strategic dialogue with the industry to:

- Carry out strategic planning for Bentonite mining industry training, including establishing a Charter and Profile which have clearly articulated missions and plans which match identified industry needs
- Evaluate current EXITO services – to enable comparison and evaluation of services rather than making ad hoc decisions based on incomplete data and to build upon existing strengths by identifying opportunities outlined by the industry
- Increase the quality of provision of training and identify new services which focus on identified industry skill gaps
- Provide ongoing targeted services
- Allocate resources
- Carry out operational planning
- Continually improve effectiveness and efficiency of delivery

Equity of Access for Learners

The current skill shortage in many industries throughout New Zealand is of concern and is the reason the research was conducted. Consequently all avenues needed to be explored to enhance recruitment and access to training for those groups under-represented in the Bentonite mining industry. The project researched the numbers of women, Maori and Pacific Island people in the industry to find out how under-represented groups within the Bentonite mining workforce could take up training to help alleviate some of the current and future skill shortages.

Consultation

During initial consultation managers voiced concerns about operators/miners with literacy difficulties having to complete a questionnaire. They did not want such staff to be put on the spot. As a result the surveyor offered a choice to respondents when introducing the survey by explaining that the process could be completed more quickly by the surveyor asking the questions and filling in the answers or respondents could complete the questionnaire themselves.

In practice this worked well – most people chose to work through the questionnaire themselves.

Most respondents were interested in the purpose of the survey and there was a willingness to be involved.

Each participating mine manager and/or contact person has been thanked personally for their contribution to this work and all mine managers involved will receive a copy of the final report once the EXITO Board has released it.

3. Methodology

Data Collection Method

A group administered written questionnaire was used to collect the data because it was cost effective and delivered useful information quickly and efficiently. Also questionnaires are familiar to most people and usually do not cause apprehension. Questionnaires also reduce bias because of uniform question presentation and no middle-person bias or influence. Questionnaires are an excellent method to use when:

- The need is to collect the same type of information from a large number of people.
- The collectors of the information are more interested in what a group thinks as a whole than in what a particular individual has to say.

The EXITO survey needs met these 2 requirements.

Data Requirements

The EXITO Executive Director and Board directed the surveyor to research specific information based on strategies outlined by the Tertiary Education Commission. This information was to be used by EXITO to plan for ensuring a sustainable and skilled workforce for the Bentonite mining industry.

Industry experts were initially interviewed to canvass their ideas about:

- the focus and content of the research
- how to conduct the research

Initially this phase took longer than planned as the list of people to consult grew. The surveyor kept the Executive Director (EXITO) informed and together they decided when to draw this phase to a close.

Based on industry consultation a draft questionnaire was designed. It was exceptionally long. This was due in part to the enthusiasm of the initial industry experts who had been consulted. They came up with an enormous amount and range of questions to include – 16 typed pages in all! We knew this would be far too cumbersome and would deter potential participants from participating in the survey.

The questionnaire was amended based on industry feedback and as a result we produced 2 questionnaires – one for operators/miners and one for managers, professionals and technical staff. This was a sensible solution.

Pilot-Testing the Questionnaire

The questionnaire was piloted with a cross-section of mine workers who fitted the profile of the final group to be surveyed.

A short introduction outlining the purpose of the survey was given by the surveyor on site and face to face with the pilot-test group. Participants' confidence was enlisted by providing information and answering their questions about the purpose of the survey. Minimal information was given

about how to fill in the questionnaire, as we wanted to find out where any problem areas occurred. This meant that pilot-test respondents completed the survey without any special instructions. Instead they were responding to the written text of the questionnaire, not to guidance from the surveyor.

The questionnaire was distributed, completed and collected immediately after completion.

Respondents were timed from start to finish. After completion they were asked for their reactions to the survey based on the following questions:

- Was the survey clear and easy to understand?
- Were you comfortable answering the questions?
- How comfortable were you with the time it took to complete?
- What other comments do you have?

The respondents' answers were recorded. The resulting data was used to determine whether it was the kind of information we were seeking. We considered:

- Were there responses that should have been included but were not?
- Were some of the questions redundant?
- Were questions being answered with 'don't know'?
- Were there any questions that were too complicated?
- How long did it take respondents to complete the questionnaire?

The main finding of the pilot-test was the problematic question about questionnaire length. The operator questionnaire was 3 pages in length and could be completed within 10-20 minutes. But the managers, professionals and technical questionnaire was still too long. Further amendments were made and finally a 5 page questionnaire was finalised for this group.

4. Response Rate

Response rate is the single most important indicator of how much confidence can be placed in the results of a survey. When conducting a survey at least 10% of the survey population must be included. We have surveyed 88 % of the Bentonite industry population – enough to assure confidence in the results.

Professional surveyors find an acceptable questionnaire response rate of fifty percent or higher difficult to achieve. Given this we decided to conduct the survey on site and collect the questionnaires immediately after completion.

We were able to achieve an 86% yield with the operator questionnaire. As well the mine manager completed the questionnaire along with his senior manager from the company. We are very grateful to them for making the time to be involved.

