

# **Mineral Sector Opportunities and Challenges: A Global and Peruvian Perspective**

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# Selected Topics

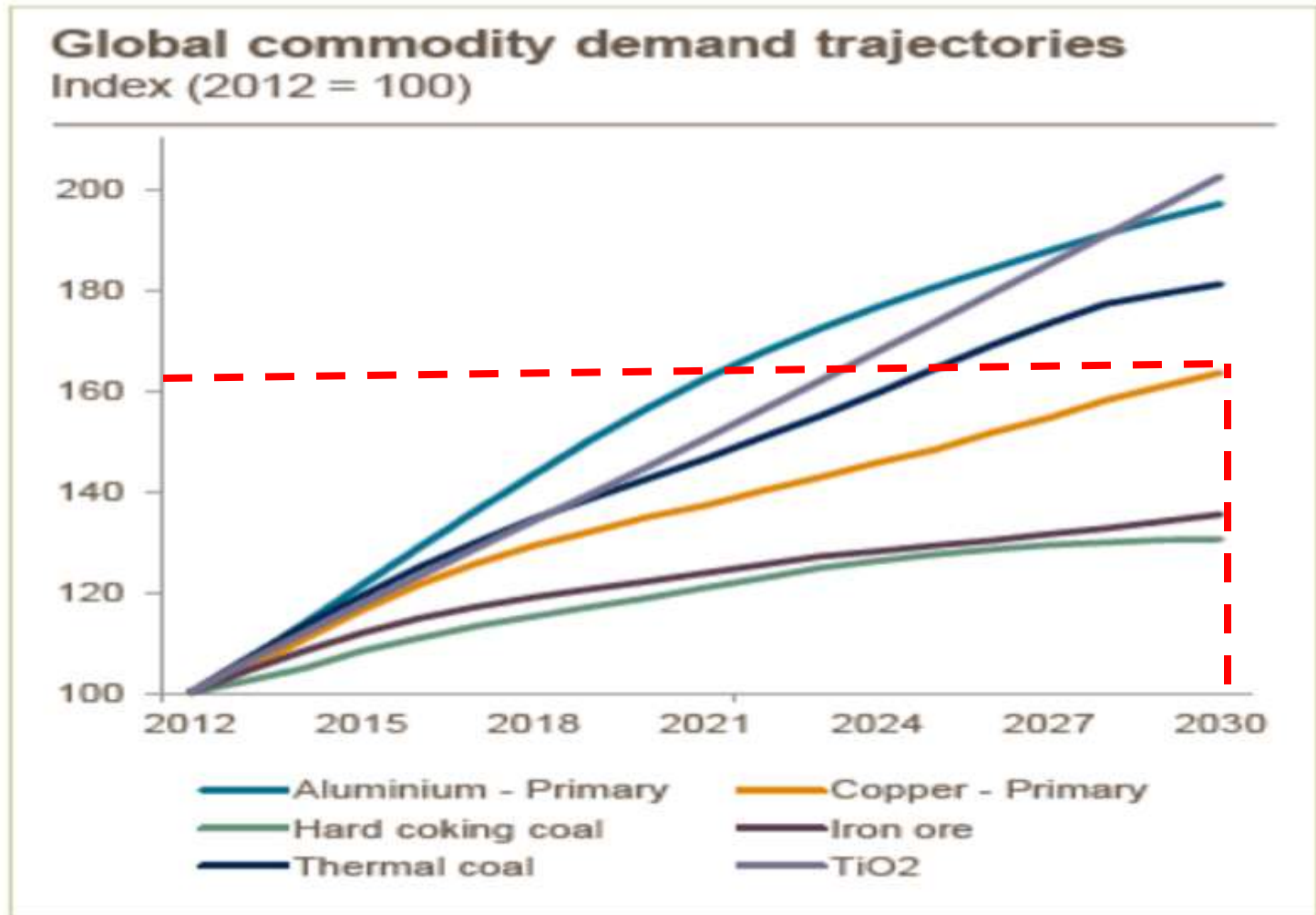
- Global demand, supply and prices (including China)
- Prices cycles and fiscal policy
- Economic diversification
- Obtaining and maintaining the social license to operate a mine
- Achieving sustainable development

# **Topic 1**

## **Global metals demand, supply and prices**

**(the growing role of China)**

# Metals Demand Will Increase as More Nations Become Richer and/or More Populated



Source: Rio Tinto analysis

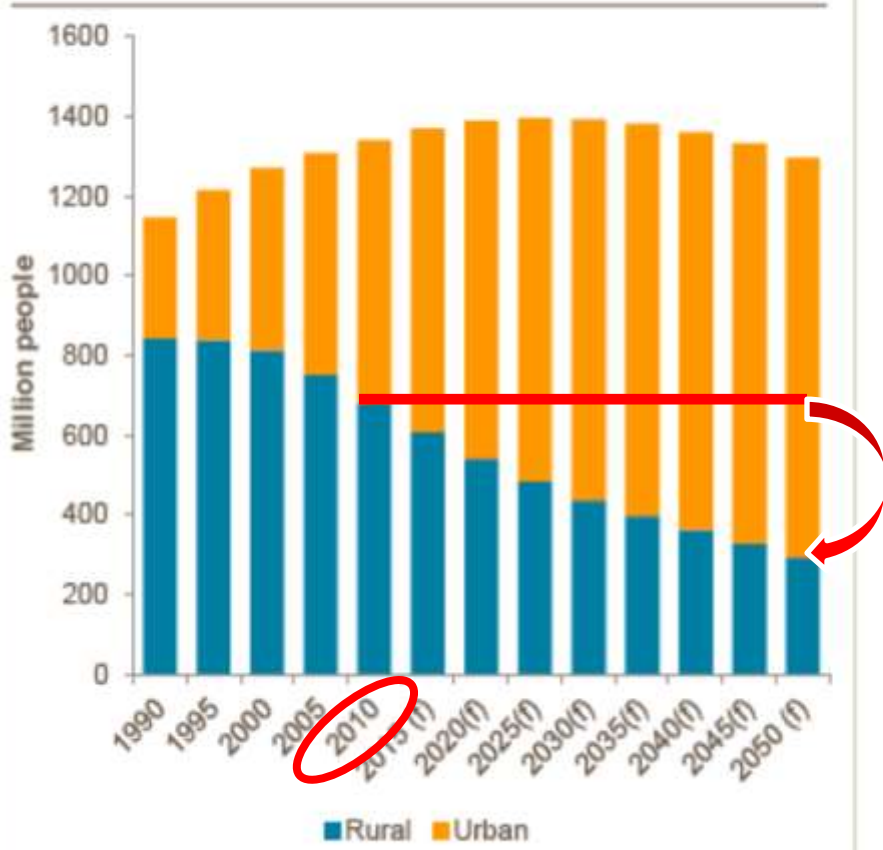
## Share of Global Consumption (%): 2002 - 2012

