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NORTH COAST INSTITUTE

A REVIEW OF THE SKILLS & TRAINING NEEDS OF THE "EMERGING" MANUFACTURING SECTOR ON THE NSW NORTH COAST

"Developing practical solutions to meet real industry needs"

CONSULTATIVE DRAFT
1 March 2005

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Dear manufacturing industry stakeholder

MANUFACTURING INDUSTRIES TRAINING NEEDS REPORT – REQUEST FOR INPUT

On behalf of Mid North Coast Regional Development Board and the North Coast Institute of TAFE NSW we have much pleasure in providing you with a copy of a consultative draft report into the training and skills needs of manufacturers on the NSW North Coast (covering the Mid North Coast and Northern Rivers regions).

This draft report is being distributed to businesses that participated in a survey of North Coast manufacturers in mid 2004, undertaken by Phillip Goodall (as Project Officer) for a jointly funded research project. The draft report is also being circulated to a range of stakeholders in industry, training and economic development in both the public and private sectors.

The report has been released as a **consultative draft** because the sponsoring organisations want your feedback before the report is finalised. Comments can be provided to any of a range of contacts listed at the back of the report.

Given the range of manufacturing sectors covered there is likely to be diversity of views on both the problems identified and potential solutions proposed in this draft report. As a next step it is planned to convene a number of industry forums to explore collaborative solutions to existing and future skills and training needs on the NSW North Coast.

Your input to this paper and participation in the process of developing collaborative solutions to the current and future training and skills needs of manufacturing industry on the North Coast would be greatly appreciated.

Neil Black
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Ron McDermott
Chairperson
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A REVIEW OF THE SKILLS AND TRAINING NEEDS OF THE "EMERGING" MANUFACTURING SECTOR ON THE NSW NORTH COAST

PURPOSE

This report provides manufacturers and other stakeholders with an opportunity to respond to the findings and observations drawn from a survey of manufacturing industry representatives on the NSW North Coast in 2004. A more detailed analysis of survey responses and outline on the survey methodology will be provided with the final report.

Readers are invited to provide comments on this draft report to local offices of the NSW Department of State and Regional Development (DSRD), Regional Development Boards, Area Consultative Committees or the North Coast Institute of TAFE faculty managers for Construction and Transport and Manufacturing Engineering. Contact details are at Appendix A

Report Aim

The aim of this report is to address four key questions:

- What are the skill gaps and shortages in the "emerging" manufacturing sector on the NSW North Coast?
- What is the impact of these skill gaps and shortages on manufacturing businesses?
- What are the possible causes of these skills gaps and shortages?
- What are the possible options to ameliorate these skills gaps and shortages?

The observations and findings presented in this report are based on a survey of a sample of businesses in what has been called the "emerging" manufacturing sector on the NSW North Coast (comprising the Northern Rivers and Mid North Coast regions). This sector is typified by manufacturing businesses that are taking advantage of new materials, technology and innovative processes to produce world-class products.

The National Centre for Vocational Education Research (NCVER 2003) identified several challenges to the provision of skills to this sector including;

- ♦ Emerging industries are marked by a diversity of skill requirements and a merging of occupational boundaries making identification of training needs more difficult.
- ♦ Skills required for emerging 'knowledge' occupations include not only technical and specialist knowledge, but also generic skills such as communication and willingness and capacity for new learning and self-development.

Emerging manufacturers pressure the supply side of skills development through firstly, demand for new skills and second, in the quantity of skilled labour required. From a training perspective this distinction is critical. North Coast industries have traditionally been well serviced in the core manufacturing trade skills through the existing training infrastructure, however, anecdotally, the emergence of new manufacturing in the region is being restricted through limited access to non traditional skills as well as difficulties in recruiting from within the traditional skills base.

While the survey primarily sought to identify the shifts in skills required rather than shortages in the supply of traditional skills, as already noted the 'merging of occupational boundaries' within emerging manufacturing also blurs the boundaries between skill gaps and skill shortages. Consequently the findings reflect both skill gaps and shortages for North Coast manufacturing industries.

BACKGROUND

In 2001 manufacturing was estimated to contribute $2.8 billion to the North Coast economy. This represented a 16.89% share of the area's output, and placed manufacturing as the lead industry for the area by value of output. Retail followed with 12.35% of total output, then construction with a 10.78% of total output. Together these three industries contributed 40% of the area's output in 2001 (NIEIR, 2004).