The survey was conducted anonymously. Respondents were informed of the purpose of collecting the information (i.e. the questionnaire) and that the use and disclosure of the information would be limited to what was necessary to fulfill the survey purpose. We did not ask for people's names. The survey responses cannot be used to identify an individual because no personal information has been used that would enable identification of the survey respondent.

This was a wise decision as it encouraged survey participants to be more open – they knew their opinions and comments were not linked to them as individuals.

The final design of the questionnaire made it easy for respondents to participate. There were few questions missing specific data. Occasionally some people did not include their age or pay band rate. For the respondents who indicated they did not receive training, the questions relating to training were left blank. The 88% response rate for Bentonite miners/operators and their managers is very pleasing.

5. Results of the Survey

Section 1 - Bentonite Miners and Operators

During the survey, respondents actively engaged in conversations about their work. This meant a lot of information was gathered which was not part of the questionnaire but which was germane to it. At other times the conversations focused directly on survey questions. When this was the case some of the information has been included in the report. Respondent comment has been taken 'as is' from questionnaires and is italicised.

Part 1 – Demographic Data – Bentonite Mining Industry

| | |
|--|-----|
| Total number of mine sites surveyed | one |
|--|-----|

| Gender | |
|---------------|-----|
| Male | 94% |
| Female | 6% |

| Ethnicity | |
|------------------|-----|
| Pakeha | 94% |
| Maori | 6% |

| | |
|--------------------|----|
| Average Age | 47 |
|--------------------|----|

| | |
|--------------------------------------|------------|
| Average hours worked per week | 45hrs/week |
|--------------------------------------|------------|

| Relevant experience/qualifications before entering the industry | |
|--|-----|
| Yes | 13% |
| No | 87% |

| Reasons for entering the Bentonite mining industry | |
|---|-----|
| Proximity to home | 50% |
| A job/money | 44% |
| A new challenge | 6% |

| Years worked in the Bentonite mining industry | |
|--|---------|
| Average number of years | 4 years |
| 0 to 2 years: | 60% |
| 2 to 5 years | 20% |
| 5 to 10 years | 10% |
| 10 to 15 years | 0% |
| 15 to 25 years and over | 10% |

| Percentage of those encouraged to take on-site responsibility | |
|--|-----|
| Yes | 53% |
| No | 47% |

| Future Career Aspirations | |
|--|-----|
| Continue work in same job - as a miner/operator | 30% |
| Don't know | 47% |
| Find work in different industry | 23% |

Part 2 - Training

Predominantly respondents believed there were 3 main purposes in training staff. These were to improve efficiency, to raise safety standards and to up-skill and increase the knowledge of employees. However one person commented: *There is no real training done. It is just what you hear around here and then you get told off if you make a mistake.*

Most respondents were attracted to doing training and for a multitude of reasons. Predominantly they saw the benefits as an opportunity to improve skills and qualifications.

- *Yes to further my skills*
- *Yes. More money.*
- *Yes. To improve skills and get qualifications.*
- *Yes. Greater understanding of work practices. Better job prospects in the future.*
- *Yes. Stop me from hurting myself.*
- *Yes. Better knowledge.*
- *Yes. To get everyone working together.*
- *Yes. Experience for future jobs.*

The training needs respondents identified were for the following skill areas:

- *Office procedures, and PC.*
- *Finish EXITO training – looking toward diploma in business management.*
- *Mainly safety.*
- *Anything to do with the plant I work in.*
- *To gain milling certificate.*
- *Safety first.*
- *More safety training needed*

72% of respondents reported they were consulted about their training needs and 28% said they were not. Of those who were consulted 85% agreed there was a match between what the company perceived were their needs and what they themselves thought were their needs while 15% said there was not a match of perceived needs. One respondent who said there was not a match of needs commented that: *One part of the company wants you trained and the other doesn't.*

When respondents don't know about training they would approach the following people/places to find out?

- *Employer.*
- *Manager / EXITO.*
- *Office.*
- *The net.*
- *The boss.*
- *Manager of company.*
- *Manager, books, website.*

92% of Bentonite operators/miners felt encouraged to undertake training.

Respondents' report that how training is sold to them has an enormous impact on how they participate in training and what they learn. There is a variety of ways training is sold to employees ranging from being ordered to attend, to asking employees what they would like to participate in. The respondents who were told to attend training were less enthusiastic about it than those who were able to participate more in making the decision.

- *Forced to do it.*
- *If you get a qualification you get more money.*
- *It is enforced*
- *Suggested to improve yourself and get qualifications.*
- *Told to do it.*
- *It is not 'sold' – told that we need to do it.*
- *I am asked.*
- *It's not sold to you – if it's there take it by both hands.*

90% of respondents indicate that training goals are set with them before they attend training. Of those (who have training goals set with them prior to training) 100% say the training outcomes match what they actually wanted from the training? This appears to be a very important factor for training success.

62% of respondents say they do enough training and 38% say they do not. Of those respondents 83% report the training is relevant.

When asked whether the training fits with where respondents want to go in their mining careers only half of respondents replied. Of those 80% report the training does fit with their future career aspirations.

Most respondents want to do training during work time. However those doing correspondence work recognise they need to study outside work hours.

Respondents report zero training gaps – i.e. skills needed not being trained for. They indicate they have done the following training while working in the Bentonite mining industry.

