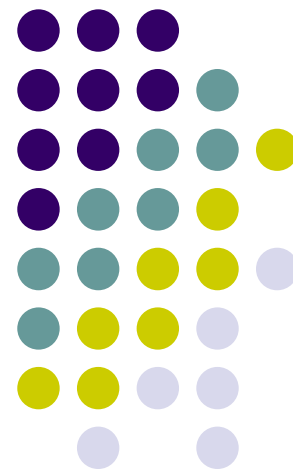
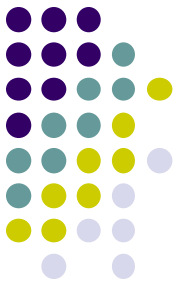


Linking Mining to the National Economy: Good Governance and Sustainable Development

Presentation prepared for:
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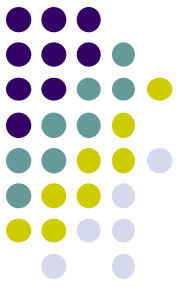




Outline

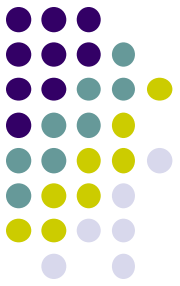
- Sustainable Development and the Mining Industry
- Sector Governance
- The Role of Fiscal Revenues
- Beyond the Enclave
- Mining as an Engine of Growth

Sustainable Development & the Mining Industry



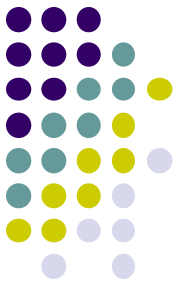
- Begins with good sector governance
 - Transparency, institutional development, social, environmental
- Fair fiscal take
- Moving (far) beyond the enclave
 - Development of skills, linkages
- Local governance
- Mining as the engine of sub-national/national growth (at times)
 - Clusters, resource corridors, cross-border cooperation

Good Sector Governance



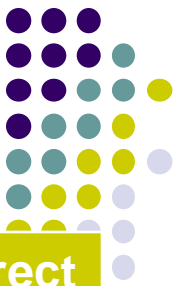
- Necessary but not sufficient condition
- Clear legal, regulatory and contractual framework
- Transparency of contract awards
- Well defined institutional responsibilities
- Involvement of all stakeholders, including affected communities from beginning
- Capacity to monitor & enforce regulatory requirements
 - Environmental, social, economic
 - Problem of keeping staff: Mining's catch 22
 - Role of civil society
- Transparency of revenue collection

The Extractive Industries Value Chain



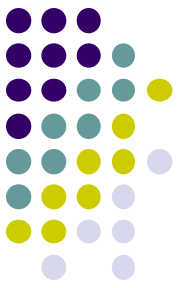
Effective management of EI resources requires attention along the entire chain of managing EI resources — from granting access to those resources, to monitoring operations, to collecting EI revenues, to improving economic management decisions, to spending resources effectively for sustainable growth and poverty reduction

Macro Gains of Mining Sector Reform



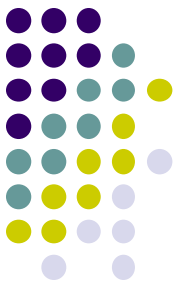
	GDP	FDI	Exports	Taxes (Direct effects)
Argentina (2003-08, cumulative)	Mining output rose 292%	1014% Exploration: 907%	275%	NA
Mongolia	7.8%/yr (2003-9); Mining 22% of GDP in 2009	\$335m/yr (2005-9) (10% of GDP)	70% of total exports (2009)	30.6% of total revenues (2009)
PNG	8.1% in 2008	\$1.2b (2000-06); 5 more new mines by 2015	25% of X (2006), on way up	25% of tax revenues (2006), on way up
Tanzania	-0.3%/capita: 1988-98 3.6%/capita: 1998-2008	\$250m/yr on average (2000-08)	\$60m-1992 \$674m-2004 \$1b-2007	4% of total in 2007; projected 7% in 2017

The Role of Fiscal Revenues



- Trade-off between maximizing short-term and long-term fiscal revenues
- Gestation period of mine from discovery to first offtake often 10 to 20 years, even more
- Sharing of risk between government & company (predictable flexibility)
- Adequate administrative & audit capacity
- Even in enclave situation, fiscal revenues & non-dedicated infrastructure built for the mine can make large contribution to SD if managed wisely

Beyond the Enclave



- Often incorrect emphasis on backward & forward linkages→more important for medium & high income countries
- Downstream linkages require local markets if shipping & marketing costs non-competitive
- Upstream linkages often capital intensive, high-tech (mining equipment)
- Exception in geological, engineering services
- Focus should usually be on sidestream linkages (domestic sourcing)

Downstream Linkages in Aluminum Industry (a rough analysis)



