UNDERSTANDING THE SOCIO-ECONOMIC IMPACTS OF SHALE GAS MINING: A RESEARCH AGENDA

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THE KAROO
Applications for shale gas exploration

[Map showing applications for shale gas exploration in South Africa, Botswana, Namibia, and surrounding regions.]
THE FRAUGHT CONTEXT OF SHALE GAS MINING IN THE KAROO

1. Activity of new companies in the area - exploration
2. National ownership of mining resources creates window of opportunity for researchers – cutting-edge research *before* mining start-ups
3. Ideological wars: Environmentalists vs miners
4. Need for interdisciplinary collaboration – natural, social and economic sciences
5. The need for interdisciplinary baseline studies
6. Jurisdictions: 4 provinces, 12 DMs and 24 LMs
7. Debates about key decision-making milestones in the exploration and mining stage – when is the “bus stop”?*
8. International examples and lessons about shale gas mining
9. New forms of lobbying – our “Arab spring” – social media
10. Urgent economic need for new forms of energy – the only game-changer left in the SA economy?
MONITORING AND EVALUATION OF SOCIO-ECONOMIC DIMENSIONS

1. Monitoring largely quantitative; evaluation qualitative and quantitative
2. Monitoring typically ongoing; evaluation after specific periods
3. Selection of indicators often subjectively determined:
   - Researcher’s own value biases
   - Researcher’s judgements about what is important
   - Researcher’s understanding of causal relations and trends
3. Critically important to have some consensus about indicators, in order to do baseline studies now
4. Important to document the expectations of all key stakeholders: What do they think will happen?
5. Causality: Important to identify and evaluate theories of change and causal mechanisms to analyse impacts. What is caused by mining, and what is caused by other things?
CURRENTLY NEGATIVE TRENDS IN THE KAROO

1. The decline of some towns and railway settlements: Population, sales (e.g. petrol)
2. Shift to new agrarian activities e.g. game farming and transport technology - reduced reliance on local small centres as points of sale and service supply – purchasing trends; key services (e.g. doctors and schools)
3. Economic dependence on state welfare, loss of formal sector job opportunities, poverty and out-migration of skilled people – social grants
4. Amalgamation of smaller centres under a single authority - the loss of local government status has weakened many settlements - municipal expenditure in different towns
5. Poverty – dependency ratios – elderly and youth
6. Health - HIV, TB and FAS
7. Social instability – migration, particularly east-west Xhosa migration - language and racial profiles - census
CURRENTLY POSITIVE TRENDS IN THE KAROO

1. Growth of tourism in areas of natural beauty and architecture – tourism numbers
2. Large infrastructure: Southern African Large Telescope, Square Kilometer Array, highway maintenance: public spending
3. Reverse migration: house purchases, property prices
4. Established agricultural products: Sheep, mohair – output and value
5. New agricultural products: Beef, game, olives – output and value
7. High % of formal dwellings, and home ownership – stable communities – House construction; housing waiting lists; title deeds
8. Unbundling of households – household size
9. Improvement in schooling levels – enrolment at different levels
10. Relatively high levels of tertiary education – census trends
11. Good levels of security – police statistics.
COMPARING IMPACTS: CONUNDRUMS

1. 3 points of comparison: Eastern Cape, Northern Cape and Western Cape – which do you choose?
2. Comparison with other rural areas?
3. Be careful of apparent statistical trends, e.g. growth in jobs: Are gains in mining incomes offset by losses in other sectors (e.g. tourism)?
4. Winners and losers: Do in-migrants benefit at the expense of the locals?
5. Taxation income: Would a mining region benefit from national taxes?
6. Rates and taxes: Would a mining region benefit from business taxes?
7. Unforeseen negative or positive impacts: At what point are they identified and measured?
PROBLEM OF COUNTERFACTUALS

United Nations: “The supply of desert tourism products has visibly increased and been offered to a wider market over the last decade or so. The appeal of deserts can largely be explained by the image of purity and serenity associated with them, and by travellers’ quest for simplicity and well-being.”

International precedents: Desert tourism is going to grow. How measure counterfactuals? If shale gas mining takes place, what WOULD have been the levels of tourism?
LONGER-TERM TRENDS AND IMPACTS: THE ROLE OF INSTITUTIONS

- “institutions”: informal (norms, habits, customs and codes of conduct) and formal (organizations) – “rules of the game”
- Structure human interaction and co-operation
- Affect individuals’ choices, reduce transaction costs
- Constraints to human action, including “appropriate sanctions”
- Structure our response to opportunities
- Institutions structure knowledge acquisition, learning and evolution through incentive structures

HENCE: Path-dependency: “investments in human and physical capital tend to be complementary” – build on what you’ve got – costly to change – incremental change.
INSTITUTIONAL HERITAGE IN THE KAROO

SYSTEMIC CHARACTERISTICS
1. Poor inter-sectoral communication and co-ordination
2. Institutional fragmentation: National/prov/municipal
3. Multiple jurisdictions - no coherent views on anything
4. No understanding of spill-over effects into neighbouring jurisdictions
5. Taxation collected nationally, distributed according to population
6. Fairly strong civil society.

INSTITUTIONAL PATHOLOGIES
1. Weak municipalities – inefficient, lack of expertise, lack of funding
2. Little experience in mining sector
3. Little experience in M&E
4. Poor communication between local business community and municipalities
5. Poor communication between communities and municipalities
6. Corruption and patronage – officials are “open for business”
POSSIBLE PATH-DEPENDENT OUTCOMES

1. Gas companies establish “preferential relationships” with municipalities and local politicians
2. Some civil society and local business increase opposition to shale gas mining – deteriorating relationship with municipalities
3. Other business sectors re-orient to shale gas mining: Accommodation and retail
4. Lobbying: Local economic benefits (jobs) allocated according to patronage networks
5. Shale gas written into IDPs – becomes the new primary economic sector
6. Infrastructure planning according to the needs of shale gas mining (roads and transport).
7. Eclipse agricultural and tourism sectors
8. Increasing in-migration, locked into shale gas mining
10. Vulnerability to closure of shale gas wells.
HOW MEASURE THESE QUALITATIVE CHANGES?

1. Some quantitative indicators
2. Need baseline studies in key localities: Qualitative and quantitative
3. Need studies of local economies
4. Need studies of existing organizational behaviour
5. Need ongoing studies of changing decision-making patterns, incentives, organizational culture
7. Need studies of responses by residents

Conclusion: We need sociologists, political scientists, anthropologists, economists. Environmental monitoring is not enough.