- *Operations, B-class quarry, supervision.*
- *Vehicle licences*
- *Quality training.*
- *Business administration studies and computer skills.*
- *Forklift OSH and F endorsement.*
- *EXITO national certificate in lime mill processing, supervision / operations.*
- *Licences.*
- *First aid, loader driving, plant maintenance.*
- *First aid, forklift, fire extinguisher.*
- *Production, mill operation, forklift.*
- *St. Johns, forklift, health and safety, crane lifting.*

The suggestions from respondents about EXITO industry training indicated they wanted improvements to the current system.

- *Get the results onto records properly.*
 - *Get themselves organised, so assessors know what they are doing.*
 - *To get their act sorted out on training; be more pro-active about following up on trainees, set out training time frames and goals for those who are doing training.*
 - *Help trainees set goals for training so they know where they are going.*
 - *When a mining job becomes available to new persons they should, when accepted, have management to train new persons for at least 2 months. EXITO could help this happen.*
-

Part 3 -Training Delivery

What type of training delivery works best for you? – Self-paced (learning from a training booklet at your own pace) presentations, on-site, videos etc.

- *On-site and videos.*
- *Presentations, on-site, videos.*
- *Self-paced, on-site.*
- *On-site.*
- *Self-paced distance learning.*
- *Self-paced.*
- *All of the above.*
- *Video, then the self-paced approach.*
- *On-site; because hands-on is the only way to learn.*
- *Hands-on is best for most of staff.*
- *Tool box meetings.*

The qualities and skills of trainers are a most important factor for respondents. Respondents were clear about the importance of trainers being able to get alongside trainees and treat them respectfully.

Trainer professionalism was a very important factor which gave trainees confidence in how and what they were learning.

- *Friendly, able to relate to other people.*
- *Approachable and friendly.*
- *Someone who can relate to people.*
- *Being in a decent learning environment. Treat people well.*
- *A trainer who believes in what they are doing and shows interest in students, so that the best learning outcome is achieved.*
- *Make it pleasant and interesting.*
- *Training which is relevant.*
- *Knows what they are teaching – well organised.*

- *Someone who is knowledgeable.*

There is a high degree of immediacy of application once new training is completed. 90% of respondents report they use the training immediately – the others say it takes between 1 – 12 months until they use the new learning.

Respondents had many ideas for improving training. These included:

- *More prompt action.*
- *Staff training sessions for the operators.*
- *To give EXITO a good shake up and get them to follow up on trainees – at the very least once every 6 months, and make sure that the training is being carried out.*
- *Get everybody on the same side and involved – it can only better production.*
- *Training should be broken down into stages.*
- *By correspondence for me.*
- *Training in relevant on-site situations.*
- *Hands-on practical training.*
- *Work half the week, other half training.*
- *Any new persons arriving here should be trained for at least 2 months so people understand the running of the plant.*

Just under half of respondents have experience distance learning and they all indicate it is a very useful way to learn.

Approximately half of respondents say that training delivery has the right mix between practice and theory. Of those that don't agree the mix is correct the fault is put on the trainer for not organising the right mix for the best learning outcomes. *Depending on trainer; some have a good mix, some don't. Best way to learn in my view is a 50/50 mix of theory and practice.*

5. Results of the Survey

Section 1 – Managers and Professionals

Part 1 - Demographic Data

The manager at the Bentonite mine site at Coalgate was surveyed and his senior company manager from Omya. Given this situation the managers/professionals section does not include percentages.

The respondents were both male, pakeha and their average age was 46. They work 60 hours per week.

Both respondents had completed qualifications before they began working in Bentonite mining. One had a Bachelor of Science Geology, Masters of Science (Honours) / Engineering Geology, MBA.

The other had his N.Z. Certificate Science (Metallurgy), Graduate Diploma Extractive Metallurgy (Australia), MBA (Australia).

They had done 4 ½ years and 9 years respectively working in the Bentonite mining industry.

Part 2 - Professional Development

Both say there is not a match between their professional development needs and what the company perceives are their needs.

No. Swiss multi-national – not in step with local management.

No. No effort made by company to train or develop senior managers.

One respondent feels encouraged to participate in professional development while the other does not. Professional development goals are set with one respondent before he undertakes it and this same respondent says the goals match what he actually wants from professional development.

After both respondents training' and professional development they indicated that the professional development added value, though they both indicated they do not get enough professional development.

Both respondents have these suggestions on how professional development could be structured to fit in with work.

- *More support from corporate level at international level.*
- *If offered by company then would have to fit with company needs as well as personal needs.*

The gaps they identify in professional development areas – i.e. skills needed which are not being addressed are:

- *Higher strategic management.*
- *Better financial, H.R. and sales and marketing training required.*

One respondent suggests *the company have an H.R. person dedicated to driving and supporting employees who wish to develop.* He also suggests there be a, *balance between mentorship / practical experiences / training and self-study and that operator training has dedicated training time and tutors.*

Part 3 - Recruitment and Retention

The occupations within the industry which are difficult to fill are operators and managers. It is difficult to attract operators because of the isolated location and wage rates. With managers the company requires managerial skills overlaid with a specific technical background.

