

4.0 PHASE 2 OUTCOMES

4.1 Attitudes towards the social and environmental impacts of coal mining

This section presents the results of a community survey of attitudes towards the social and environmental impacts of coal mining in the Bowen Basin of central Queensland. The surveys (Refer Appendices B and C) were conducted in both Nebo and Mackay to provide a comparative dimension to the data analysis sensitive to the impact assessment truism that negative impacts tend to be local while positive impacts tend to be regional.

It is important to note that the results of this survey should be interpreted in the light of other data collected during the course of the social impact assessment. The purpose of presenting these results in aggregate form before presentation of the rest of the social data is to allow comparison of results across questions.

4.2 Profile of Respondents

A brief profile of respondents is provided to enable comparison with ABS census data. This identifies whether the groups sampled are representative of the relevant areas. The respondents who answered the survey from the Nebo region were evenly divided by gender. Of the respondents from Nebo 49.2% were male and 49.2% were female. Of the responses from Mackay, 40.3% were from men and 58% were from women.

The age profiles of respondents are shown in Table 4.2.1. There was little difference between Nebo and Mackay households, except that Mackay had a higher proportion of respondents aged under 30, and Nebo Shire had a higher proportion aged in the 46 – 65 year bracket. As the male population of Nebo Shire is higher than the female population, these distributions show that the pattern of responses reflects the general pattern in surveys of this nature to elicit more responses from women than from men. As no sophisticated statistical analysis will be presented here the data has not been weighted to reflect the actual gender distribution.

Age Group	% responses	
	Mackay	Nebo
Under 20 years	2.4	0
20 - 30 years	12.2	9.5
31 - 45 years	40.3	38.1
46 - 65 years	30.6	38.1
Over 65 years	10.5	11.1
No answer	4.0	3.2
Total	100	100

The respondents were asked how long they lived in their respective towns (Table 4.2.2). The results show that those responding to the survey in both centres were stable, long-term residents. For Nebo, the community that has been captured for this survey is the permanent resident population, not the transient population of shift workers who stay in camp-style accommodation while rostered on and then leave the area to return to permanent residences elsewhere.

Duration	% responses	
	Mackay	Nebo
Less than 2 years	3.2	1.6
2 - 5 years	9.7	6.3
5 - 10 years	14.5	14.3
10 - 20 years	14.5	27
Over 20 years	56.5	49.2
No answer	1.6	1.6
Total	100	100

Respondents from both towns were asked about the size of their households (Table 4.2.3). There was little difference between the centres, with average household size in both centres being slightly more than 3 persons/household.

People in household	% responses	
	Mackay	Nebo
1 person	12.9	9.5
2 people	27.4	36.2
3 people	16.9	19
4 people	21.1	16.2
5 people	12.1	11.1
6 people	4.8	1.6
7 people	1.6	3.2
8 people	0	1.6
No answer	3.2	1.6

Respondents were asked to identify the number of children in the household (Table 4.2.4). There were a slightly higher percentage of Nebo households with children (52.4% compared to 46.8%). However, there were estimated to be more average children/household in Mackay (1.12) than Nebo (1.03).

Children	% responses	
	Mackay	Nebo
1 child	16.9	19
2 children	19.4	14.3
3 children	12.1	7.9
4 children	4	1.6
5 children	0.8	3.2
6 children	0	1.6
No answer/ None	46.8	52.4

The respondents of both the areas were asked to identify the main occupation associated with their household (Table 4.2.5). Major differences were apparent between the regions. The dominant occupations in the Nebo area were agriculture and mining (76.1%), while a more general mix of occupations were reported for Mackay. There was also a higher proportion of *Retired*, *Student* and *Other* categories at Mackay (26.5%) compared to Nebo (11.1%), suggesting that the proportion of population in the workforce may be higher in the Nebo area.

Occupation	% responses	
	Mackay	Nebo
Agriculture, Fishing & Mining	16.9	76.1
Health, Teaching & Government	12.9	0
Finance & Management	8.1	4.8
Building & Transport	8.9	1.6
Engineering, Electrical & Auto	11.3	0
Cleaning & Maintenance	6.5	1.6
Self-employed	2.4	3.2
Retired	16.9	9.5
Student	2.4	0
Other	7.2	1.6
No answer	6.5	1.6

The median Annual household income for the respondents of both towns was between \$40,000 and \$80,000 (Table 4.2.6). The average household annual income estimated for Mackay respondents was \$47,800 and for Nebo it was slightly higher at \$50,000. (This is using \$20,000 as the appropriate mid-point for the lower range, \$60,000 for the mid-range, and \$100,000 for the upper range).

