

Developing Socio-Economic, Demographic and Behavioural Profile of the Mining Communities based on Their Perception of Mining Activities in Surat and Bowen Basin Regions

1.0 Background

Queensland is a world-ranked producer of energy, especially coal and metallic mineral resources like bauxite, copper, silver, lead and zinc. Its mining industry is among the most efficient and technologically advanced in the world. The Queensland economy is regional and decentralized, and the mining industry provides the foundation of many of the regional clusters of economic and social activities within the state. Two such regional clusters with substantial mining activities are the Bowen and Surat Basin regions which are the premier coal producing regions of Australia. The Bowen Basin covers an area of approximately 60,000 km² in Central Queensland stretching from Collinville in the north to Theodore in the south. The Basin hosts more than 40 operational mines and produces over 100 million tonnes of black coal annually (Qld 2008). The Surat Basin covers a large area of 122,655 km² in Southern Queensland including local government areas of Toowoomba, Western Downs and Maranoa, with strong linkages through Banana to Gladstone. Until 2008, Queensland's major coal production of around 150 M tonnes per annum was concentrated in the northern Bowen Basin. However, presently the Surat Basin plays an increasing role in the economic development path of Queensland because of its large resources of open-cut thermal coal and coal seam gas (CSG). Cumulative CSG production from Surat and Bowen basins from 2000 (when commercial production began) to June 2007 was about 646 pet joules (PJ) (11.7 Mt). Annual production for 2007-08 was 150 PJ (2.7 Mt). Production in the Surat Basin, nevertheless, is set to increase over the coming years with a focus on export coal, coal seam gas and electricity from coal.

There have been an impressive body of reports, presentations and academic papers written on identifying the impacts arising from mining operations. Through these professional and academic endeavours now it is well established that large scale mining activities in community have substantial socio-economic impacts (Rolfe and Miles 2007; Brereton, Moran et al. 2008; DIP 2008; Mayes 2008). Positive impacts range from increased local income and employment to infrastructure development, while negative consequences range from housing related problems to health issues. The socio-economic and environmental feasibility of mining activities, therefore, depends on the existence of a net positive value (value addition) arising from such activities. This value addition may be increased by enhanced socio-economic benefits or reduced socio-economic-environmental costs. One of the major prerequisite of such positive overall impact is the positive perception and proactive involvement of local communities in mining activities. Furthermore, recent developments in mining communities around Surat and Bowen Basin regions calls for an extensive study on the perception and acceptance of local communities across the region. Hence, the proposed study would develop a socio-economic, demographic and behavioral profile of these communities based on their perception and acceptance of the mining activities of these regions. Once this profile is developed, it would be easy to develop strategies to uplift the overall level of perception and community participation in mining activities for the long term sustainability of the mining regions.

2.0 Impact of Mining Activities-Some Relevant Studies

Previous literature on the implications of mining activities reveals both positive and negative consequences. In one hand, Fargher et al.(2003) argue that, as a result of spending on wages,

infrastructure and operating costs, mines can provide direct injections of economic stimulus into regional areas, and help to maintain regional employment and population growth. On the other hand, Corden (1984) and Corden and Neary (1982) introduce the notion of 'Dutch Disease' which refers to the situation where rapid growth in one industry drives up the cost of labour and other factors of production. Hence, rapid growth in one sector like mining can also create offsetting economic and social consequences. For example, recently Saab and Ayoub (2008) show that worker remittances, foreign grants and oil revenues are the main factors behind the Dutch Syndrome in countries like Egypt, Jordan, Lebanon and Syria.

In addition to the above mentioned implications, there are several studies undertaken to ascertain the impacts of mining activities in different regions of Australia which are in order. Mayes (2008) investigates the impact of mining activities on the Ravensthorpe Hopetoun District in the south-east corner of Western Australia. He suggests that the positive impacts of mining activities are increased local employment, infrastructure upgrades, and social vibrancy by introduction of more families and youth in the locality. Negative impacts include insufficient housing, social change, and community division and a sense of powerlessness within the community. The Hunter Valley of New South Wales also has a long history of mining including coal. Connor and Albrecht's (2004) study on the Hunter Valley finds that, due to the mining activities employment has increased which lead to community benefits and businesses have expanded in the region. In contrast, adverse consequences like vegetation and bio diversity loss, deterioration of physical and psychological health, environmental degradations like increase of dust, noise, and vibration have also been experienced.

There is literature that has found an association between increased or more severe respiratory diseases in those living adjacent to mining developments, however a causal relationship is yet to be found (Lewis and Hensley. et al 1998; Lewis and Toneguzzi et al. 1995). Despite this lack of causal relationship, environment issues continue to be a source of concern in the Hunter Valley (Brereton and Moran et at. 2008, Brereton and Moffatt 2005; Dalton 2003).