The skills/occupations likely to be most significantly under-supplied in the future are semi-skilled labour and technical expertise. Those likely to be over-supplied are legal, accounting and professional expertise.

Both respondents say that the industry is now more flexible towards overseas qualifications and experience. It is likely the company will not need to change its employment strategies, therefore there will be little need to recruit employees who are different from those recruited in the past.

In answer to the question - Is there the possibility to do an apprenticeship in your company? One respondent says 'no' the other says, *Yes this system has excellent training potential and is cost effective.*

Respondents indicate that staff retention could be improved by:

- *Providing a more tangible qualification structure. It needs to be simplified.*
- *Providing more meaningful work so that industry can attract more committed, long-term employees.*

Their ideas for attracting people into the industry include:

- *Education at high school level.*
- *Promote the industry and counter the arguments put forward by organisations such as D.O.C. and the green movement.*

They are very clear that the company encourages people into the industry by encouraging community involvement e.g. by attending local community development meeting such as career nights at high schools, speaking to Rotary groups.

One respondent says more women could be attracted into the operator side of the industry by improving conditions and removing heavy labour components from jobs.

Part 4 – Training Issues for the Company

Respondents report the barriers to adequate provision of training are unclear training paths and costs and employee commitment and that successful training delivery depends on:

- *Relevance to job, opportunity for career progression.*
- *Hands-on training and being able to put time aside during the day for training and self-study.*

They report that the skills needed for leading and managing people are:

- I.Q., Emotional intelligence development
- Conflict resolution.
- Team development and supervisory skills.

Respondents report that the training needed for supervisors to make the transition from operational work to managing staff is:

- *4 Quadrant leadership training*
- *More academic training – take the ‘blindness’ off. Broaden their knowledge base to wider areas of business management.*

Staff are attracted into training with the use of:

- *Incentives and promoting awareness of personal development.*
- *Provide on-site assessors and on-site off-site training seminars.*

Respondents report they are not getting what they want from staff being trained because of gaps in leadership training especially in the supervision certificate and because there is a lack of industry specific training other than in-house training.

| Percentage of Types of Training | | |
|--|--|---|
| EXITO Training | Non-EXITO company training run by own staff | Non-EXITO training run by external consultants |
| 40% | 50% | 10% |

One respondent reported that unit standards link to real on-the-job work 65% of time – the other says there is a relatively close link of unit standards to real work. They both report that unit standards need to be revised because of changes in technology and that this should be done every 12 to 24 months.

They both agree there is a need for a group of unit standards to make up a qualification for a:

1. geological field technician
2. mine surveyor
3. sampling technician

Other qualifications they indicate would be useful are:

1. Managing people.
2. General laboratory activities.

With the advances in computer technology all levels of staff will need to possess good computer skills. Technicians and more senior staff will need intranet training as well as some operators.

The importance of environmental management and health and safety is increasing. Respondents indicate all staff will need training in this area. This would need to include a general understanding of environmental issues and management. One respondent comments, *Not worth it until Government provides a cohesive unbiased and rational RMA. Present laws are unworkable and pro-green, i.e. anti-mining.*

Health and Safety training is also needed by all staff. They report that this training is very important but believe it is well covered already.

Respondents report that poor literacy skills affect 20% of staff and say there is not sufficient investment in training to improve core generic skills (e.g. literacy, numeracy, problem-solving, and relationship management skills.)

They see that the best way to bring more mining engineers into the industry is to increase remuneration to match overseas salaries and to show that New Zealand has a future in mining. Linked to this is their estimate that industry output is expected to grow 10% per annum over the next five years.

Respondents believe that future technological solutions, particularly bagging, will substitute the human resource. They expect major technological changes to impact upon the industry over the next 5 years – this will include such things as automation of plant. Because of this training will need to keep up to date with these technological advances and suggest this could be done by:

'Continuous' training.

More PLC, logical thinking training to meet demand of electronics age.

They forecast growth over the next 5 to 10 years for existing professional occupations.

| Forecasted Growth for Existing Professional Occupations | |
|---|---------------|
| Occupation | Likely Growth |
| Geological | Moderate |
| Engineering | Moderate |
| Surveying | Moderate |
| I.T. | High |
| Managers | 0 – 5% |
| Quality roles | 20% |
| Technology | 70% |

They predict more cross-functional skill sets and occupations will be needed with increased skills in the technology area. Remedying forecast skill shortages could be done by, *changing attitudes of school goers and leavers that they need to succeed and that they can't rely on government for their living. Push self-esteem and potential so that people believe they can achieve. Attitude.*

Because small companies have more difficulty training staff they suggest organising more combined training with similar organisations. One respondent commented, *Training is prolonged so that costs can be spread. Not perfect but better than nothing. Frustration is training then having trainees leave. In time we should however get more semi-trained staff from a growing labour pool of semi-trained (elsewhere) personnel.*

Respondents differ in whether there is an effective match between forecast industry needs for unskilled and skilled labour and what the education and training delivery system currently delivers. They comment:

- *80% effective.*
- *Poor match. Basic skills in life are being ignored.*

They suggest it could be improved by:

- *Providing a simplified structure that can be easily transferred and recognised.*
- *Focusing on attitude, basic skills, i.e. getting to work on time. Remove excessive government support system that allows avoidance of personal training and job commitments.*