Income	% responses	
	Mackay	Nebo
Less than \$40,000	42.7	42.9
\$40,000 - \$80,000	41.2	34.9
Over \$80,000	14.5	20.6
No answer	1.6	1.6

4.3 Attitudes towards Development Issues

In this section, community attitudes towards issues that are facing the region because of the development and expansion of mining activities in the region are reported. The respondents in Mackay were asked to rate 18 statements about the different developmental issues in the region, while the respondents in Nebo were asked to rate 19 statements about the different developmental issues in the region. The results are reported in two sections. Part A contains the responses from Mackay and Part B the responses from Nebo. Respondents were asked to rate a series of statements about the impacts of development on a 5 point scale:

- 1= Agree strongly
- 2= Agree a bit
- 3= Neither agree nor disagree
- 4= Disagree a bit
- 5= Disagree strongly and
- 6= No response

Part A: Mackay

The statements that Mackay residents were asked to rate together with the percentage of responses by category are shown in Table 4.3.1.

Table 4.3.1 Percentage responses to mining related statements – Mackay Households

Statements	% of responses					
	1	2	3	4	5	6
Locals get more work due to Coal mines.	33.1	45.2	8.9	6.5	2.4	4
Mines bring more families to Mackay.	29	50	10.5	4.8	2.4	3.2
Mines help Mackay city to develop.	29.8	50	8.9	5.6	2.4	3.2
Mines mean better roads & other services.	9.7	35.5	20.2	21	6.5	7.3
Mines will improve lifestyle of people in Mackay.	11.3	50	14.5	15.3	4.8	4
Mines will help Mackay to develop as a business centre.	23.4	54.8	9.7	7.3	1.6	3.2
New people means Mackay in changing for the worse.	3.2	9.7	19.4	37.1	26.6	4
Local rates may increase so Councils can improve infrastructure & services.	7.3	47.6	12.9	16.1	13.7	2.4
Different people may lead to increased crime and social problems.	10.5	33.9	15.3	30.6	6.5	3.2
Mackay should try to attract more mining families.	10.5	45.2	21.8	16.1	3.2	3.2
Mines create environmental problems.	4.8	22.6	13.7	40.3	11.3	7.3
Mines create cost burdens for local councils to provide extra services.	7.3	22.6	18.5	35.5	8.9	7.3
Mines support local businesses & events.	23.4	50	14.5	2.4	3.2	6.5
Any increases in house prices & rents in Mackay in good.	16.1	33.1	23.4	18.5	5.6	3.2
Mines create noise and other nuisance problems.	1.6	10.5	10.5	46	26.6	4.8
Increased traffic means that the district is not as safe as before.	12.9	30.6	8.9	33.9	8.1	5.6
State Government does a good job of planning & controlling mine related development.	2.4	29	41.9	6.5	2.4	17.7
Local Government does a good job of planning & controlling mine related development.	2.4	32.3	36.3	9.7	6.5	12.9

A summary of the results are shown in Figures 4.3.1 and 4.3.2. The *Agree strongly* and *Agree a bit* categories have been combined to form an *Agree* category. The *Neither agree nor disagree* category is labelled as *Indifferent*, while the *Disagree strongly* and *Disagree a bit* categories have been combined to form a *Disagree* category.

Figure 4.3.1 Responses by Mackay households to statements.