	China		Other Asia and Oceania, developing		Africa		Latin America & Caribbean		Transition economies		Developed Economies	
	2002	2012	2002	2012	2002	2012	2002	2012	2002	2012	2002	2012
Aluminum	16	45	14	16	1	2	4	4	4	2	60	32
Copper	18 → 43		20	16	1	1	5	5	3	4	53 → 30	
Nickel	7	48	20	13	3	2	2	1	3	2	65	34

China is the dominant copper consumer:  
43% of global demand

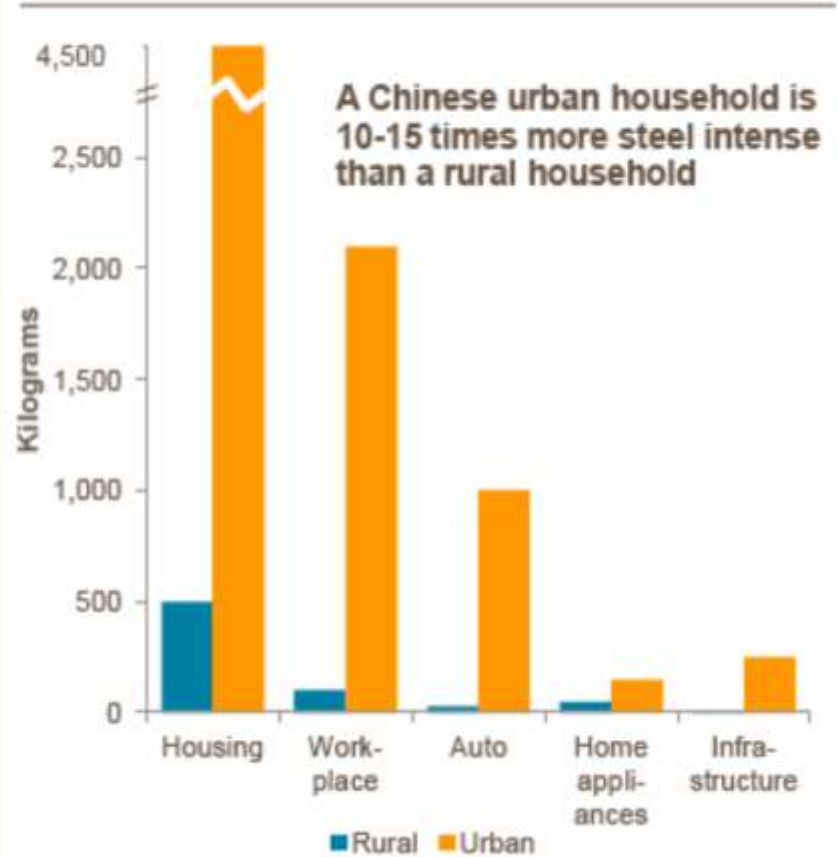
# Metals Demand Increases as Rural Populations Urbanize

### China urban/rural population



Source: United Nations

### Chinese household steel intensity



Source: Rio Tinto

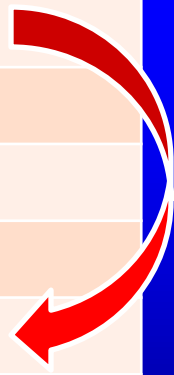
Source: Rio Tinto (2013)

China, India, Indonesia & others have large rural populations

# Metals Demand Will Increase as Rural Populations Urbanize

Region (2010)	% Urban	% Rural
Africa	40	60
Asia	42	58
Europe	73	27
N. America	82	18
Caribbean	67	33
Central America	72	28
South America	84	16
Oceania/Australia	70	30
World	50	50

World	
Year	% Urban
1950	29
1960	33
1970	36
1980	39
1990	43
2000	46
2010	50
2020	54
2030	59
2040	64
2050	69

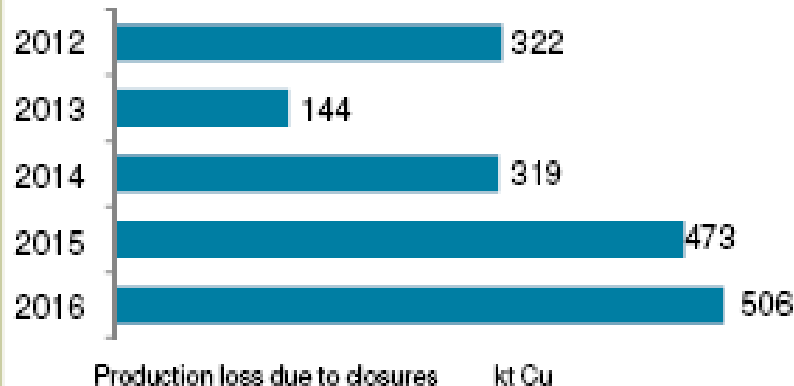


The number of city dwellers is expected to be 6.3 billion by 2050, as many as Earth's total population 10 years ago