Several government and consultancy reports, numerous newspaper articles and few academic papers have endeavoured to identify the socio-economic impacts of mining activities in the Bowen and Surat Basin regions of Queensland. Most of these studies are exploratory in nature. They employ literature surveys; structured, semi-structured and unstructured surveys; focus group discussions and observation techniques. In a recent paper focussing on creating a strategic response to the negative issues of the Bowen Basin, Miles and Kinnear (2008) unpack several detrimental aspects of mining activities. Based on a desk top review, the report identifies negative socio-economic implications like, labour shortages, infrastructure-services-housing problems, climate change, and planning barriers. Based on observations of the mining developments in Surat Basin, DTRDI (2008) predicts that communities in this region will be socio-economically pressured. More than 12,500 full-time equivalent positions are expected to be created by 2030, population is predicted to be increased by up to 40 percent, and the community infrastructure required to increase by one third, all indicate a significant impact in what is a comparatively sparsely populated rural area.

In a scoping study on Surat Basin, CSIRO Sustainable Ecosystems (2008) suggests that like the Bowen Basin, in addition to the economic benefits, the Surat Basin region is also subject to unintentional and socially undesirable effects due to socio-economic transformation. After conducting a listening tour across six 'coal dependent and affected' communities, Friends of the Earth (2009) identifies concerns about access to services. This report further reveals concerns regarding environmental pollution, landscape degradation, health, housing, cost of living, agricultural variability, climate change, etc. In an Environmental Impacts Statement, Parsons Brinckerhoff Australia Pty Ltd.(2008) report some of the concerns of Surat Basin

region communities like, impacts of water and air quality, housing, road safety, loss of families, lifestyle, crime, social divide, change to social activities, move from farming to mining, etc. The statement further identifies some of the benefits of mining in this region. The benefits include more and better services, business opportunities, economic growth, more jobs, etc.

Rolfe and Miles (2007) and Rolfe, Ivanova, and Lockie (2006) introduce the concept of uneven spatial manifestations of mining development in Bowen region. These papers demonstrate how the local communities of Bowen Basin are concerned that they are shouldering many of the costs of accommodating new developments while the benefits flow more broadly to regional and state centres. Ivanova, Rolfe, and Lockie (2005) further indicate that the scale of coal mining growth has introduced numerous new social issues for regional and local economic development including employment and skill shortages, a shortage of affordable housing, social inequalities and lack of appropriate infrastructure and services.

In summary, despite the diverse purposes and perspectives of the selection of papers discussed, there are issues that arise consistently in regard to the perceived positive and negative impacts of mining activities. Some of the typical benefits are: increased overall and/or mining income and employment, growth/business development, improved infrastructure and services, and the social benefits that an increased population can bring. The typical negative impacts are: social dislocation or adverse social changes, decrease in non-mining activities like agricultural income and/or productivity, infrastructure and service pressures, pressure in housing through unavailability and housing price increase, changed social dynamics, biodiversity loss, water and land quality degradation (example, coal seam gas water), and health impacts.

Due to some of the negative aspects of mining booms, a certain portion of the local community may carry negative perception regarding mining activities and seem to withdraw them from getting involved in mining related activities. The local communities, nevertheless, remain vital to the overall performance of the mining industry. Therefore, this study intends to develop a socio-economic profile of the mining community based on their perception about the mining activities that are taking place in these regions.

3.0 Objectives

The major objective of the proposed study is to develop a socio-economic profile of the people in the Surat and Bowen Basin regions based on their perception and involvement in mining activities. The supporting objectives are:

- Segmenting mining communities based on their perception and involvement in mining activities;
- Developing socio-economic, demographic and behavioural pattern of the segmented communities;
- Proposing possible strategies to enhance positive perception and greater involvement in mining across different mining communities.

4.0 Analytical Framework:

The proposed study would have significant contribution in developing strategies to positively engage communities in economic activities across mining regions. The analytical part can be divided into three stages: one, developing community segments based on perception about and involvement in mining activities; two, designing socio-economic, demographic and behavioural profile of the segments; three, designing strategies for policy advocacy to uplift perception about and involvement about the mining activities within the regions. In stage one

the mining communities would be divided into three segments or clusters: cluster one is positive mining community, cluster two is mining neutral community, and cluster three would be termed as community for improvement. In stage two, this study would identify socio-economic, demographic and behavioural patterns of each of the clusters. The third stage involves designing effective strategies to enhance positive perception and acceptability of mining activities among the local communities. Different qualitative research methods like, survey, focus group discussion, etc. would be employed in this regard. A semi-structured questionnaire with both open and closed end questions would be employed while conducting the survey. The questionnaire and analysis plan are provided in Appendix 1 and 2. It is worth to be mentioned here that this research would handle all the issues related to the validity and reliability of research data and techniques in all the steps of this study: from research design to devising policy implications.