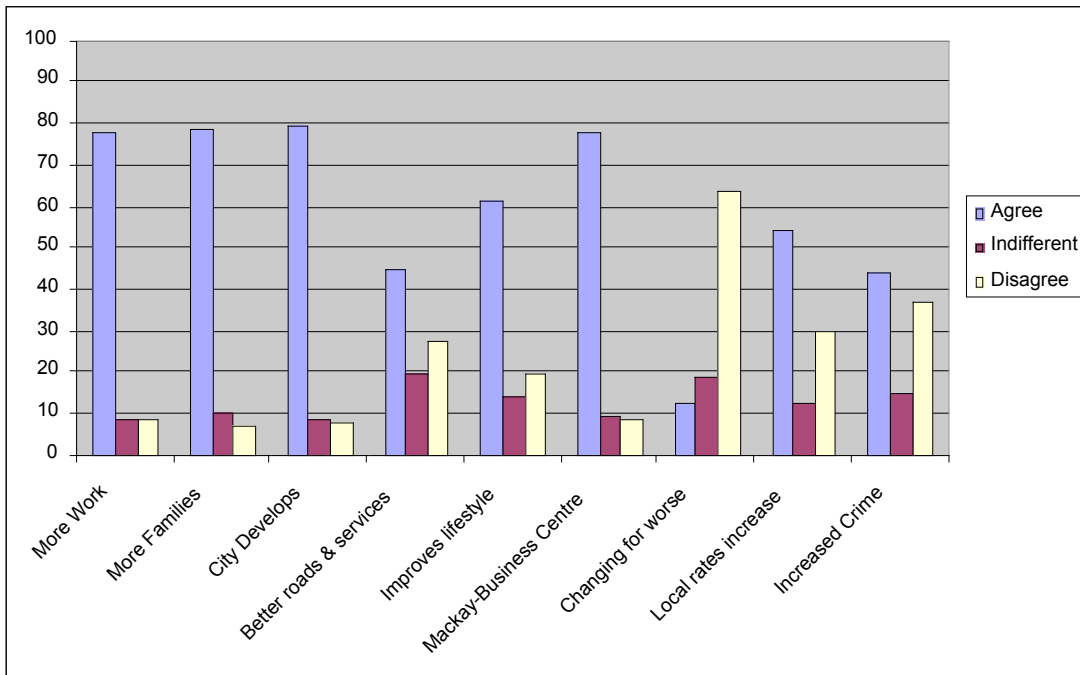
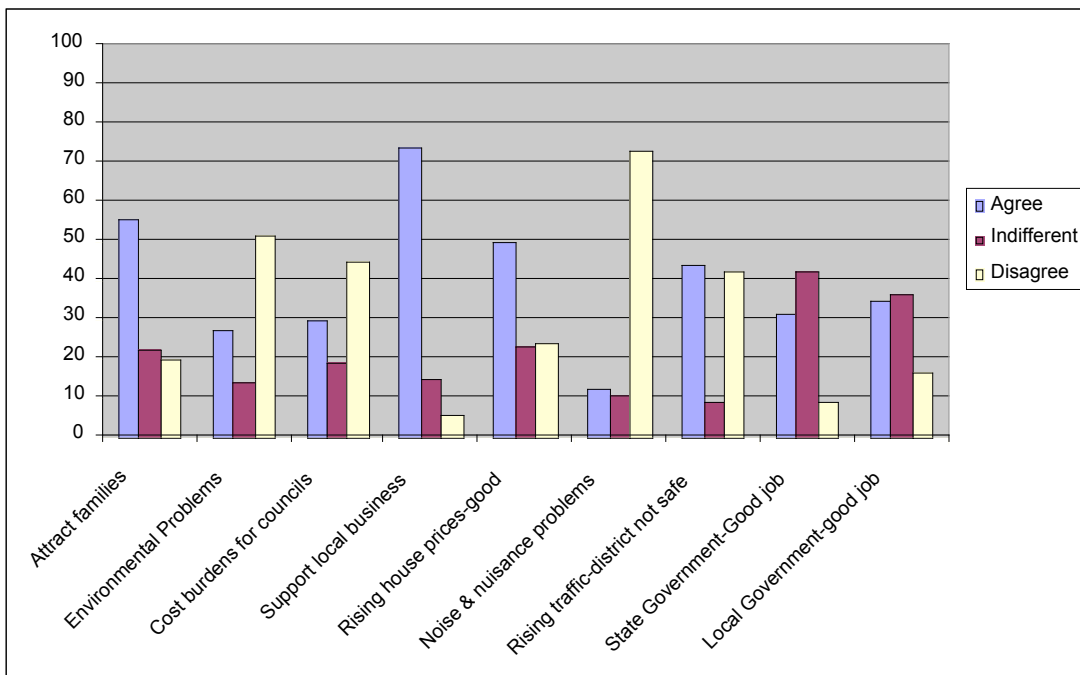


Figure 4.3.2 Responses by Mackay households to statements



The results show that the statements that attract most support (>70%) are:

- Locals get more work due to coal mines
- Mines bring more families to Mackay
- Mines help Mackay city to develop
- Mines will help Mackay to develop as a business centre
- Mines support local businesses and events.