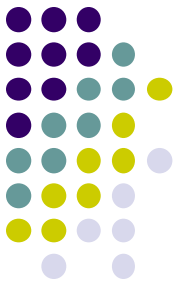
- Bauxite mine
- Alumina refinery nearby saves 8% on shipping→Yes, if economies of scale
- Aluminum smelter nearby saves only 1% on shipping→No to aluminum ingots, unless surplus of cheap electricity for at least 20 years
- Semi-finished aluminum→Yes as shipping similar to ingots
- Finished aluminum goods→No, unless large domestic market as shipping savings on semis (5%) cost of marketing & shipping finished goods

Sidestream Linkages



- Usually more jobs to suppliers than in mine
 - Estimates range from 2 to 8 times
 - In Peru 2007, \$4.2b of domestic purchases, 78% of total
- Want to increase portion to domestic suppliers, particularly SMEs
- Some contracts have targets, increase over time
- Need supportive training, infrastructure, and information
 - Mining companies often involved in training (may be contractually bound to do so)
 - Mining required infrastructure should be part of regional plan for supporting industries, PPPs

Value Added - Afghanistan



Annual GNI Impact of Aynak Mine and Ancillary Developments (US\$m)

Impact	2011-15	2016-22	2023-40
Low Impact	214	444	520
Medium Impact	385	640	741
High Impact	778	1096	1248

Key Assumptions

1. Ancillary includes coal, phosphate, and limestone mines and power plant; it does not include railway.
2. GOA spends 70% of revenues on domestic goods and services.
3. MPC domestic goods of Afghanis is 0.2, 0.4, and 0.6.
4. Domestic outsourcing is 6%, 14%, and 24%.
5. Does not include all feedback loops. E.g. multiplier impacts on fiscal revenues; effect on other sectors of government expenditure on imported equipment.

Current local sourcing versus imports in Burkina Faso, Ghana and Mali



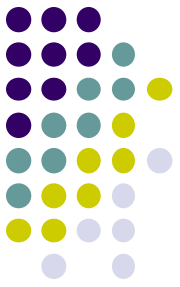
Often procured locally	Some local procurement	Usually imported
<p><i>On-site mining services:</i></p> <ol style="list-style-type: none"> 1. Geochemistry sampling/ Exploration drillings 1. Earthworks 2. Lab analysis 3. Explosives <p><i>Non-core on-site services:</i></p> <ol style="list-style-type: none"> 1. Camp construction 2. Catering 3. Security 4. Transport of staff 	<ol style="list-style-type: none"> 1. Maintenance & repairs 2. Logistics/ transport/ warehousing, supply chain services Civil works, construction, basic fabrication 3. PPE 1 (overall, uniforms) 4. Steel goods 5. Plastic goods 6. Foods supplied 7. Mining contracting 8. Primary crushing 9. Primary haulage 	<ol style="list-style-type: none"> 1. Reagents 2. Fuel 3. PPE 2 (glass, glove helmet, cyanide mask) 4. Machinery & spare parts of capital equipment (OEM supplied sometimes through local partners of international dealers)

Training for SMEs



- High externalities as transferrable skills
- Have a public good character; companies may end up training other companies' suppliers.
- Can be difficult to target types and amounts of training and who should receive this training.
- Must gather information on needs of mining sector in the short-, medium- and long-run; design training courses in specific skill areas.
- Financial and technical assistance, particularly in the area of quality control

Mozal Aluminum Smelter in Mozambique 1



- At peak, 9,000 construction jobs at Mozal I and 6,000 at Mozal II
- 1,100 permanent jobs; Mozal II through linkages has created another 2,500 jobs
- BHP-Billiton spends US\$40m per year on purchases from Mozambican companies
- With active programs, local suppliers increased from 40 to 250 in 5 years
- BHP-Billiton spends 1 percent of pre-tax profits on community initiatives, US\$ 2 million in 2002
- Through the SME Empowerment Program, 28 companies obtained US\$5m in contracts from 2001-03;
- Through Mozlink service, by 2005 local SMEs won US\$11m in contracts
- Big increase in quality and quantity of local infrastructure.

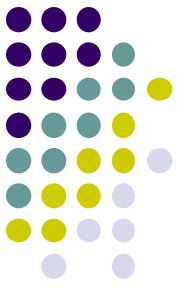
Mozal Aluminum Smelter in Mozambique 2



Much more success with Mozal II vs Mozal I:

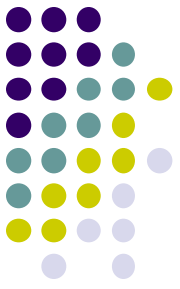
- Contracts were unbundled;
- Contracts in local languages; and
- Developed specialized program to identify contracts that could be sourced locally, trained local entrepreneurs on tendering, and provided training and mentoring to SMEs.
- By 2007, SME performance in the areas of quality, management, maintenance and safety improved by 20% on average.