They indicate railways, ports, shipping services, roading and energy upgrades will be needed for future national infrastructures to ensure the viability of the industry. One respondent commented:

- *No written evidence, BUT – Cook Strait is a limiter to true national distribution. Railways are poorly developed and city traffic is abysmal.*

By 2010 EXITO industry training and skills development need to:

- *Develop internationally recognised qualifications that are transportable.*
 - *Link EXITO training to tertiary education to allow smooth transition into traditional education systems thus giving school-leavers a second chance, once some maturity has been gained in the workplace.*
 - *Counter the 'green' argument. Advertise the positives of mining making it a more attractive career option. Remind all that their lives are touched in many ways by the products of mining. Destroy hypocrisy.*
-

6. Recommendations

Recommendations have been made but are not prescriptive. In addition each recommendation topic includes a list of questions to prompt and extend the thinking and options generated for future training improvements.

Part 1 – Demographic Data

Gender

Only 6% of the operators/miners work force are women.

Questions to ask:

1. Why are there not more women in Bentonite mining in New Zealand?
2. How could employers be encouraged to consider both genders when undertaking recruitment? What could be done differently to publicise Bentonite mining careers to women?
3. What additional recruitment methods may be needed to attract women?
4. What can be learned from the women who work in the industry?

Ethnicity

Only 6% of the operators/miners work force were Maori.

Over the last 20 years Maori have made very significant changes to their educational achievement levels, particularly Maori women. With this greater knowledge and qualification uptake one would expect to see this reflected in the Bentonite mining workforce. This is not the case.

Questions to ask:

1. Why aren't there more Maori and Pacific Island people Bentonite mining in New Zealand?
2. How could employers be encouraged to consider selecting more widely when undertaking recruitment?
3. What could be done differently to publicise Bentonite mining careers to Maori and Pacific people?
4. What additional recruitment methods may be needed to attract Maori and Pacific people?

Questions to ask:

- 5. What can be learned from Bentonite mining companies employing Maori and Pacific Island people in Bentonite mining work?**
- 6. What can be learned from Maori and Pacific Island people who do work in the industry?**

Age of Work Force

The age of the workforce does not appear to be a major issue for the Bentonite mining industry. The average age of workers was 47 years. Despite this succession planning is an important factor when employees retire or leave the workforce.

Questions to ask:

- 1. How are the knowledge and skills of very experienced miners and managers/professionals passed on to younger employees before they retire?**
- 2. What is the impact of this (see the above question) on how training needs are planned?**

Pay Rates and Conditions

Lower pay rates contribute to the difficulties of attracting people into the industry.

Questions to ask:

- 1. How can job conditions rather than pay rates be used to attract professionals and new operators/miners into the industry?**
- 2. How can the non-financial reasons for being attracted into the industry be promoted to those who may wish to take up employment in the Bentonite mining industry?**

Relevant Experience before Entering the Industry

87% of respondents had no relevant experience before entering the Bentonite industry. This is explained in part by the specialist nature of the industry.

Questions to ask:

- 1. Could specialist pre-employment programmes speed up the process of becoming an operator/miner?**
- 2. How could EXITO support more people to obtain appropriate licences?**
- 3. What skills could be learnt in secondary school which would support careers in mining?**

Encouraged to take On-Site Responsibility

53% of operators/miners are encouraged to take on-site responsibility.

Questions to ask:

- 1. From where does the Bentonite industry obtain its managers, supervisors etc?**
- 2. Is further support needed from EXITO to support the development of managers, supervisors?**

Future Career Aspirations

47 % of miners/operators are unclear about their future in the industry.

Questions to ask:

- 1. What can be done to encourage those employees who are unclear about their future career direction so that they remain productive and committed miners/operators?**
- 2. Given that miners/operators want to have much greater access to training to develop their skills, what could be done with training provision to motivate employees to remain in the industry?**

Part 2 – Training

Most respondents were attracted to doing training. Predominantly they saw the benefits as an opportunity to improve skills and qualifications.

72% of respondents reported they were consulted about their training needs and 28% said they were not. Of those who were consulted 85% agreed there was a match between what the company perceived were their needs and what they themselves thought were their needs while 15% said there was not a match of perceived needs. It is important to recognise the benefits of consulting on training needs as a way to increase training motivation levels.

92% of Bentonite operators/miners felt encouraged to undertake training - this is a very high proportion of respondents.

Respondents' report how training is sold to them has an big impact on how they participate in training and what they learn. There is a variety of ways training is sold to employees ranging from being ordered to attend, to asking employees what they would like to participate in. The respondents who were told to attend training were less enthusiastic about participating in training than those who were able to participate more in making the decision.

90% of respondents indicate that training goals are set with them before they attend training. Of those (who have training goals set with them prior to training) 100% say the training outcomes match what they actually wanted from the training. This appears to be a very important factor for training success. Managers need to be encouraged to set training goals with staff before they attend training. This is a very cost effective action to take which would increase training effectiveness.

62% of respondents say they do enough training and 38% say they do not. Of those respondents 83% report the training is relevant.