The results show the statements that attract least support (<30%) are:

- New people means that Mackay is changing for the worst (> 60% disagreed)
- Mines create environmental problems
- Mines create cost burdens for local councils to provide extra services
- Mines create noise and other nuisance problems (more than 70% disagreed).

Part B: Nebo

The statements the residents of Nebo were asked to rate were similar to those of the Mackay residents, with the additional of one extra statement (Table 4.3.2).

Table 4.3.2 Percentage responses to mining related statements – Mackay Households

Statements	% of responses					
	1	2	3	4	5	6
Locals get more work due to Coal mines.	25.4	31.7	11.1	14.3	17.5	0
Mines bring more families to Nebo.	25.4	31.7	4.8	23.8	14.3	0
Mines help Nebo town to develop.	38.1	44.4	3.2	7.9	6.3	0
Mines mean better roads & other services.	42.9	27	11.1	12.7	6.3	0
Mines will improve lifestyle of people in Nebo.	15.9	42.9	7.9	23.8	9.5	0
Mines will help Mackay to develop as a business centre.	55.6	33.3	7.9	1.6	1.6	0
New people means Nebo in changing for the worse.	14.3	17.5	12.7	39.7	15.9	0
Local rates may increase so Councils can improve infrastructure & services.	28.6	34.9	12.7	11.1	11.1	1.6
Different people may lead to increased crime and social problems.	25.4	46	7.9	11.1	7.9	1.6
Nebo should try to attract more mining families.	38.1	39.7	6.3	9.5	4.8	1.6
Mines create environmental problems.	17.5	15.9	20.6	30.2	15.9	0
Mines create cost burdens for local councils to provide extra services.	19	28.6	19	22.2	9.5	1.6
Mines support local businesses & events.	38.1	46	9.5	6.3	0	0
Any increases in house prices & rents in Nebo in good.	15.9	31.7	17.5	17.5	17.5	0
Mines create noise and other nuisance problems.	11.1	20.6	9.5	25.4	33.3	0
Increased traffic means that the district is not as safe as before.	44.4	39.7	4.8	9.5	1.6	0
Nebo would survive without many changes without mines.	31.7	38.1	4.8	17.5	7.9	0
State Government does a good job of planning & controlling mine related development.	7.9	23.8	36.5	15.9	15.9	0
Local Government does a good job of planning & controlling mine related development.	12.7	30.2	36.5	9.5	11.1	0

A summary of the results are shown in Figures 4.3.3 and 4.3.4, using the same procedure to aggregate responses as for the Mackay survey.