The Anglo Zimele (AZ) Empowerment Initiative



- Established in 1989 by Anglo American, RSA.
- Focus is on backward linkages through SME development.
- AZ provides skills development & strategic knowledge, including guidance on corporate governance and investment funds where necessary.
- Primarily involved with historically disadvantaged South Africans.
- Once firm can stand alone, AZ sells off its stake.
- During 2005, AZ invested in ScanMin Africa (real-time analyzers for mining and mineral beneficiation processes), Springbok Trucking Company, Langa Lethu (security and risk management), and Tyre Corporation.
- Currently AZ invests in 39 SMEs with over 3,000 people

Local & Regional Governance



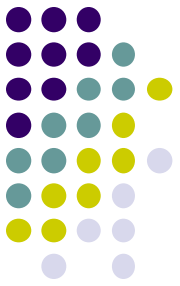
- Go beyond enclave but is it sustainable?
 - What happens after the mine(s) closes if company was de facto local government?
- Need to develop other opportunities
- Local governance capacity often very weak
 - Who maintains infrastructure & services?
- Need funds from central to regional & local governments to build sub-national capacity → But pressure to give to less fortunate regions
- Challenge of building local government in country with little knowledge of such

Mining as an Engine of Sustainable Development



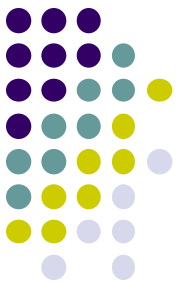
- Economies reforming but history of instability & weak governance
- Mining only option to kick-start economy (e.g. DR Congo, Tanzania, Peru, Mongolia, PNG)
- No more enclaves: multipliers and linkages
 - Maximize local employment (training)
 - Maximize local/domestic procurement (more training)
- Infrastructure development is often crucial
 - Mobilizing additional capital to piggyback 'mining' infrastructure
- Mining industrial cluster (Antofagasta, Sudbury, Johannesburg)
- Technological innovations can lead to other clusters
- Impacts of above will be weaker and probably unsustainable if governance remains weak

Mining Led Regional Development



- Important mining areas can form basis for regional development/industrialization
- Demand for goods & services reaches critical mass for local production
- Coordination on infrastructure and capacity building
- Cluster development
- All this brings credibility to those who want to plough mining revenues back into region

Regional Value Added – West Africa



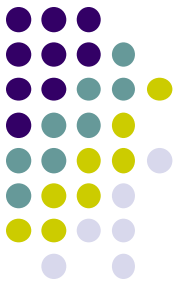
- Stagnant intra-regional trade despite partial customs union
- Very weak infrastructure; Nigeria only significant rail network; most countries not linked by rail; poor roads and/or informal tolls
- Inadequate power supply; good gas possibilities
- Economies of scale for mining cluster lacking in most WA countries; need regional perspective
- Most mining operations & promising deposits lie in 2 corridors
 - From Guinea along coast to Togo
 - From Mauritania into Mali, Burkina Faso and Niger
 - Also central Ghana (gold), NE Niger (uranium)
- Viability of many deposits depends on adequate infrastructure→viability of infrastructure depends on mining ‘baseload’ customers
- Possibilities for moving up mining value chain depend on access to larger market

Industrial Cluster: Chile, Region II



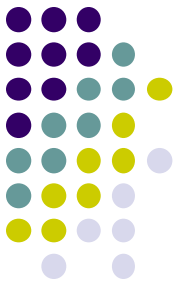
- Chile, Region II: Industrial cluster built around copper industry
 - 50% of mining industry's procurement from Region II
 - Investing in skill training and educational facilities
 - Mining companies work with new suppliers on quality enhancement
 - Infrastructure development
- Targeting of fiscal revenues
 - Education (including tertiary) for mine employment and related industries
 - Provision of finance for suppliers
 - Innovation fund (new); aimed at expanding cluster beyond mining
- Contributing factors
 - Fiscal and macroeconomic stability (stabilization fund)
 - Social stability (large increases in funds to social programs)
 - Strong focus on literacy, education, and poverty reduction
- Success based on generating broad-based employment opportunities

Lessons Learned I



- Sector governance is starting point
 - M&E capacity often weakest point
- Tax system should have long-term vision
 - Transparent, efficient, and share risk
- Main economic contribution of mines often expenditures on goods & services
 - Procurement usually (much) greater than fiscal revenues and much more stable
- For low-income countries, focus on sidestream not upstream or downstream
 - Downstream linkages are more market than mine based
 - Policies supporting new business creation, infrastructure, possibly contractual obligations for training

Lessons Learned 2



- Local governance capacity is essential for equitable distribution and sustainability of benefits
- Clusters depend on economies of scale
 - Take advantage of infrastructure synergies
- In the end sustainability of benefits depends on broad-based interventions
 - Partnerships between governments, firms, local communities, research centers
 - Complementary policies & programs across levels of government & government ministries