Sampling Plan: This study will follow stratified sampling technique to select respondents from both of the regions. A pilot survey of 2% respondents will be performed prior to the implementation of surveys. Based on the outcome of the pilot survey research questionnaire and techniques are to be modified and finalized. Total number of respondents would be selected upon the extent of commitment.

5.0 Significance of the Study

Given the importance of these regions in the economic performance of Queensland, this proposed study bears substantial economic and social significance. First, this study would enable to identify clusters within the local community based on their perception and acceptability of the mining activities taking place in these regions. Two, this research will generate a data warehouse of different socio-economic, demographic and behavioural characteristics of these clusters. And above all, having the information about socio-economic, demographic and behavioural profile of these clusters would enable the study to devise appropriate strategies to increase the positive perception and involvement of these clusters in mining activities.

6.0 Future Directions:

In the process of performing this research, a comprehensive database of different socio-economic, demographic and behavioural indicators would be developed which would ultimately lead to effective and efficient marketing and communications strategies to strengthen the acceptability of mining activities within the regions. Furthermore, in times of need and emergency, the database would act as a point of reference to implement different programmes and campaigns. Hence, this research would act as a starting point for effective advocacy to the local mining communities.

7.0 References:

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Appendix 1: Questionnaire

Respondent Profile:

Name of the Respondent:

Address:

Age:

Academic Qualification (please tick):

Primary	Secondary	Undergraduate	Postgraduate

Profession:

Farming (please mention what type and total land area)	Academic (please mention where)	Service (please mention what type)	Other (please elaborate)

Yearly Income and or Net Profit:

40k-60k	60k-80k	80k-100k	100k-120k	120k+

Favourite Pass Time:

Movies (Type?)	Games (Type)	Travelling (Type)	Partying and Clubbing	Other

Favourite Colour:

White	Blue	Yellow	Red	Purple	Green	Black	Other

Political View:

Labour	Liberal	Green	Other

Ethnic Group:

Australian	European Australia	Indian Australian	Aboriginal or Torres Island	Other

Questions:

Question 1: Do you think mining activities have a positive impact in your region? (Please tick)

Strongly Agree	Agree	Indifferent	Disagree	Strongly Disagree

Question 2: Do you think mining activities contributes to the economic solvency of your community?

Strongly Agree	Agree	Indifferent	Disagree	Strongly Disagree

Question 3: Do you think mining activities contributes to the overall infrastructural development of this region?

Strongly Agree	Agree	Indifferent	Disagree	Strongly Disagree

Question 4: Do you think mining activities contributes to the overall safety (roads and security) and health of this region?

Strongly Agree	Agree	Indifferent	Disagree	Strongly Disagree

Question 5: Do you think mining activities in the region brings about good social environment within the community?

Strongly Agree	Agree	Indifferent	Disagree	Strongly Disagree

Question 6: Are you considering yourself and your predecessors to get involved in mining activities?

Strongly Agree	Agree	Indifferent	Disagree	Strongly Disagree

Question 7: Do you think mining brings positive net welfare surplus (positive economic and other impacts minus negative environmental and other costs) to the regions?

Strongly Agree	Agree	Indifferent	Disagree	Strongly Disagree

Question 8: Are mining companies, local governments and other institution taking necessary initiatives in local skill development?

Strongly Agree	Agree	Indifferent	Disagree	Strongly Disagree

Question 9: Has there been substantial community, landscape, infrastructure and other developments taken place with the increase in mining activities around the region?

Strongly Agree	Agree	Indifferent	Disagree	Strongly Disagree

Question 10: Do you find any significant improvement in lifestyle of local communities?

Strongly Agree	Agree	Indifferent	Disagree	Strongly Disagree

Question 11: Mention three areas where the mining development in the region has contributed positively.

Positive Impact One:

Positive Impact Two:

Positive Impact Three:

Question 12: Mention three areas where the mining development in the region has contributed negatively.

Negative Impact One:

Negative Impact Two:

Negative Impact Three:

Question 13: Mention three areas where the mining companies and government should get involved to improve the socio-economic and environmental benefit of this region.

Area of Improvement One:

Area of Improvement Two:

Area of Improvement Three:

Appendix 1: Analysis Plan

Question 1 to 10:

For each questions the answers would be scored according to the scale of +2 for ‘Strongly Agree’ to -2 for ‘Strongly Disagree.’ Hence the cumulative score for the answers of question 1 to 10 would range from +20 to -20. Respondents would be segmented into three different clusters as:

- a. Positive mining community: Cumulative score from +5 to +20;
- b. Mining neutral community: Cumulative score from -5 to +5;
- c. Community for improvement: Cumulative score from -20 to -5.

Respondent Profile and Question 11 to 13:

Respondents’ economic, social and demographic profile along with their answers to three open end questions from 11 to 13 would be stored and analysed separately according to their individual segments calculated earlier as, positive mining community, mining neutral community, and community for improvement.

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