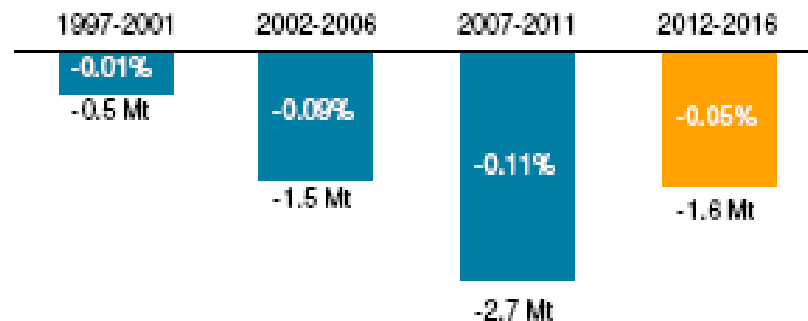
Future metal demand growth may be led by urbanization in Asia (and Africa later on)

# Supply: Declining Copper Ore Grades and Mine Closures act as Supply Constraints but Excess New Capacity is Forecast

1.8Mt production loss between 2012-2016 due to closures

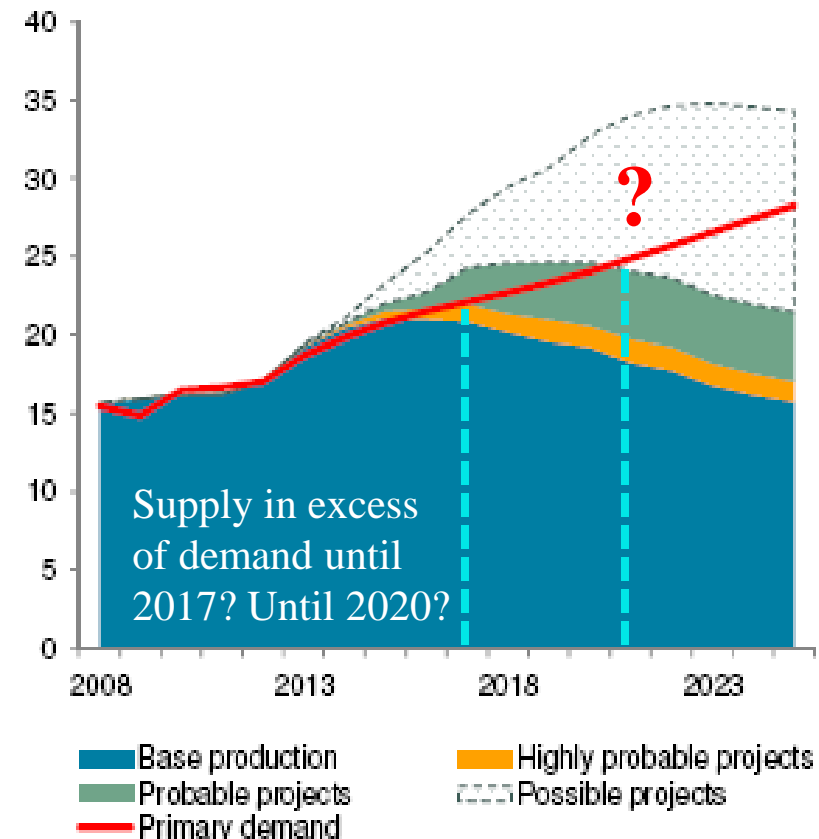


The industry requires 1.6Mt Cu as a result of grade declines from 2012-2016



Source: Wood Mackenzie Q3 2012

Continued project development is necessary to meet medium term demand  
Copper mine supply-demand outlook (Mt)



Source: Wood Mackenzie (2012) as reported by Rio Tinto (2013), as modified



# Supply: Central Bank Forecasts Excess World Capacity

**Table 17**  
**WORLD REFINED COPPER USAGE AND SUPPLY**  
 (Thousand metric tons)

	2008	2009	2010	2011	2012	2013	2014
World mine production	15,569	15,943	16,053	16,076	16,700	17,561	18,541
World refined production (Primary+Secondary)	18,214	18,248	18,981	19,596	20,114	20,983	22,046
World refined usage	18,053	18,070	19,346	19,830	20,512	20,566	21,366
Refined balance 1/	161	178	-365	-234	-397	417	681
Stock inventories	378	697	573	552	593	n.a.	n.a.
Consumption days	7.6	14.1	10.8	10.2	10.6	n.a.	n.a.

1/ Not includes unreported inventories for China apparent usage.  
 Source: ICSG.