Questions to ask:

- 1. What can be done to improve financial support for training?**
- 2. How can companies be supported to provide more training?**
- 3. How can training be made accessible to all Bentonite mining employees?**
- 4. What factors need to be in place to enable small companies to take advantage of training being offered? How could these factors be realised?**
- 5. What role should EXITO have in educating managers in the Bentonite mining industry about how to effectively sell training to staff?**
- 6. What could be done by companies to change from the 'telling' approach to the 'consultation' approach when trying to attract staff to do training?**
- 7. How are accurate training needs established?**

Questions to ask:

- 8. What mechanisms need to be put in place to ensure managers and staff always set training goals together before training?**
- 9. What can be done to help managers understand the positive flow-on effects of jointly setting training goals?**
- 10. What type of training follow-up will best address whether pre- and post-training goals were congruent?**
- 11. How could training/professional development in management/leadership training and computer training be made more available?**
- 12. What does EXITO need to do to identify the additional training required for major technological advances occurring over the next 5 years?**
- 13. What could be done to help the industry provide more professional development for staff given that the company does not provide much support for professional development?**

Part 3 - Future Delivery for EXITO

Operators/miners respondents want improvements made to the current EXITO industry training system particularly improvements to the organisation of training, trainee record keeping, setting training goals and trainee follow up.

Questions to ask:

- 1. How could EXITO facilitate an improvement to how trainees experience their training system?**
- 2. How can EXITO further promote Bentonite mining careers?**
- 3. How could EXITO improve how it informs the Bentonite mining industry about what it has to offer?**

Part 4 - Recruitment and Retention

There are recruitment problems within the industry because of the isolated location and lower wage rates. As well the company requires managerial skills overlaid with a specific technical background.

The skills/occupations likely to be most significantly under-supplied in the future are semi-skilled labour and technical expertise. Those likely to be over-supplied are legal, accounting and professional expertise.

Questions to ask:

- 1. What improvements could be made to how managers/professionals' roles and miners/operators roles' are promoted to those who are contemplating a career in the Bentonite mining industry?**
 - 2. What suggestions for the recruitment of women have not yet been tried and what promotion strategies have worked for the companies that do currently employ women miners?**
-

Training Issues for the Company

Respondents report the barriers to adequate provision of training are unclear training paths, cost of training, employee commitment and effective training delivery.

Specific training is needed for supervisors to make the transition from operational work to managing staff.

Respondents report they are not getting what they want from staff being trained because of gaps in leadership training and because there is a lack of industry specific training other than in-house training. Only 40% of training in the Bentonite mining industry is run through EXITO. By organising more EXITO based training the industry could be supported to provide more training for staff.

How well unit standards link to real on-the-job work may need revision. New unit standard qualifications have been suggested for the roles of:

- geological field technician
- mine surveyor
- sampling technician

With advances in computer technology all levels of staff will need to possess good computer skills. Technicians and more senior staff will need intranet training as well as some operators.

The importance of environmental management and health and safety is increasing and all staff will need training in this area.

Respondents report that poor literacy skills affect 20% of staff and say there is not sufficient investment in training to improve core generic skills (e.g. literacy, numeracy, problem-solving, and relationship management skills.) EXITO can offer help in this area.

Growth is forecasted over the next 5 to 10 years for existing professional occupations. This will need to be factored into the professional development requirements for this industry. Greater cross-functional skill sets and occupations will be needed with increased skills in the technology area.

As the Bentonite mining industry is relatively small respondents suggest organising more combined training with similar organisations.

By 2010 respondents want internationally recognised qualifications that are transportable and a link between EXITO training and tertiary education to allow smooth transition into traditional education systems thus giving school-leavers a second chance learning once some maturity has been gained in the workplace.

Questions to ask:

- 1. What steps should the industry take to support improvements to national infrastructures?**
- 2. How could the reported barriers to the adequate provision of training be dismantled?**
- 3. How could EXITO provide specific training for supervisors to make the transition from operational work to managing staff?**
- 4. What does EXITO need to do to address the reported deficit in leadership training?**
- 5. What needs to be done to undertake a revision on how well unit standards link to real on-the-job work?**
- 6. What consultation needs to take place with EXITO and the Bentonite mining industry to confirm the usefulness of developing qualifications for the technical roles of: Geological Field Technician, Mine Surveyor Technician and Sampling Technician?**
- 7. How could other mining companies be encouraged to combine their training with the Bentonite mining industry? Does EXITO have a role in achieving this outcome?**
- 8. What is EXITO doing to identify the skills required for computer training and environmental management training?**
- 9. What can be done to provide more training in literacy skills?**
- 10. What can be done to increase the numbers graduating with professional qualifications for the mining industry?**
- 11. How can gaining cross-functional skill sets and occupations be encouraged?**

7. Distribution of Results

The results of the survey will be distributed to all EXITO Board members, those who contributed to the survey and other interested Bentonite mining industry personnel.

There may also be other interest groups who might share a curiosity about the outcomes of the project. The spectrum of possible audiences may include:

- The local press and other media
 - Government Departments
 - Professional Associations
-

8. Appendices

Questionnaire for Operators

EXITO (The Extractive Industries Training Organisation) has developed this confidential questionnaire to gather information about the Bentonite mining industry. Your answers will help us understand how to provide the kind of training you think the industry needs to meet the demands placed on it in the future.

