



Pressure building in the tin market?

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PREPARED FOR: SHFE Conference



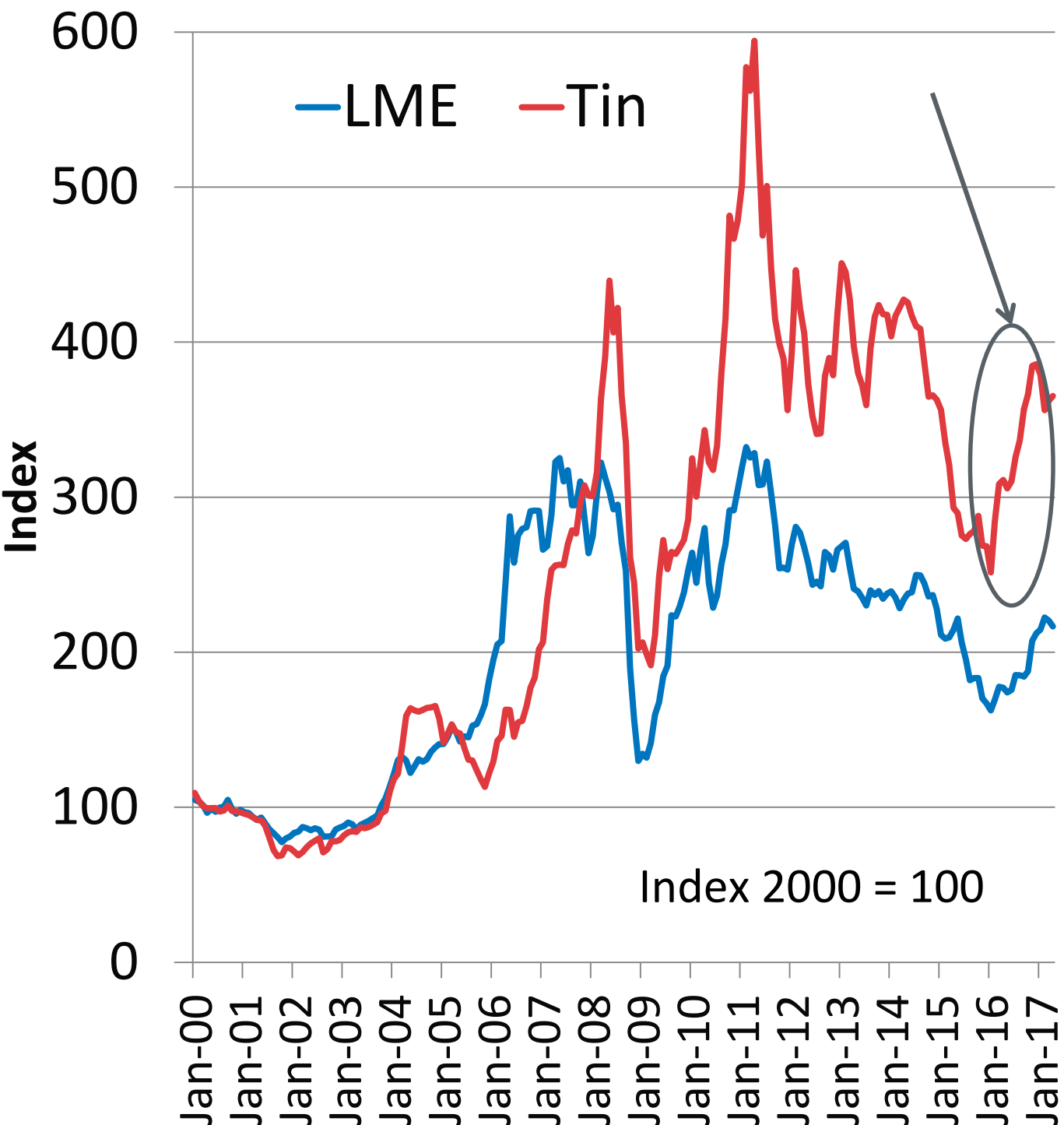
Presentation overview

- ❑ **2016 in review**
- ❑ Recent market trends
- ❑ The outlook for supply and demand
- ❑ Summary