Surplus = price decline

Source: Inflation Report, Central Reserve Bank Peru, 2013

# Supply: New Capacity is Planned in Peru

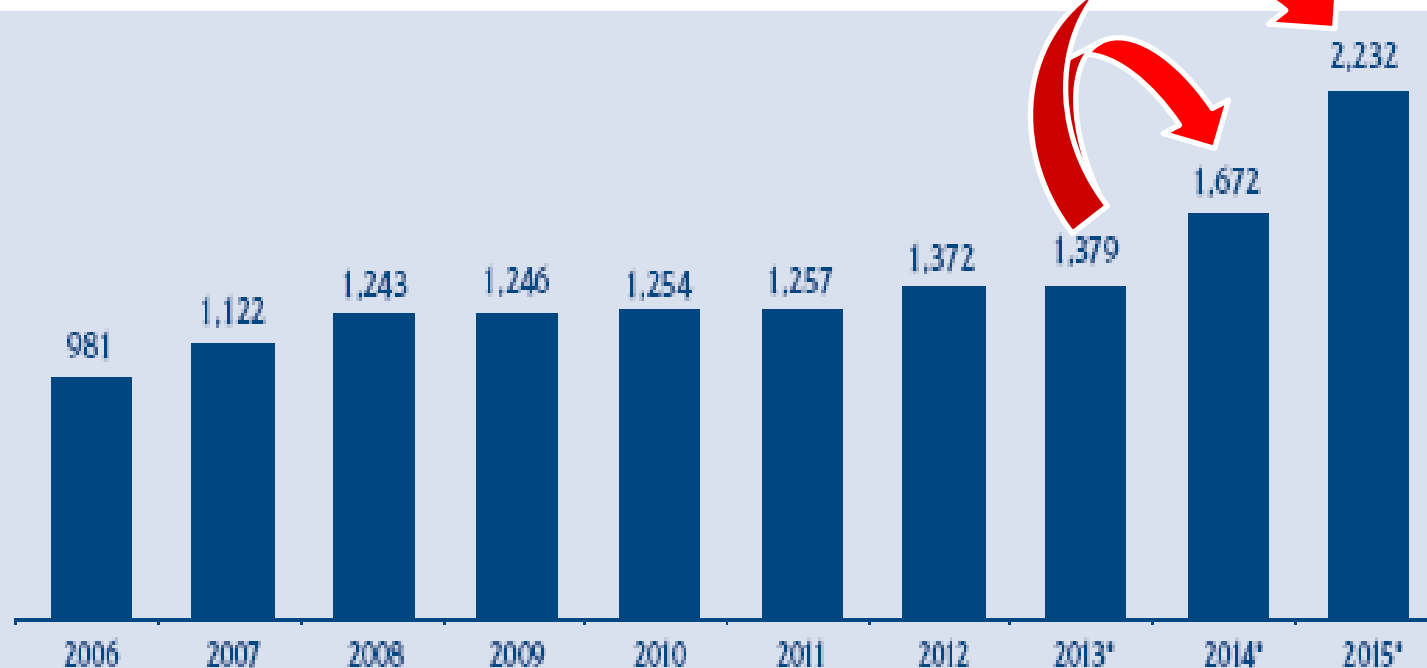
**Table 12**

**ANNOUNCED MAIN INVESTMENT PROJECTS: 2013-2015**

SECTOR	COMPANIES	PROJECT NAME
Mining	Xstrata Copper	Las Bambas
	Freeport-Macmoran Copper	Expansion: Cerro Verde
	Anglo American Plc.	Quellaveco
	Antares Minerals Inc.	Haquira
	China Minmetals Corporation and Jiangxi Copper Company	El Galeno
	Aluminium Corp of China Ltd.	Toromocho
	Norsemont Mining Inc., HudBay Minerals Inc.	Constancia
	Cumbres Andinas, Korea Resources Corp.	Mina Justa
	Bear Creek Mining Corporation	Corani
	Grupo Milpo	Expansion: Cerro Lindo and El Porvenir
	Hochschild Mining International Minerals Corporation	Inmaculada
	Grupo Milpo	Pukagaqa
	Grupo Milpo	Hilarión
	Southern Perú Copper Corp	Expansion: Cuajone
	Río Alto Mining Ltd.	La Arena
	Minera Gold Corp.	Expansion: Lagunas Norte
	Shougang Corporation	Expansion: Marcona
	Grupo Buenaventura	Expansion: Colquijirca
	Volcan Compañía Minera S.A.A.	Alpamarca - Río Pallanga
	Minera IRL Limited	Ollachea

# Copper Supply: Will Continue to Grow in Peru

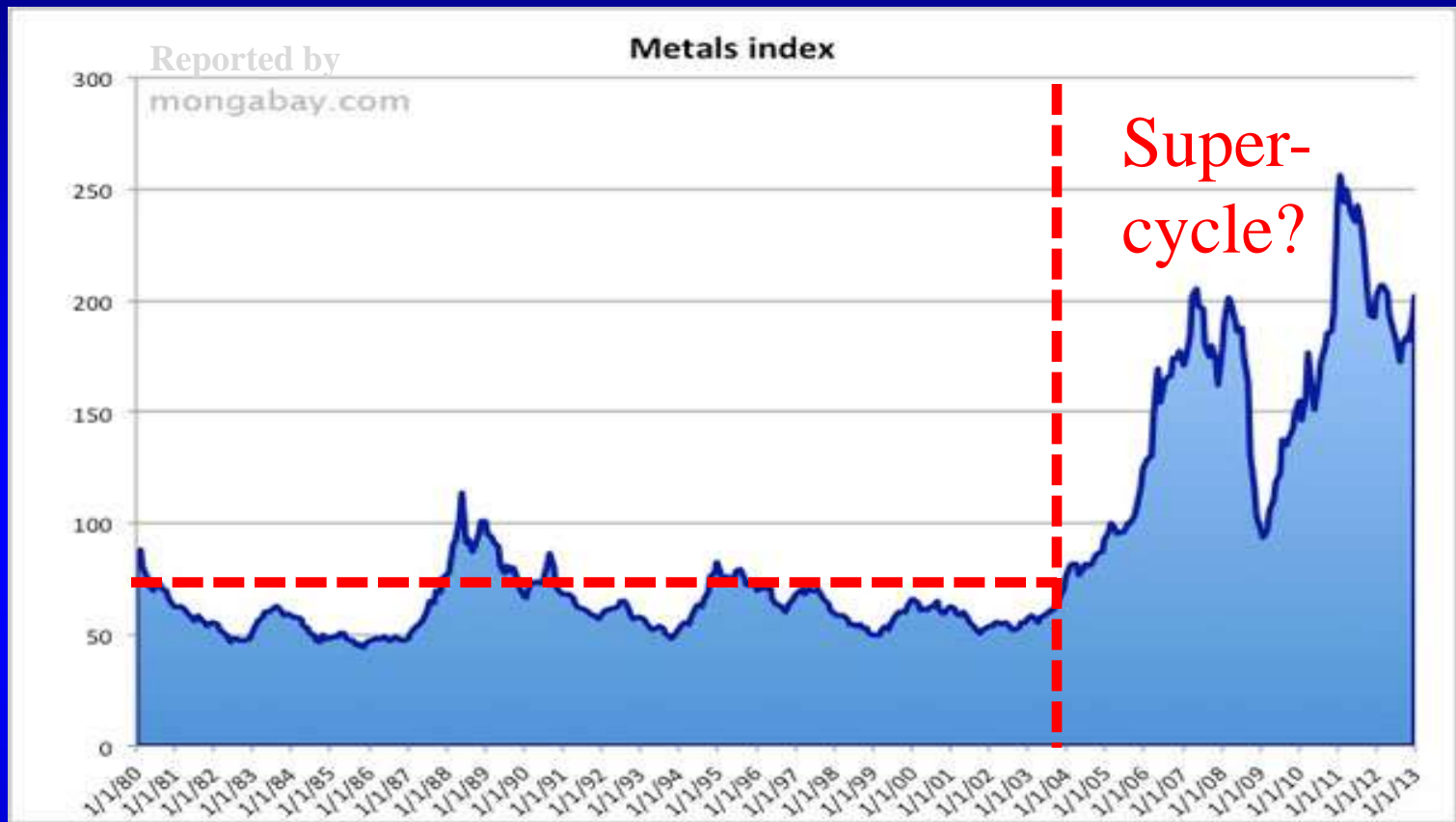
Graph 54  
VOLUME OF COPPER EXPORTS: 2006-2015  
(Thousand TMF)



\* Forecast.