The importance of regional manufacturing cannot be underestimated. Manufacturing provides regional economies (and businesses) with an opportunity to engage with national and global economies, improving the balance of trade and injecting capital into regional economies.

In the Mid North Coast region 1359 manufacturing businesses turned over $1.5 billion in 2001. This represented 5.2% of the Mid North Coast region's businesses, 8% of the employment and 16% of the region's turnover.

In recent years it has become evident that the profile of the manufacturing sector on the North Coast is evolving. The region has become a popular destination for small to medium sized manufacturing enterprises, some new and some relocating. This shift has brought with it a demand for a range of skills not traditionally available on the North Coast. Training has been limited for these new skills as the demand is too small to address using traditional education delivery models. In addition the traditional skill base has also diminished, leading to regional skill shortages. (DWER, 2003)

In response to a perceived shortage of particular skills the North Coast Institute of TAFE and the Mid North Coast Regional Development Board (with funding from the NSW Department of State and Regional Development) decided to seek the views of industry on skills gaps, shortages and training needs. A survey questionnaire was sent to 273 manufacturing businesses identified through the Yellow Pages, internet and by the NSW Department of State and Regional Development. 59 manufacturers completed and returned the questionnaire, with a further 106 declining to participate (some indicating no skills problems). The opportunities to extrapolate the survey responses to the manufacturing industry as a whole is limited by the sample size.

The following table shows the main industry groupings targeted in the survey.

Industry Groupings

Group	Business Class	% of total study
Wood Products	Kitchens Furniture Truss	32%
Metals & Engineering	Engineering Metal Products Trailers Vehicle Body Builders	19%
Motor & Marine	Marine CASPA	13%
Composites	Composites Plastics	12%
Other		23%
		Total 100%

KEY FINDINGS

The following key findings have been divided into skill shortages and skill gaps. These findings indicate that 'emerging' manufacturing's development on the North Coast is constrained by both the availability of skilled labour and the range of skill sets available.

Skill shortages

- There is a significant shortage of skilled and semi skilled workers in the Mid North Coast and Northern Rivers regions of NSW.
- Significant competition exists for skilled trades.
- Skilled and semi skilled labour shortages are a significant impediment to business growth.
- The region is experiencing similar skill shortages to other regions and metropolitan centres.

Skill gaps

- Access to training, particularly in niche, non-traditional and new technology skills is limited or non-existent.
- Existing labour resources lack generic manufacturing skills.
- Existing labour resources exhibit poor workplace attitudes.
- The region is experiencing similar skill gaps to other regions and metropolitan centres.

SKILL SHORTAGES and GAPS

Definitions

The following discussion further clarifies the differences between skill shortages and gaps, and the implications for the manufacturing sector.

Skill shortages occur when the demand for workers in a particular occupation is greater that the supply (Shah & Burke, 2003).

Skill gaps occur when employers consider the available labour pool and or their workers to be underskilled relative to some desired level (Shah & Burke, 2003). Skill gaps often occur when new technologies or processes are introduced into an industry and there is a misalignment between training focus and skill needs.

Skill shortages

The skill shortages identified by the survey respondents are consistent with other reports, such as the Department of Employment and Workplace Relations(DEWR) who first identified skill shortages in the trades in 1998. DEWR's 2002 "Job Outlook" continued to identify significant national skill shortages 'in most trades' (p.9).

In a 2002 report on skill shortages in the engineering trades the National Center for Vocational Education Research noted the 'numbers commencing new apprenticeship training might need to rise to keep up with projected demand and wastage' (p. 33). Phil Toner (2003) also identified that the maintenance of a skilled engineering workforce was being compromised by a lack of apprentices in training.

Skill shortages became the subject of public discussion during the 2004 Federal election. Skill shortages have also become news worthy with commentary such as the recent Australian Financial Reviews' series on skills shortages in the manufacturing and engineering sector becoming more common.

The Australian Council of Trade Unions has also predicted that unresolved skills shortages will cost the Australian economy $9 billion over the next decade as opportunities to manufacture and compete globally are missed due to a lack of skilled workers.

Causes of skill shortages

While changes in supply and demand for occupational skills are normal features of market economies, current skill shortages highlight two key factors that cause imbalances in the supply and demand for skills.

Shah and Burke (2003) identify the following factors.