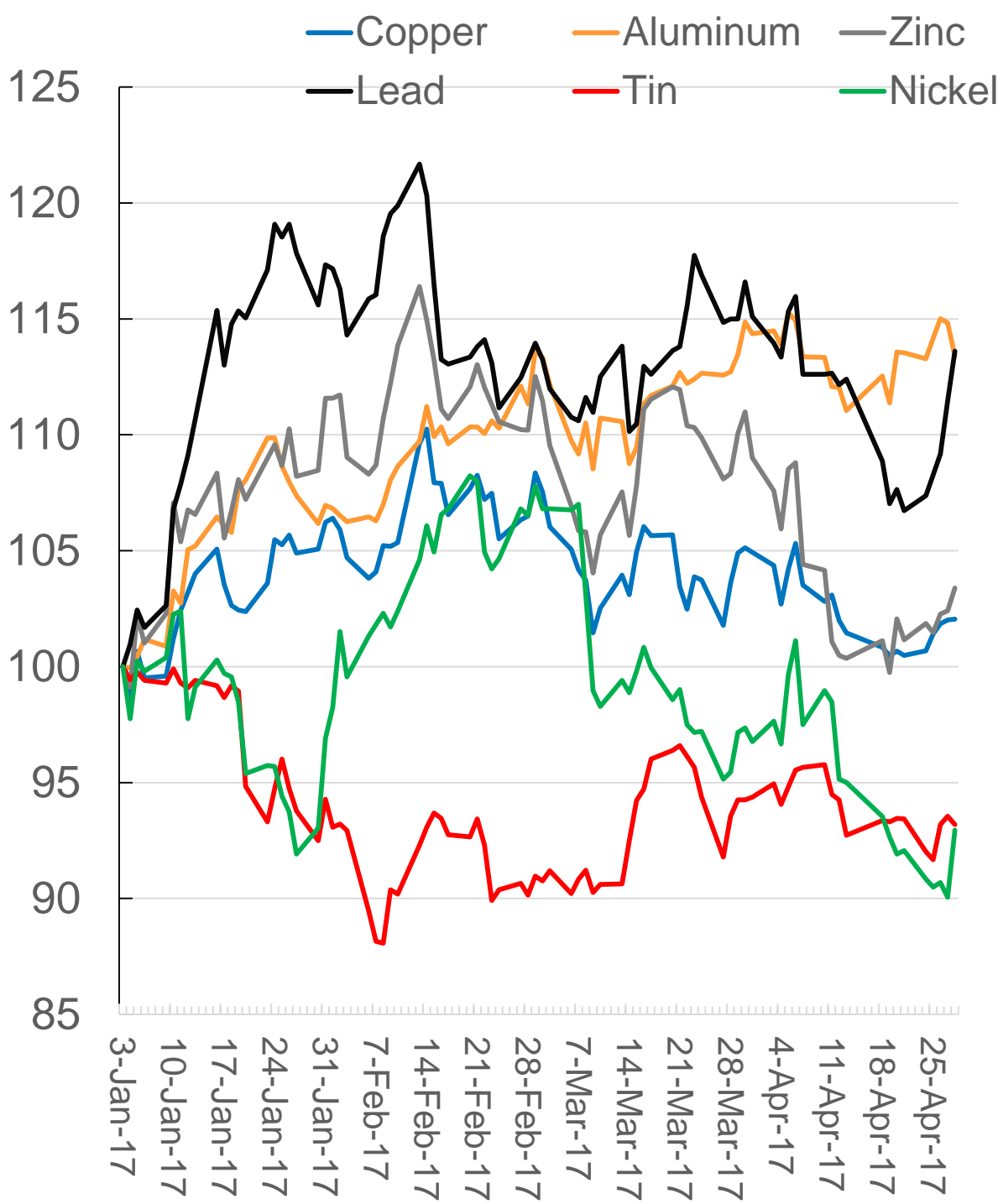
2016

Tin price versus other LME metals