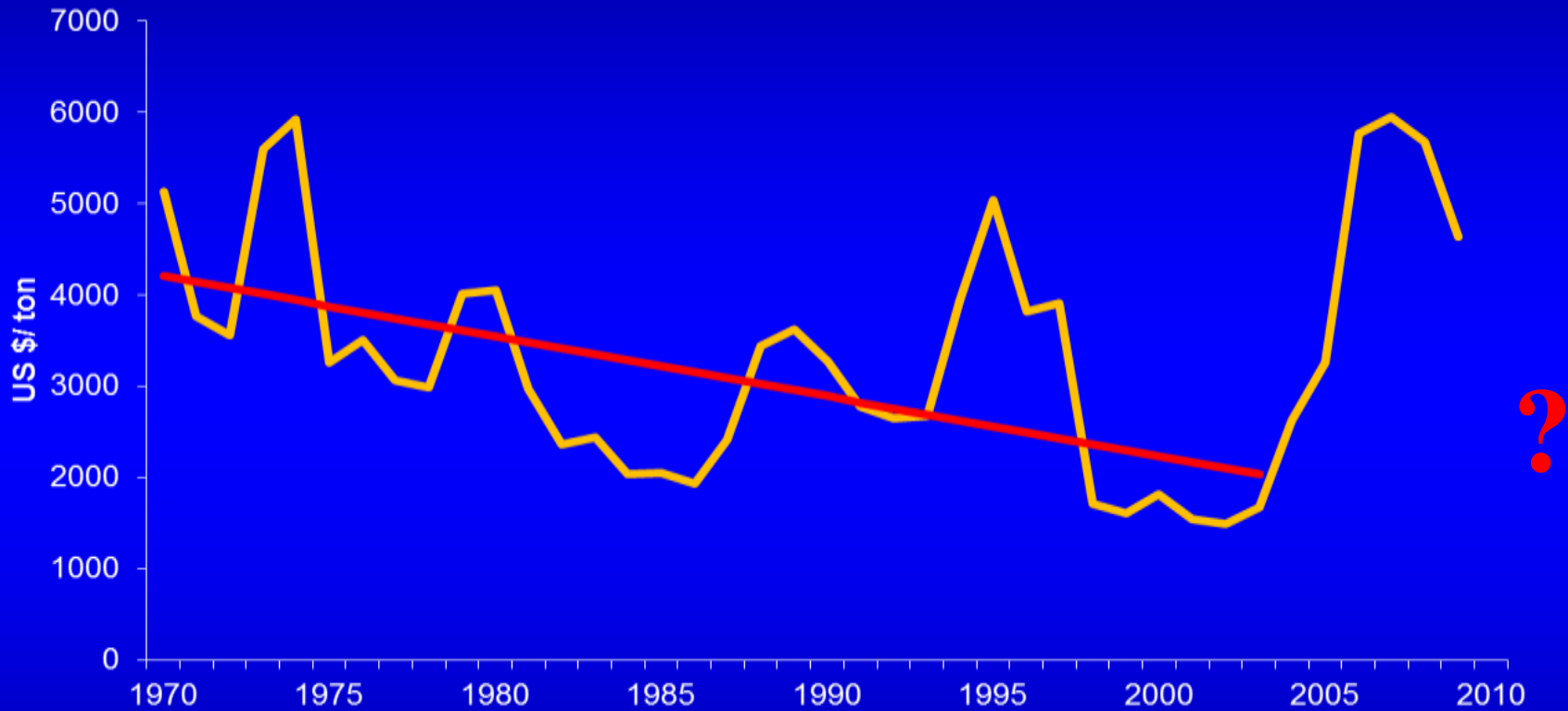
# Commodity Price Super-Cycle: Demand driven

World  
Bank  
Metals  
Price  
Index



After 10 years of higher prices since 2004, is this a sustainable price super-cycle? .

# Commodity Price Super-Cycle: Copper prices decline from 1970 until 2004, then rise



Source: World Bureau of Metal Statistics, J. Tilton

Are prices going to remain high, or will there be a return to the long-term price trend?

# Forecast Copper Prices: Peru (short term)

Table 3: Prices of Peruvian exports are expected to decline

	2012	Current	2013E	2014E	2015E	2016E	% chg 2016/2012
Gold	1670	1296	1478	1563	1650	1750	4.8%
Copper	7962	6818	7971	7500	7438	7163	-10.0%
Lead	2065	2023	2363	2750	2800	2609	-26.4%
Zinc	1856	1842	2158	2250	2500	2357	-27.0%
Oil	112	101	105	105	110	103	-8.0%
Composite (nominal)	1.000	0.862	0.977	0.993	1.030	1.011	1.1%
Composite (real)	1.000	0.851	0.963	0.963	0.982	0.948	-5.2%

Source: BofA Merrill Lynch Global Research, Bloomberg

# Supply, Demand & Price Summary

## The mining sector boom and bust cycle:

- demand expands quickly when a large developing economy urbanizes (China)
- supply can't keep up in the short term because of constraints (exploration lag, equipment shortages, time to construct mines)
- when demand is in excess of supply, prices rise in the short term
- as constraints ease, new supply becomes available, and excess capacity results when competing firms overbuild capacity
- prices moderate and decline (but may be higher than previous long-term price if costs have increased)

Will Chinese demand maintain demand in excess of supply?