- First, ***slowness in wage movements****,* where workers may migrate to take on skills and work relative to the economic return on those skills.
- Second, ***slowness in the adjustment of supply*** where the market responds too slowly in managing the supply of skills.

From a training perspective slowness in wage movements is a market issue for industry. However, skills training can play a crucial role when wage movements or industry willingness to train do not restrict new workforce entrants or workforce migration.

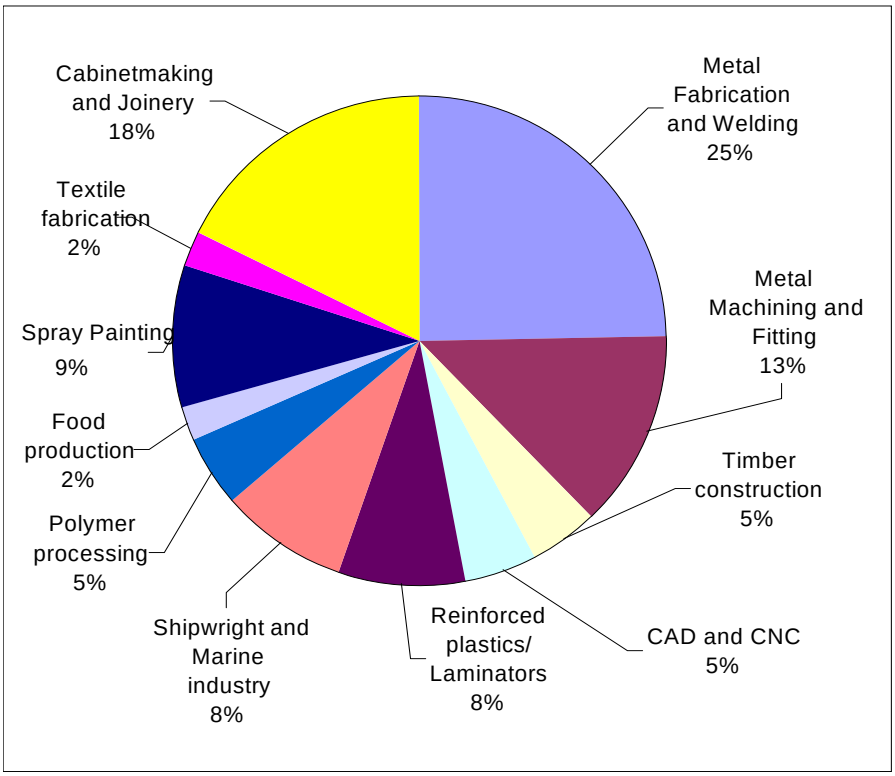
Training can provide a means to balance supply and demand to meet attrition rates of skilled workers as well as demands for new skills. Poor responsiveness by training organizations and industry slowness to train can contribute significantly to a slow adjustment of supply. Shah and Burke (2003) also identify a lack of reliable labour market information as a barrier to the speed of labour market response and adjustments.

Manufacturing skill shortages on the NSW North Coast

Not surprisingly industries on the NSW North Coast have also been experiencing skills shortages. Consistent with other skills data the survey identified that;

- The highest demand for skilled workers was in the metals and engineering group (36 requirements), with welding skills being in highest demand with 21 requirements, fitting & machining with 11 requirements and CAD/CNC with 4 requirements.
- Second highest demand was in the timber and construction sector with 19 requirements, 15 of which were in cabinet making and joinery skills.
- The composites/marine classes also indicated a strong need with 14 requirements, 7 in composites and 7 in marine focused construction skills.
- Spray painting with 8 requirements showed that this skill area is in high demand, particularly as part of the manufacturing process. Polymers at 4 requirements also showed a demand for skills in this area.

Skill shortages and gaps of survey respondents



Skill Gaps

Skill gaps for North Coast manufacturers are evident in companies using advanced materials such as composites, polymers and light metals, computer aided design and manufacturing processes. The marine sector is an example of an industry being revolutionized by materials and computer design technology. Demand for CAD, CNC, laminators and polymer processing skills reflect gaps in the available North Coast labour pool for these skills.

Other gaps/issues identified include the shortage of semi-skilled workers, a lack of generic manufacturing skills in the low skill labour pool, and concerns about poor attitudes to work amongst workers. Generic manufacturing skills include hand tools, power tools, measurement, manual handling and OH&S. Poor attitude to work refers to the 'employability' skills such as loyalty, commitment, honesty and integrity (Down, 2004) as lacking in the available labour pool.