Thank you very much for taking part in this confidential survey. We really appreciate your help.

Part 1 - General Questions

1. Name of Company: _____ Job Title _____

2. Your Age: _____

3. Is it an exploration company only?
Is it a mining company only?
Is it a mining and exploration company?

4. Do you work in:
▪ alluvial mining
▪ hard rock mining

5. Ethnicity: (mark appropriate box/es)

- | | |
|-------------------------|----------------------|
| NZ European/Pakeha | NZ Maori |
| Other European | Samoan |
| Cook Island Maori | Tongan |
| Niuean | Tokelauan |
| Fijian | Other Pacific Island |
| Indian | South East Asian |
| Other Asian | Chinese |
| Latin American/Hispanic | American |
| Middle Eastern | African |

6. Male Female

7. How many hours do you work per week? _____

8. What attracted you into the Bentonite mining industry? _____

9a.) Did you have 'relevant' experience, qualifications or licences before you started working in Bentonite mining? _____ If yes – what? _____

9b.) did you work in other mining industry jobs before working in Bentonite mining? _____
If yes – what? _____

10. How many Bentonite mining companies have you worked in? _____

11. Give your total time in the Bentonite mining industry: _____

12. Have you been encouraged to take on site responsibility or supervisory or management roles? _____

If yes – what? _____

13. Wages - what is your expectation re wages? Circle which:

\$30,000 - \$40,000 \$40,000 - \$50,000 \$50,000 - \$60,000 \$60,000 - \$70,000
\$70,000 - \$80,000 \$90,000 or above

14. What work future do you see for yourself – what do you aspire to? _____

Part 2 - Training Questions

1. What do you understand about why training is done? _____

2. Are you attracted to doing training? _____ What are the benefits of training for you? _____

3. What are your training needs? _____

4. Are you consulted about your training needs? _____ Is there a match between your training needs and what the company perceives are your training needs? _____
If not please explain. _____

5. If you don't know about training where would you go to find out? _____

6. How supported are you to participate in training?

- Encouraged?
- Not encouraged?

7. If training is suggested for you how is it sold to you? _____

8. Are training goals set with you before you do training? _____ If not how does this affect the training you do? _____

If yes, do the training goals match what you actually want from the training? _____

9. Do you do enough training? _____ Is it relevant? _____
Does it fit with where you want to go in your mining career? _____

10. How should training be organised, to best fit in with your work and production needs? _____

11. Are there any training gaps – i.e. skills needed not being trained for? _____

If yes, what are they? _____

12. What training have you done while working in the Bentonite mining industry? _____

13. By 2010 what does EXITO industry training and skills development need to be doing? Please comment.

Part 3 - Training Delivery Questions

1. What type of training delivery works best for you? – Self-paced (learning from a training booklet at your own pace) presentations, on-site, videos etc. _____

2. Think about the trainer. What factors make training delivery successful for you? _____

3. When you have completed your training what length of time is there between getting the training and using the new skill? _____

4. What are your ideas for improving the way training is delivered? _____

5. Have you experienced distance learning? (I.e. learning by correspondence) _____ Was it a useful way to learn? _____

6. Does training delivery have the right mix between practice and theory? _____ If not please explain. _____

Questionnaire for Managers/Professionals

EXITO (The Extractive Industries Training Organisation) has developed this confidential questionnaire to gather information about the Bentonite mining industry. Your answers will help us understand how to provide the kind of training you think the industry needs to meet the demands placed on it in the future.

Thank you very much for taking part in this confidential survey. We really appreciate your help.

Part 1- Background Information

1. Name of Company: _____ Job Title _____

2. Your Age: _____

3. Is it an exploration company only?
Is it a mining company only?
Is it a mining and exploration company?

4. Do you work in:
Alluvial mining
Hard rock mining

5. Ethnicity: (mark appropriate box)

| | |
|-------------------------|----------------------|
| NZ European/Pakeha | NZ Maori |
| Other European | Samoan |
| Cook Island Maori | Tongan |
| Niuean | Tokelauan |
| Fijian | Other Pacific Island |
| Indian | South East Asian |
| Other Asian | Chinese |
| Latin American/Hispanic | American |
| African | Middle Eastern |

6. Male Female

7. How many hours do you work per week? _____

8. What attracted you into the Bentonite mining industry? _____

9a.) Did you have 'relevant' experience, qualifications or licences before you started working in Bentonite mining? _____ If yes – what were they and in which country were they obtained? _____

9b.) Did you work in other mining industry jobs before working in Bentonite mining? _____

10. How many Bentonite mining companies have you worked in? _____

11. Give your total time in the Bentonite mining industry: _____

12. Wages - what is your expectation re wages? Circle which:
\$30,000 - \$40,000 \$40,000 - \$50,000 \$50,000 - \$60,000 \$60,000 - \$70,000
\$70,000 - \$80,000 \$80,000 - \$90,000 \$90,000 - \$100,000 \$100,000 or above

Part 2 - Professional Development

1. Is there a match between your professional development needs and what the company perceives are your needs? _____ If not please explain. _____

2. How supported are you to participate in professional development?

- a. Encouraged?
b. Not encouraged?