## **Topic 2**

# **Prices Cycles and Fiscal Policy**

**( 2 key issues )**



# Price Cycles and Fiscal Policy

## Issue: Fiscal Reform?

When prices are high, governments commence fiscal reform

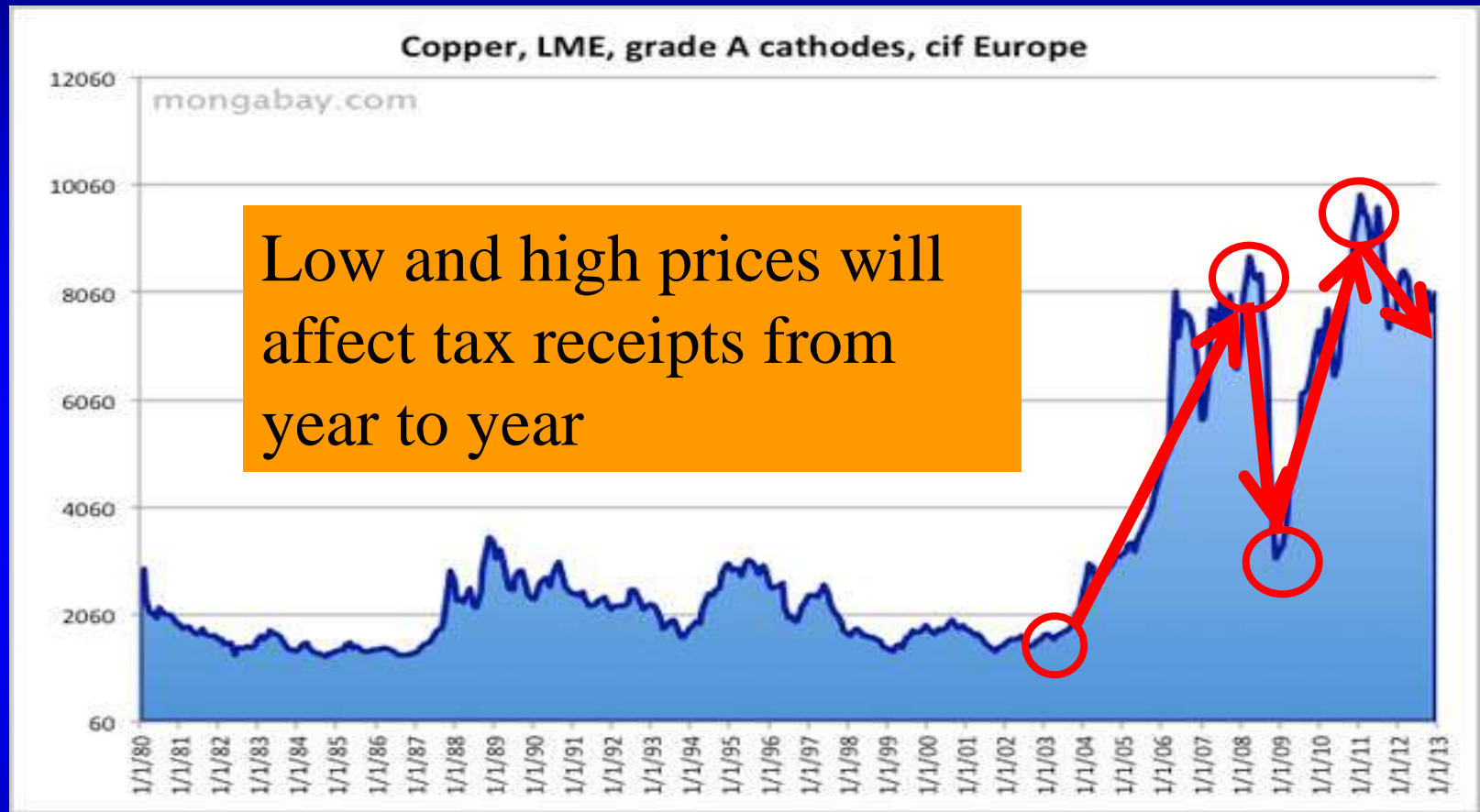
Two ways by which governments boost fiscal revenues:

- raise rates and/or introduce new taxes
- restrict tax minimization “loopholes” (which affect the basis of income and withholding taxes)

### **Peru :**

- recently introduced a new type of mining tax
- will tightening tax minimizing loopholes be next?