Skill shortages at the skilled and semi skilled level were the major concern for the regions' manufacturers, with 45% of the responses indicating this issue was of concern, and with 18% reporting "employee attitude" as a concern.

The following table outlines some of the changing demands and therefore skill gaps identified by the respondents.

Skill gaps and changing workforce skill demands of survey respondents

Industry Training area	Skill area	Skill Gap	Comments	
Metal and Engineering Trades	Metal fabrication and welding	MIG TIG Aluminium Stainless Steel	There is a general shift in industry welding to MIG and TIG technology driven by production and quality demands, and the increasing use of aluminum and stainless steels in fabricated products	
	Metal machining and fitting	CNC	The trend in production machining is to Computer controlled tools and equipment.	
	Design Drafting	CAD	CAD is increasingly being adopted by industry as preferred method of design drawing production	
Construction	Cabinetmaking and joinery	Automation CAD/CNC	The use of machinery and the demand for accuracy in hand skill in the kitchen and furniture industry calls for more than general construction skills.	
	Construction	Design and estimating	Housing booms on the North Coast have increased demand for prefabricated components and so demand for skills in this area	
Composites/Marine	Reinforced plastics/ laminators	FRP	A developing area for the North Coast where proximity to waterways is encouraging the development of the marine construction industry. Composites technology is driving strength, weight and design areas of the industry	
	Shipwright and marine industry	Boat building Timber Metal		
Plastic Products	Polymer processing	Injection moulding Plastics fabrication	Polymers through their versatility in properties are increasingly replacing other materials used in production and driving demand	
Food Industry	Food production	Safe food handling	Niche food processing is adding value to the North Coast food production industry	
Automotive Manufacturing	Spray painting	Industrial finishes	Finishing technologies in a range of manufacturing industries require these skills	
	Textile fabrication	Textile fabrication	An increasing range of textile products based on polymer technology is driving the use and of textile products	
Generic Trade Skills	All	**Skill** OH&S Power Tools Hand Tools Manual Handling Measurement Forklift Driving	**Demand %** 69.4% 69.4% 64.9% 61.1% 58.3% 33.3%	Demand exists for generic trade skills with in the existing workforce pool. Training in these skills would enable an existing workforce to productively enter the manufacturing environment and raise the overall skill level of the region.

ACCESS TO SKILLED LABOUR - ISSUES OF CONCERN

Skilled labour underpins an enterprise's capacity to develop and grow. The survey respondents were asked to identify their main restrictions to growth. Of the 43 who answered this question, 20 rated skill shortages as the main issue, and 13 rated it as second or third. Other restrictions included government regulations and policy, access to capital and competition.

Survey respondents were also asked to rank the major issues and concerns relating to accessing skilled labour. The responses reflect industry needs and should help to focus activities to ameliorate these needs.

In diminishing order industries concerns were:

29% - Trade skills shortage
Typical respondent comments:

- Problems getting semi-skilled and skilled trades
- Recruitment of trades-skilled personnel
- There is a shortage of tradesmen
- There is a skills shortage in aluminum welding and spray painting
- Difficulty recruiting unskilled, semi-skilled, and skilled trades.
- Shortage of skilled textile fabricators in the region
- Skilled trades in the area want to move to Newcastle - for the money and continuity of work.

Comment: This is a nationally consistent finding that trade skill shortages are restricting industry output and growth. Difficulty in recruiting school leavers into traditional trades, low commitment to training in industry and limited access to entry level training and high levels of wastage (retirement, career changes) have contributed to the shortages

18% - Poor attitude to work
Typical respondent comments:

- Dramas getting people, mostly due to bad attitudes
- Don't want to work hard but expect all the privileges
- Attitude of young people hampers prospects
- Generally a poor work attitude
- They have no respect for the position of the employer
- Employment obligations create other problems
- Many prefer to work for retail for better money (under 21)
- Many are unreliable, do not turn up for work
- Kids don't have any ethics or regard for the employers position
- Schools are teaching them to go into IT or hospitality - they don't want to get their hands dirty. This is a hot, dirty job.

Comment: This response may partly reflect changes in what is expected of employees, with an increasing emphasis on 'soft skills' to complement 'hard' technical skills. That is, a shift toward greater employee responsibility, higher productivity, flexibility, initiative, communication and teamwork. In addition, (traditional) poor community perceptions of blue collar manufacturing-based work may discourages potential employees.