Figure 4.3.3 Responses by Nebo households to statements

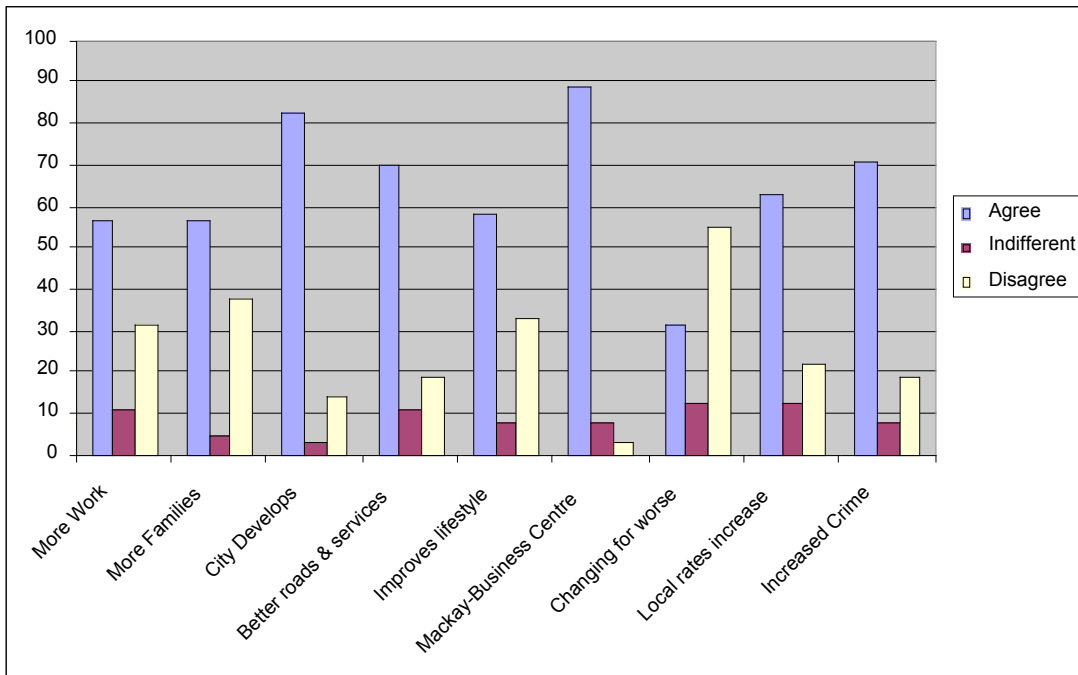
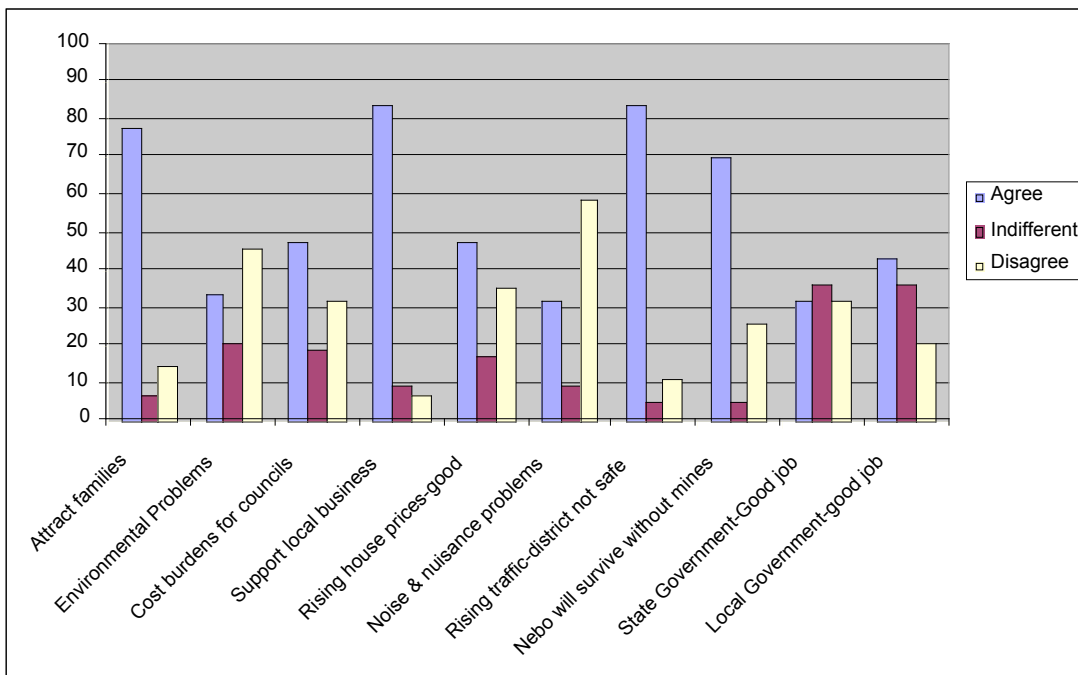


Figure 4.3.4 Responses by Nebo households to statements



The results show that the statements that attract most support (>70%) are:

- Mines help Nebo town to develop
- Mines mean better roads and other services
- Mines will help Mackay to develop as a business centre
- Different people may lead to increased crime and other problems
- Nebo should try to attract more mining families
- Mines support local businesses and events
- Increased traffic means the district is not as safe as before.

The results show the statements that attract least support (<40%):

- New people means that Nebo is changing for the worst (> 55% disagreed)
- Mines create environmental problems
- Mines create noise and other nuisance problems (more than 70% disagreed)
- State government does a good job of planning and controlling mine development.

Cross tabulation and Chi-square tests were conducted to see if there were any significant differences to the responses to developmental issues from Mackay and Nebo populations. The Pearson Chi-square test value and its significance for the responses to developmental issues is given in Table 4.3.3. The significance tests were conducted at the 5% level. There is a significant difference in responses to most developmental issues from the two towns of Mackay and Nebo. (Some cells had counts of less than 5 observations which reduces the reliability of the results).