3a.) Are professional development goals set with you before you undertake it? _____

3b.) Do they match what you actually want from professional development? _____

4. After training or professional development did you get what you thought you would get? I.e. was your understanding of what you would get the same as the actual learning you received? _____

5. Did the professional development add value? _____ Did you elect to do it or did you do it because you were told to? Say which. _____

6. Do you do enough professional development? _____ Does it fit with where you want to go in your mining career? _____

7. How could professional development be structured to best fit in with your work? _____

8. Are there any gaps in professional development areas – i.e. skills needed which are not being addressed? _____

9. What ideas do you have for solutions to any professional development problem areas? _____

10. Think about the lecturer/trainer/tutor. What factors make training delivery successful for you? _____

11. When you have completed any professional development what length of time is there between receiving it and using the new learning? _____

12. What are your ideas for improving the way training is delivered to operators? _____

Part 3 – Recruitment and Retention

1a. What occupations within the industry do you have difficulty filling? Consider all levels i.e. operators, technicians, professional experts, managers. _____

1b. What is the reason for this? _____

2. What types of skills/occupations are likely to be most significantly under or over-supplied in the future and why? a. Under-supplied

b. Over-supplied

3. To what extent will the industry need to recruit employees who are different from those recruited in the past, to meet the demand for labour – e.g. gender, ethnicity, age, disability _____

4. How feasible will it be to fill short-term skill shortages by recruiting staff from under-represented groups, other industries, out of the labour force or from overseas to remedy short-term skill shortages while New Zealanders are receiving the formal training they need to take up future vacancies? _____

5. Is there the possibility to do an apprenticeship in your company? _____ What do you think of this system? _____

6. What can be done to improve staff retention? _____

7. What are your own ideas for attracting people into the industry? _____

8. Does your company encourage people into the industry? _____ If yes – how? _____

9. How could more women be attracted into the operator side of the industry? _____

Part 4 - Training Issues for the Company

1. What are the barriers to adequate *provision* of training? _____

2. What factors are critical to the successful *delivery* of training? _____

3. What skills related to managing people, work relationships and leadership are needed? _____

4. What training is needed for supervisors to make the transition from operational work to managing staff? _____

5. How do you attract staff into training? _____

6. Are you getting what you want from your staff being trained? _____ If not why not? _____

7. What proportion of your staff are entry-level trained and require on-job experience to be of relative value _____ compared to those who are immediately job ready and/or able to move into more senior or highly skilled positions? _____

8. Of your total training what percentage is:

EXITO training _____

Non-EXITO company training run by your own staff _____

Non-EXITO training run by outside training consultants _____

9. Do outside trainers/consultants keep up to date with new company standards? _____

10. How well do unit standards link to real on-the-job work? _____

11. How often do unit standards need to be revised because of changes in technology? _____

12. Is there a need for a group of unit standards to make up a qualification for a:

geological field technician? _____

mine surveyor? _____

sampling? _____

other? _____

13. With the advances in computer technology what level of staff will need to become familiar with computers? (Think about all levels - operators, technicians, professional experts, managers and the interface with technology and using the intranet _____

14. The importance of environmental management and health and safety is increasing. What is needed for future training in these 2 areas? a.) Environmental Management _____

b.) Health and Safety _____

15. For what proportion of staff is literacy a problem when training? _____

16. Is there sufficient investment in training to improve core generic skills (e.g. literacy, numeracy, problem-solving, and relationship management skills) so the quality of employee output is assured? _____

17. What is the best way to bring more mining engineers into the industry? _____

18. How is industry output expected to grow over the next five years? _____

19a.) Are there future technological solutions that will substitute the human resource? _____

19b.) If so, what occupations will be affected? _____

20a.) What major technological changes do you expect to impact upon the industry over the next 5 years? _____

20b.) What will need to be done to ensure training is up to date with these technological advances? _____

21. What change in growth do you forecast over the next 5 to 10 years for existing professional occupations? Occupation _____ Likely Growth _____

Occupation _____ Likely Growth _____

Occupation _____ Likely Growth _____

Occupation _____ Likely Growth _____

22. What non-existent skill sets or occupations will be needed? _____

23. What could be done to remedy any forecast skill shortages? _____

24. Small companies have more difficulty in training staff – what are your ideas to overcome this difficulty? _____

25a.) How effective is the match between forecast industry needs for unskilled and skilled labour and what the education and training delivery system currently delivers? _____

25b.) How could it be improved? _____

26. What upgrades are needed for future national infrastructures to ensure the viability of your industry? E.g. railways, ports, shipping services, roading etc. _____

Please attach any evidence you have re question 26 above.

27. By 2010 what does EXITO industry training and skills development need to be doing? Please comment. _____

Questions in Italics for Managers Only

1. If you are a manager did you work your way up to management from the 'mine face' or did you get management qualification/professional qualification and start Bentonite mining work as a manager?. _____

2. Total number of operators in this mine? Include all types of workers in the mine. _____

3. Total number of supervisory positions in this mine? _____

4. Total number of administration and support positions in this mine? _____

5. Total number of management positions in this mine? _____

6. What is the average age of your workers? _____

7. What future changes may need to be made to the role of the ITO, its structure, capabilities and resources to support you - the industry stakeholders? _____