16% - Semi skilled shortage
Typical respondent comments:

- Problems getting semi-skilled and skilled trades
- Big recruitment problems
- Difficulties recruiting in semi-skilled area
- Due only to poor work attitudes.

Comment: The shortage in semi skilled workers indicates a lack of core worker skills in the available labour pool. Limited access to entry level training and poor perceptions by workers of what skills are required to work in manufacturing and work opportunities may contribute to the shortage.

11% - Access to training
Typical respondent comments:

- Lack of local training opportunity adds to cost of employment
- Lack of suitable training organization
- Skills shortage due to lack of acceptable training organisation, system too complex to navigate
- Lack of capacity to train in-house
- Lack of training organisation and appropriate course
- Shortage exists simply because there is no local training opportunity to re-skill the workforce
- There is no acceptable training organisation to train up a labour pool
- lack of acceptable training opportunity in local area
- no FRP training on the North Coast
- High cost of training (cost of employment, learning off the job, living away from home costs, travel costs). Lack of local training opportunity adds to cost of employment.

Comment: While traditional trade skill training facilities are well represented across the region, access to training, particularly to address the regions skill gaps and skill areas with low numbers in training is made more difficult. Distance to existing facilities (often only available in metropolitan areas), lack of critical mass in numbers to make training delivery cost effective and availability of lecturers in niche skill areas all contribute to difficulties in access to appropriate training.

7% - Generic trade skills
Typical respondent comments:

- Lack of generic trade skills and general lack of skilled employees in the area
- Recruitment of skilled trades is impossible, due to lack of generic trade skills
- Difficulty recruiting unskilled, semi-skilled and skilled trades
- Generally we find a poor work attitude, lack of generic trade skills, lack of skilled employees in the area.

Comment: Basic skills in the use of hand and power tools, measurement, manual handling, OH&S and forklifts present a barrier to employment for many potential workers in manufacturing enterprises on the North Coast.

7% - Competition for skills
Typical respondent comments:

- Qualified tradesmen get poached by others
- Qualified skills shortage due to poaching in industry, and no FRP training on the North Coast
- Problem due to local competition for skilled employees
- Difficult to recruit skilled trades due to competition for skilled employees
- current building boom has taken up skills pool - offering better wages

Comment: Consistent with the economics of supply and demand trade skills are at present a highly tradable commodity. Regional industries find it difficult to compete with metropolitan wages, which in turn increases skills competition in the regions as mobile skilled workers migrate to high return areas. Apprentices regularly migrate to metropolitan areas on completion of their training. Wages paid and high demand in metropolitan areas are incentives for young trades people. However, there is also a counter migration to the region of mature skilled trades for lifestyle reasons.