# Price Cycles and Fiscal Policy: Issue: Macroeconomic stability challenge?

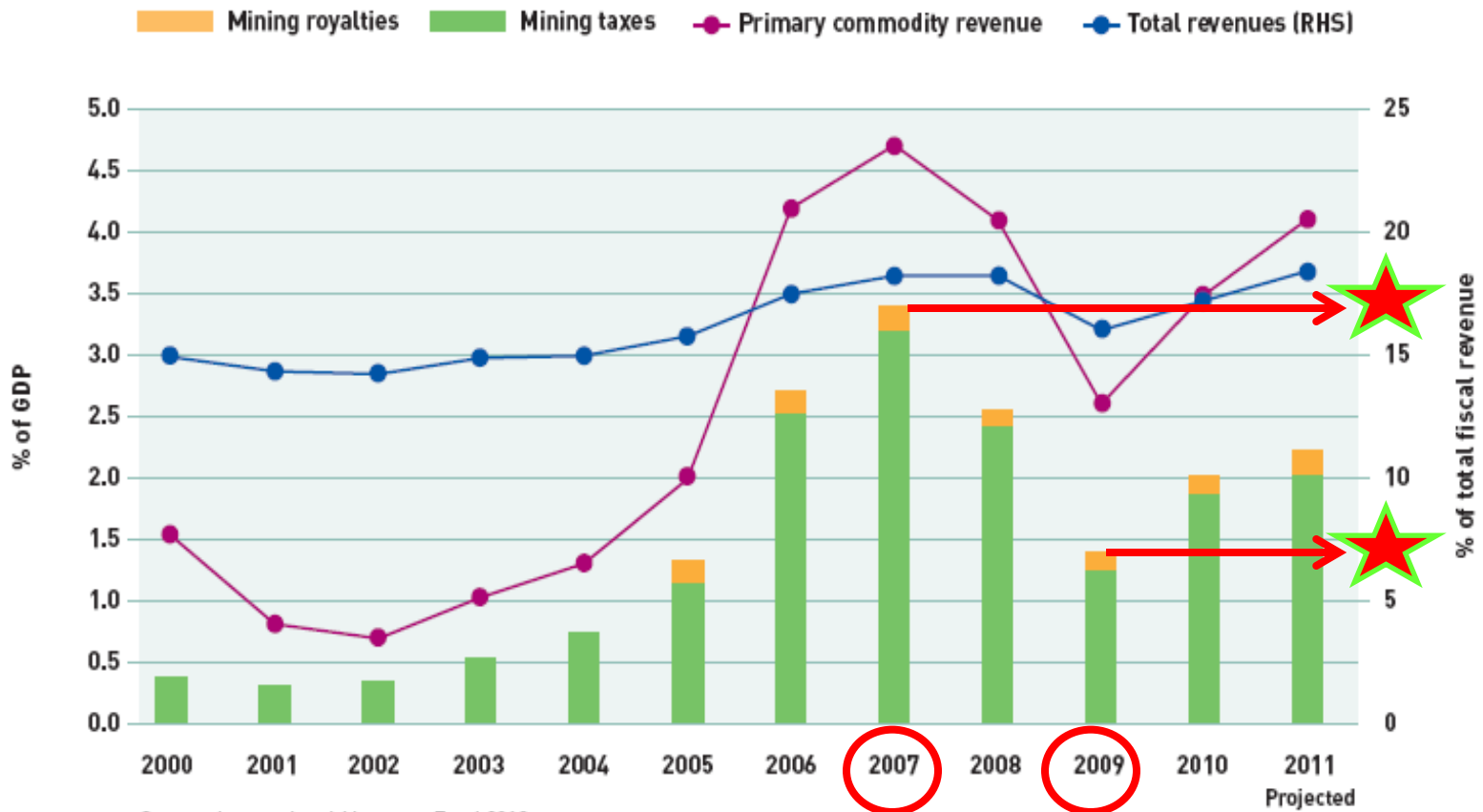


Peru: new mining tax captures more tax when prices are high but poses macroeconomic stability challenges

How much will government plan on spending from year to year?

# Price Cycles and Fiscal Policy: Macroeconomic Stability Challenge in Peru

Figure 3: Mining's contribution to fiscal revenue in Peru



Source: International Monetary Fund 2012.

Reported by ICMM

Peru: mining taxes fluctuate and pose a budget challenge

# **Topic 4**

## **Economic Diversification**

**( 2 key issues )**

# Economic Diversification:

## Issue: Who should pay for infrastructure?

*Policy choices:*

- state-funded infrastructure:
  - use a mine to jump start infrastructure development by committing public funds to its construction
  - infrastructure sized for regional/local development, not just mine use

or

- company-funded infrastructure:
  - minimizes the demands made on the state's tax payers
  - infrastructure sized for mine purposes only

# **Economic Diversification:**

## **Issue: How to spend tax revenues?**

*Policy choices:*

- immediate expenditure of tax revenues on expanded government services & subsidies

Or

- invest in the “means of production” by which to encourage an expanded and diversified economy?
  - human capital (education)
  - infrastructure (ports, roads, rail, electricity)
  - promotion of competitive advantage sectors (tourism, manufacturing, agriculture)

Peru spending challenge: services or “means of production”

## **Topic 5**

# **Obtaining and Maintaining the Social License to Operate**

# Global Perspective: Social License to Operate

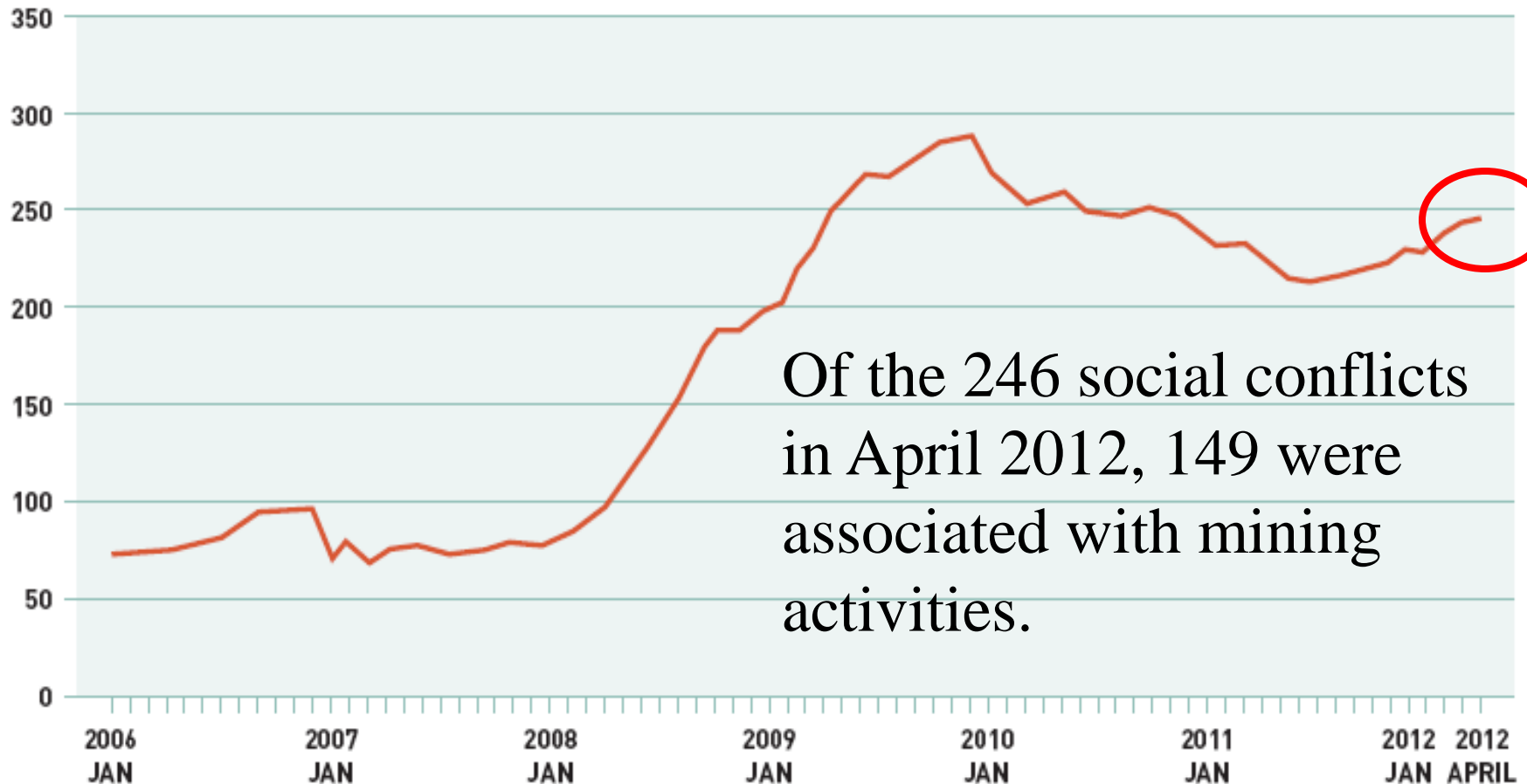
**Proposed projects have been delayed/stopped by community actions worldwide:**