The responses from the two towns were similar for issues like city development, lifestyle changes, cost burdens on local councils and rising real estate prices. Mackay people were more supportive of the statements that locals would get more work and that new families would be attracted. Nebo respondents were more positive about some issues: that the mines were good for roads and services and the business centre in Mackay, that the mines supported local businesses, and that local government did a good job in planning for development. Nebo residents were also more supportive of some negative statements; that new people means the area is changing for the worse, that local rates may increase, and that there may be increased crime, traffic problems, environmental problems and noise problems.

Table 4.3.3 Difference in responses to mining related statements – Mackay and Nebo Households

<i>Statements</i>	<i>% Agree Mackay</i>	<i>% Agree Nebo</i>	<i>Chi-square</i>	<i>Significant difference between areas</i>	<i>Area giving highest response</i>
Locals will get more work	78.3	57.1	20.86	Yes	Mackay
Mines will attract more families	79	57.1	29.56	Yes	Mackay
Mines will help city/town to develop	79.8	82.5	7.19	No	
Mines mean better roads & services	45.2	69.9	31.12	Yes	Nebo
Mines improves lifestyle	61.3	58.8	8.23	No	
Mines good for Mackay-Business Centre	78.2	88.9	21.37	Yes	Nebo
Changing for worse	12.9	31.8	15.2	Yes	Nebo
Local rates increase	54.9	63.5	15.77	Yes	Nebo
Increased Crime	44.4	71.4	16.57	Yes	Nebo
Should attract more families	55.7	77.8	24.38	Yes	Nebo
Environmental Problems	27.4	33.4	15.92	Yes	Nebo
Cost burdens for councils	29.9	47.6	10.69	No	
Support local business	73.4	84.1	11.96	Yes	Nebo
Rising house prices-good	49.2	47.6	8.83	No	
Noise & nuisance problems	12.1	31.7	19.2	Yes	Nebo
Rising traffic-district not safe	43.5	84.1	35.8	Yes	Nebo
State Government-Good job	31.4	31.7	29.6	Yes	
Local Government-good job	34.7	42.9	16.82	Yes	Nebo

4.4 Attitudes towards Environmental Issues

This section reports attitudes towards the environmental issues facing the region. The respondents in Mackay and Nebo were asked to rate eight statements about the different environmental issues in the region. Only one of those statements related to coal mining impacts, so that the importance of this issue could be seen in the context of other environmental issues relevant to the region.

The results are reported in two sections. Part A contains the responses from Mackay and Part B the responses from Nebo. Respondents were asked to rate a series of statements about the impacts of development on a 5 point scale:

- 1= Very serious
- 2= Serious
- 3= A bit serious
- 4= Not at all serious
- 5= No response

Part A: Mackay

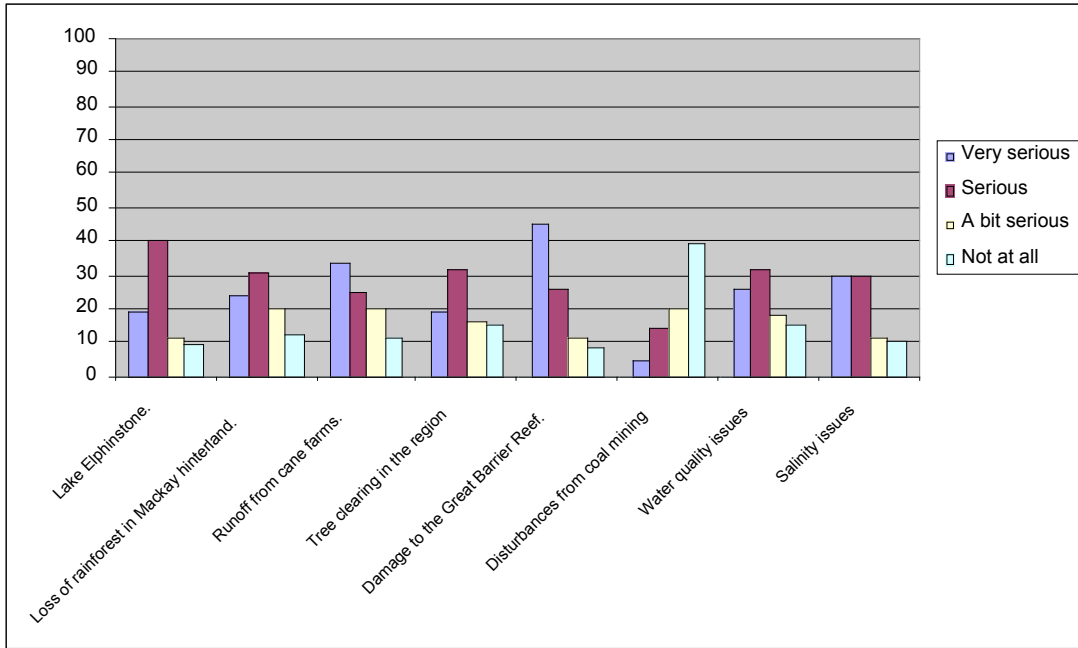
The statements that Mackay residents were asked to rate together with the percentage of responses by category are shown in Table 4.4.1.