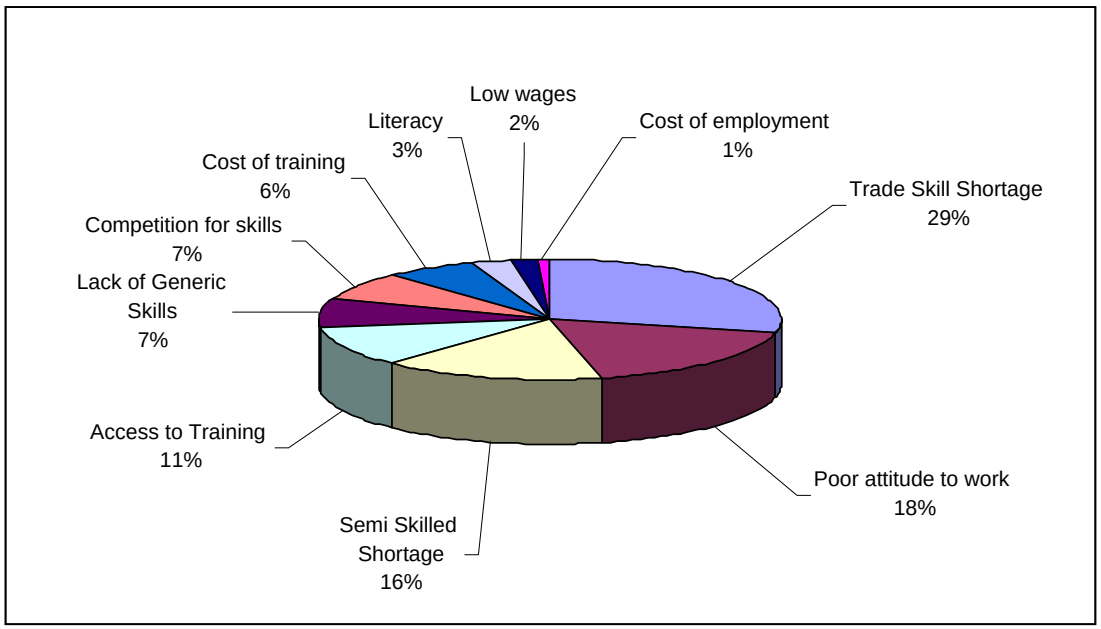
6% - Cost of training

- Flow-on costs and impact of trainee absences
- High cost of training (cost of employment, learning off the job, living away from home costs, travel costs).

Comment: Increased costs for training generally relate to the cost of travel, accommodation and time away from work. Lack of local training facilities were a consistent theme in the survey responses.

6% - Other
Low wages, cost of employment and low literacy levels in the labour pool were three other limited concerns. Low wages relate to the ability to attract and retain workers while low literacy was an impediment to a workers ability to communicate effectively in the workplace. Cost of employment reflects the on-costs associated with employment rather than wages.

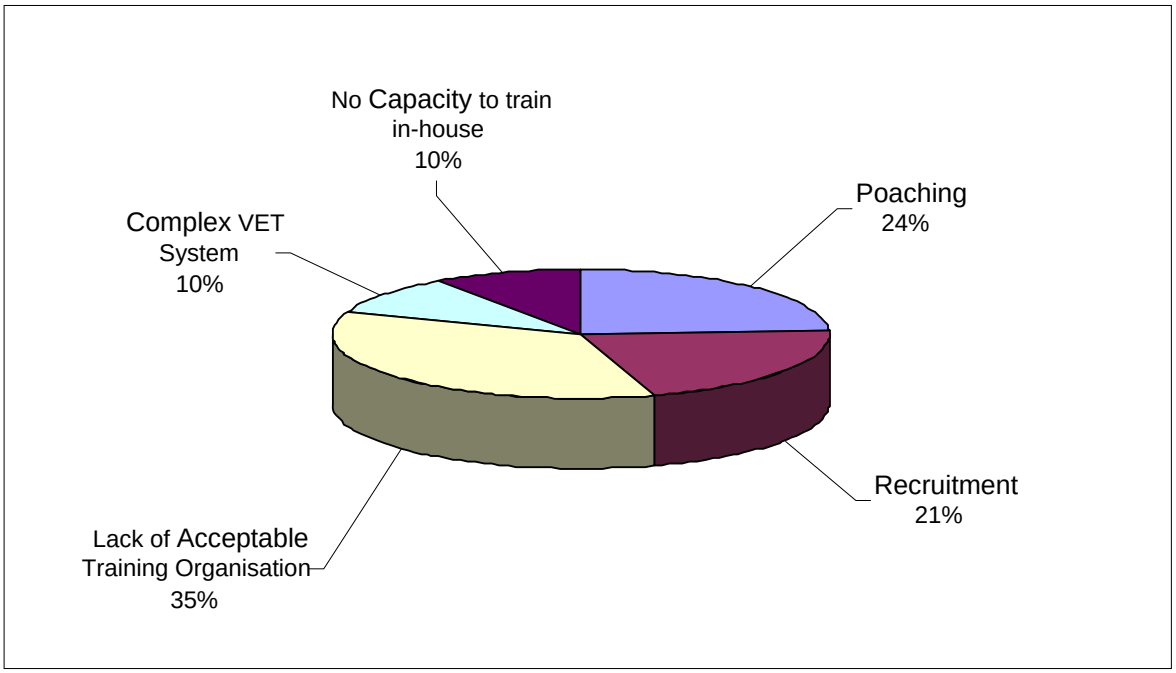
Issues of concern to survey respondents



BARRIERS TO ACCESSING SKILLED LABOUR

The survey identified a range of barriers to accessing and maintaining a base of skilled labour in an enterprise. Accessibility to a pool of skilled and semi skilled labour provides a business or industry with the flexibility to take on extra work, grow their business or shift business directions. Conversely without a ready supply of skilled labour business growth can be constrained. If the labour pool shrinks and demand grows, access to the necessary skills can become critical for an enterprise.