- Mining kills limes (Peru)
- Mining kills grapes (Argentina)
- Mining causes cancer (Guatemala)
- Mining kills tourism (USA, Thailand)
- Mining destroys the local culture ...
- Mining leads to AIDS ...
- Mining kills fish (Europe, USA)
- Mining does not benefit the nation (Romania)
- Mining should provide more benefits (Ecuador)
- Mining destroys glaciers and watersheds (Chile)
- ...



# Peru: Social License to Operate

Figure 20: Number of social conflicts in Peru between January 2006 and April 2012



Source: Defensoría del Pueblo.

See also [www.conflictosmineros.net/contenidos/3-latinoamerica/11471-presentacion-nueva-base-de-datos-conflictos-mineros-ocmalolca](http://www.conflictosmineros.net/contenidos/3-latinoamerica/11471-presentacion-nueva-base-de-datos-conflictos-mineros-ocmalolca)

# Global Perspective: Social License to Operate

Lessons learned in other mining countries:

- fiscal distribution is one part of meeting local expectations
- tangible, visible and real development is also important
- intergenerational equity is important to maintain social acceptance for long life mines – the social license may be cancelled at any time!
- prior-informed consent is becoming a “basic human right”?

Problems will arise where government tries to buy the social license through fiscal disbursements that do not meet the broader expectations and concerns of the local populous

## Topic 6

### Achieving Sustainable Development

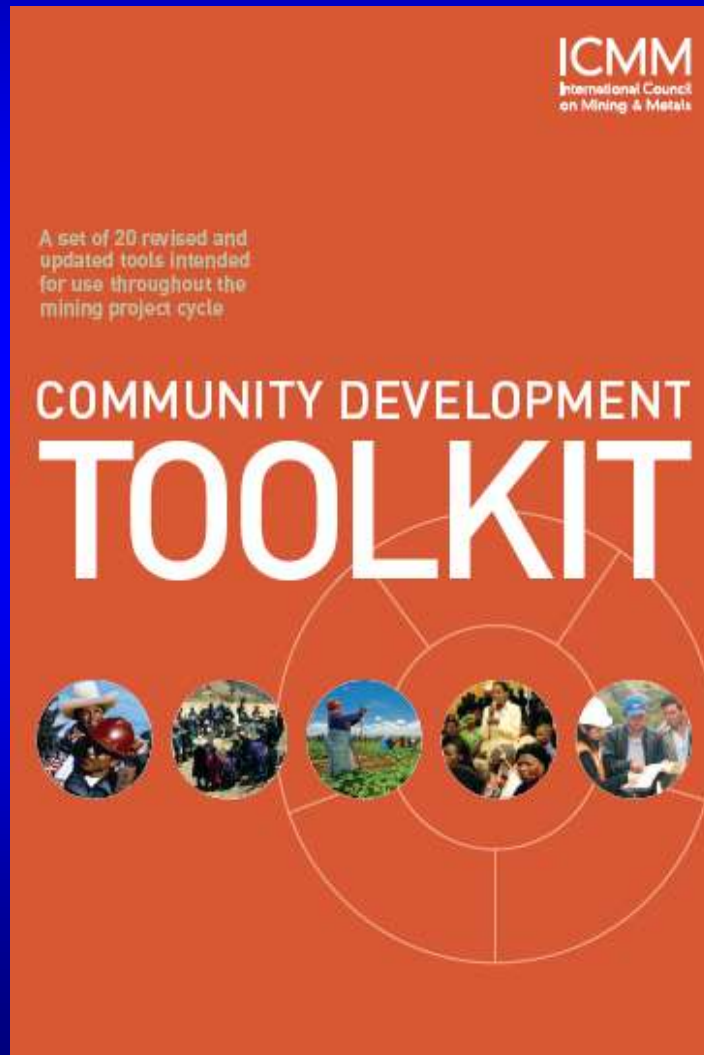
*"Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs."*

# Sustainable Development: Who's responsible?



Building or upgrading of schools  
**Question:** Is the State or the private sector responsible?

# Social License to Operate: If industry has a role, should it be voluntary?



Voluntary guidelines

# Sustainable Development: Should government require industry to assist?

Increasingly government's require by law:

- Social mapping
- Consultation process
- Ongoing engagement plan
- Legally binding Community Development Agreements

World Bank model community development agreement regulations can be modified by lawmakers to fit their unique needs

# Topics Covered

- Global Demand, Supply and Prices (including China)
- Prices Cycles and Fiscal Policy
- Economic diversification
- Obtaining and maintaining the social license to operate a mine
- Achieving sustainable development

# Parting Thought

Worldwide, government mineral sector expectations are shifting and new legislation has emerged or is now being drafted in many nations:

The intent is to increase lasting benefits to society and government

Peru has been highly successful in attracting mining investment, competing globally and obtaining a “fair share” through taxes. How can it continue to do so while better meeting the expectations of its society?

The next challenge? Obtaining and maintaining the social license to operate



# **Mineral Sector Opportunities and Challenges: A Global and Peruvian Perspective**

**Thank You !**

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