Table 4.4.1 Percentage responses to environmental related statements – Mackay Households

Statements	% of responses				
	1	2	3	4	5
Blue green algae on Lake Elphinstone.	19.4	41.1	11.3	9.7	18.5
Loss of rainforest and coastal vegetation in the Mackay hinterland.	24.1	30.6	20.2	12.9	12.1
Chemical and fertiliser runoff from cane farms.	33.9	25	20.2	11.3	9.7
Tree clearing in the region further west from Mackay.	19.4	31.5	16.9	15.3	16.9
Damage to the Great Barrier Reef.	45.2	25.8	12.1	8.9	8.1
Disturbances from coal mining in the region.	4.8	14.5	20.2	39.5	21.0
Water quality issues in streams and estuaries	25.8	31.5	18.5	15.3	8.9
Problems of salinity on farming & grazing lands.	29.8	29.8	12.1	10.5	17.7

A summary of the results is shown in Figure 4.4.1. The results show that most concern is shown for the Great Barrier Reef, runoff from cane farms, and salinity issues. Less than 20% of respondents thought that *Disturbances from coal mining in the region* were serious.

Figure 4.4.1 Responses by Mackay households to environmental statements.



Part B: Nebo

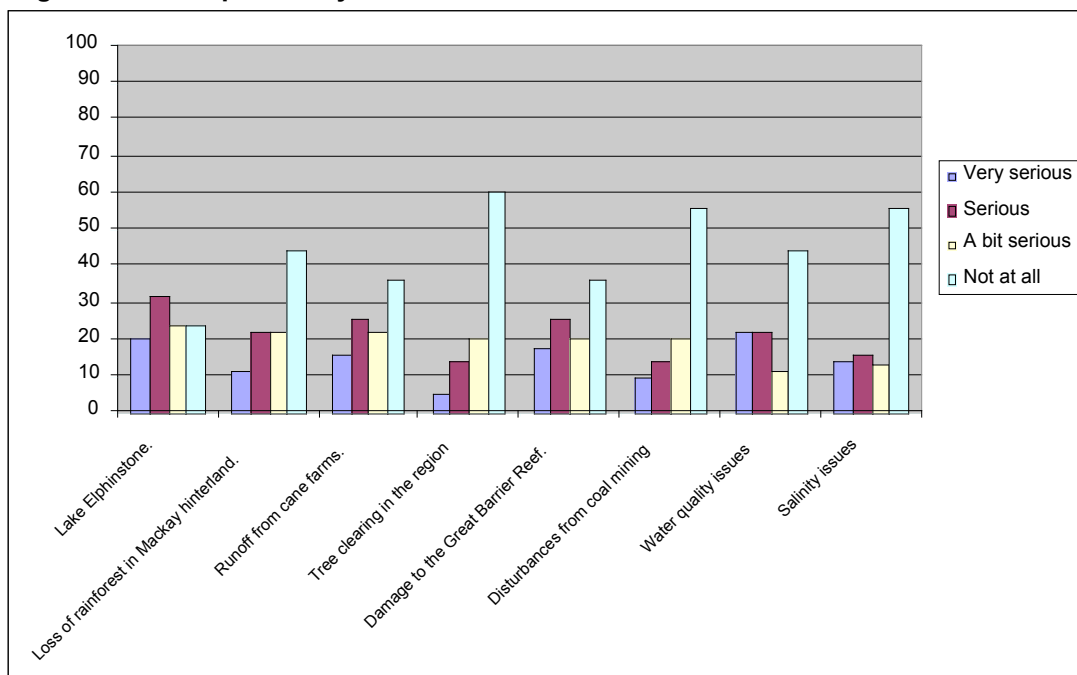
The statements that Nebo area residents were asked to rate together with the percentage of responses by category are shown in Table 4.4.2.