Barriers to accessing skilled labour



ADDRESSING REGIONAL SKILL SHORTAGES AND GAPS

As indicated earlier in this paper the provision of training and access to training can play a key role in addressing the slowness in supply of skilled labour. However the regional barriers of distance and thin/widely dispersed demand require more innovative solutions to ameliorate current skill gaps and shortages.

Formal training for many of the skills needed, including apprenticeships in core skills such as metal fabrication, welding and metal machining and general construction, are well established in a range of dedicated training facilities across the North Coast. Other skill areas are less developed and include canvas and related material construction, ship building, composites and plastics. Access to formal training for these areas currently requires travel to a major metropolitan area. Facilities also exist across the North Coast that can meet the demand for generic trade skills.

From a training perspective the North Coast Institute, as the main provider of public vocational education in the region, is presented with significant challenges if it is to meet, on its own, the training needs of ‘emerging’ industries. Duplicating resources to address “thin” training needs is considered inefficient under the current vocational education funding model. Providing good resources at a few locations brings with it the tyranny of distance and places those seeking training and their organizations in situations that are time consuming, costly and potentially dangerous. **However much can still be done to ameliorate existing and emerging training needs.**

POSSIBLE STRATEGIES

Partnerships

Strong partnerships will be needed and are critical if the multifaceted skill issues of the NSW North Coast are to be addressed.

Strong active partnership arrangements need to be developed between Government agencies such as the NSW Department of State and Regional Development, NSW Department of Education and Training (DET), Industry groups, Local Government, Registered Training Organisations and employment agencies.

These partnerships could bring a range of expertise and resources to bear on the challenge of developing and resourcing strategies to address industry skills needs.

Industry skills forums

To support the development of these partnerships industry skills forums could bring together interested parties, including DSRD, TAFE, schools, employment agencies, Federal and State and LGA-based economic development organisations and industry representatives to develop and drive strategies, activities and training options to address regional skill issues.

These forums should consider and actively promote the economic value and therefore the return on investment for manufacturing skills training and lobby policy and funding sources accordingly.

Industry sector skills task force

To action industry skills forum recommendations, industry-specific task forces made up of sector representatives, relevant stakeholders and training organization representatives will be formed to implement, monitor and report on the activities to address training needs and skill shortages.

Strategies to address skills needs

Immediate 6-12 mths

1. Develop with industry and deliver Generic Trade Skill training

2. Increase the effectiveness of existing on-the-job training

Short term 6-18 mths

3. Develop short courses that address immediate needs but that can also lead to a formal trade qualification. This should be supported by State/National training teams.

4. Developing portable resources for delivery where a critical mass of students can be serviced without the need for specialist facilities.

5. Investigate preemptive development of resources and generic 'barn' type facilities for areas that show a sustainable growth and demand for skills in their industries.

Long Term 12 – 36 mths

6. Investigate and develop State-wide (and national) training teams that can service niche skill areas across institutes on a fly-in/fly-out basis similar to the CRC cast metals project with Swinbourne TAFE.

7. Develop fully flexible resources to support specialized learning in disparate locations throughout NSW and possibly Australia as industry-funded programs.

CONCLUSION

Skill shortages and gaps are currently significant barriers to the development of manufacturing industry on the NSW North Coast. The industry survey findings presented here identify the seriousness of the skill gaps and shortages and the areas most affected. Addressing the shortages will require concerted and focused efforts from all stakeholders. New ways of working between industry, government and education will identify strategies and mobilize resources to address the skills issues of the NSW North Coast.

The potential economic benefits to the region from developing its skill base, which at present has one of the highest unemployment rates for any region in Australia (NEIR, 2003), should more than justify the cost and effort of developing strategies and implementing skill development activities. With the involvement of the community, government, education and industry the challenges can be met and addressed.

Acknowledgements

Neil Black, Director, North Coast Institute of TAFE NSW
Frank Hay, Regional Manager, NSW Dept of State and Regional Development
Ron McDermott, Chairperson, Mid North Coast Regional Development Board
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Phillip Goodall, Project Officer (information collection)
Bill Calcutt, Executive Officer, Mid North Coast Regional Development Board

The sponsoring agencies would particularly like to thank those businesses, enterprises, managers and staff who responded to the survey and contributed their thoughts, concerns and aspirations for the collaborative development of skills to support the growth of local industry. Your input has been fundamental to the outcomes of this project.

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Appendix A

Contacts for responses to the Consultative Draft.

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