Table 4.4.2 Percentage responses to environmental related statements – Nebo Households

Statements	% of responses			
	1	2	3	4
Blue green algae on Lake Elphinstone.	20.6	31.7	23.8	23.8
Loss of rainforest and coastal vegetation in the Mackay hinterland.	11.1	22.2	22.2	44.4
Chemical and fertiliser runoff from cane farms.	15.9	25.4	22.2	36.5
Tree clearing in the region further west from Mackay.	4.8	14.3	20.6	60.3
Damage to the Great Barrier Reef.	17.5	25.4	20.6	36.5
Disturbances from coal mining in the region.	9.5	14.3	20.6	55.6
Water quality issues in streams and estuaries	22.2	22.2	11.1	44.4
Problems of salinity on farming & grazing lands.	15.9	15.9	12.7	55.6

The results are shown in Figure 4.4.2. The only category where more than 50% of responses were rated as *Very Serious* or *Serious* was *Blue green algae on Lake Elphinstone*. Only 24% of respondents thought that *Disturbances from coal mining in the region* were serious. More than 50% of respondents thought that *Tree clearing*, *Disturbances from coal mining in the region* and *Salinity* were *Not at all serious*.

Figure 4.4.2 Responses by Nebo households to environmental statements



Cross tabulation and Chi-square tests were conducted to see if there were any significant differences to the responses to developmental and environmental issues from Mackay and Nebo. The Pearson Chi-square test value and its significance for the environmental issues are given in Table 4.4.3. The significance tests were conducted at the 95% level. From the Tables it is clear that there is a significant difference between the responses to all the environmental issues from the two population groups. (Some cells had counts of less than 5 observations which reduces the reliability of the results). Mackay respondents were more concerned about environmental issues apart from the *Disturbances from coal mining* issue, where Nebo residents were more concerned.

Table 4.4.3 Difference in responses to environmental related statements – Mackay and Nebo Households

Statements	% rating as Serious or Very Serious		Chi-square	Significant difference between areas	Area giving highest response
	Mackay	Nebo			
Blue green algae on Lake Elphinstone.	60.5	52.3	22.69	Yes	Mackay
Loss of rainforest and coastal vegetation in the Mackay hinterland.	54.8	33.3	30.05	Yes	Mackay
Chemical and fertiliser runoff from cane farms.	58.9	41.3	24.48	Yes	Mackay
Tree clearing in the region further west from Mackay.	50.9	19.1	49.69	Yes	Mackay
Damage to the Great Barrier Reef.	71.0	42.9	33.61	Yes	Mackay
Disturbances from coal mining in the region.	19.3	23.8	17.04	Yes	Nebo
Water quality issues in streams and estuaries	57.3	44.4	22.6	Yes	Mackay
Problems of salinity on farming & grazing lands.	59.6	30.2	49.29	Yes	Mackay

4.5 Discussion

The data and results presented in this section allow four main conclusions to be drawn.

The first is that the local and regional communities are generally supportive of mining activities in their region. Residents think that mining creates more jobs in their local area, supports local businesses, helps Mackay and Nebo to develop, and supports better roads and services.

The second conclusion is that local and regional communities have some perceptions about the negative impacts from increased mining. There are concerns about increased crime rates, risks associated with increased traffic, and the possibility that local rates might be impacted. There are also some concerns from Nebo residents that new people moving into the area will change Nebo for the worse.

The results indicate that Nebo and Mackay residents have strong positive attitudes about the economic impacts of the mining industry, but are more ambivalent/critical about some of the social issues. However, it is notable that almost 70% of Nebo residents thought that the town would survive without the mining industry.

The third conclusion is that there are significant differences in the perceptions of Nebo and Mackay residents about the economic and social impacts of the mining industry. Mackay residents tended to be more confident about the positive economic impacts of the industry, while Nebo residents were more inclined to agree that there may be some offsetting social impacts.

The fourth conclusion is that both Nebo and Mackay residents did not identify the environmental impacts of mining as highly significant relative to other environmental issues. Nebo residents were more likely to think that environmental impacts from mining were an issue, but more than 50% of Nebo respondents thought that there were no serious environmental impacts from mining.

It is possible that the conclusions drawn above may be extrapolated to other regional areas. The results suggest that greater attention needs to be directed towards social impacts of mining activities in local areas, but that there generally broad acceptance of mining activities across economic, social and environmental issues.