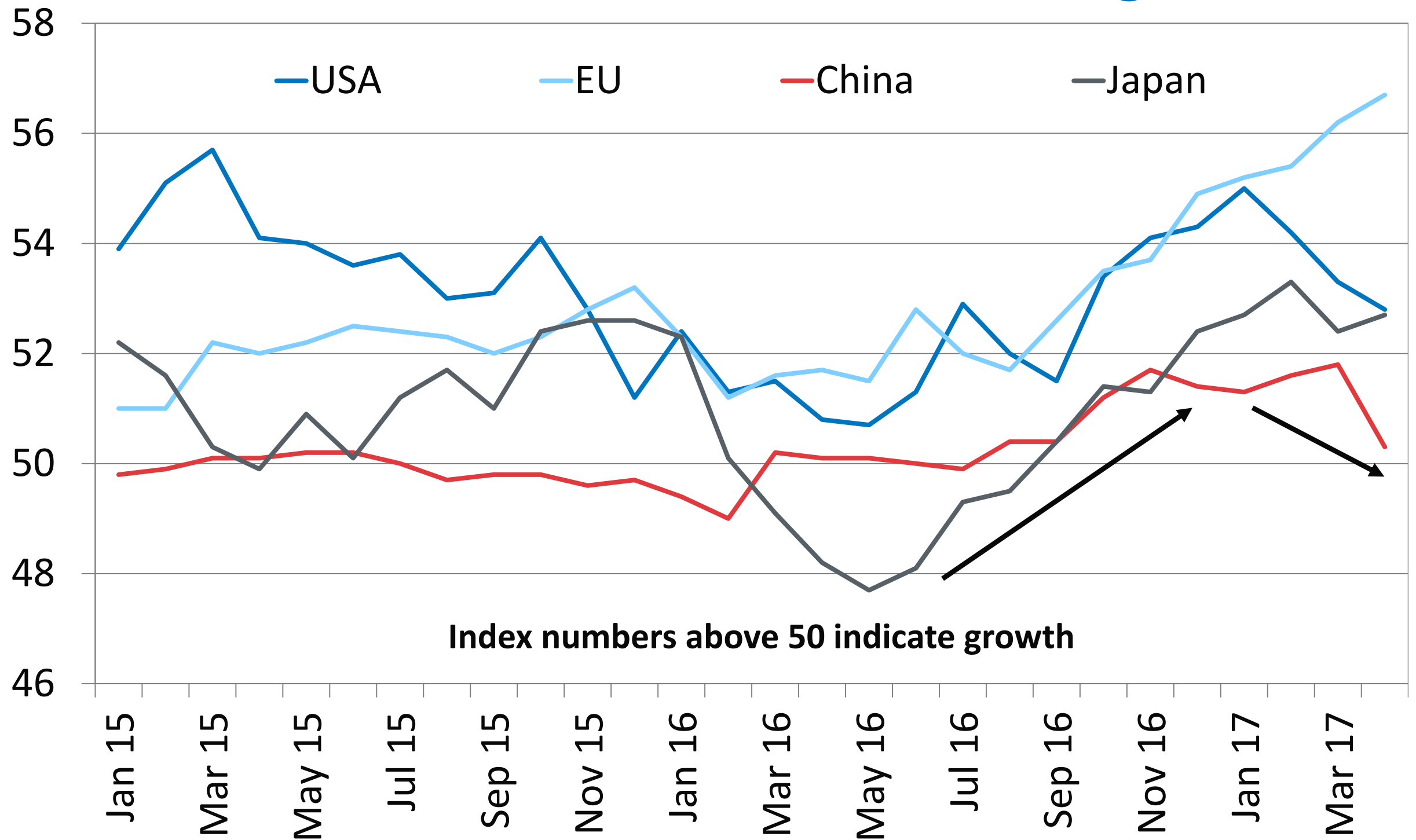
LME and Tin price index



LME base metals price index in 2017



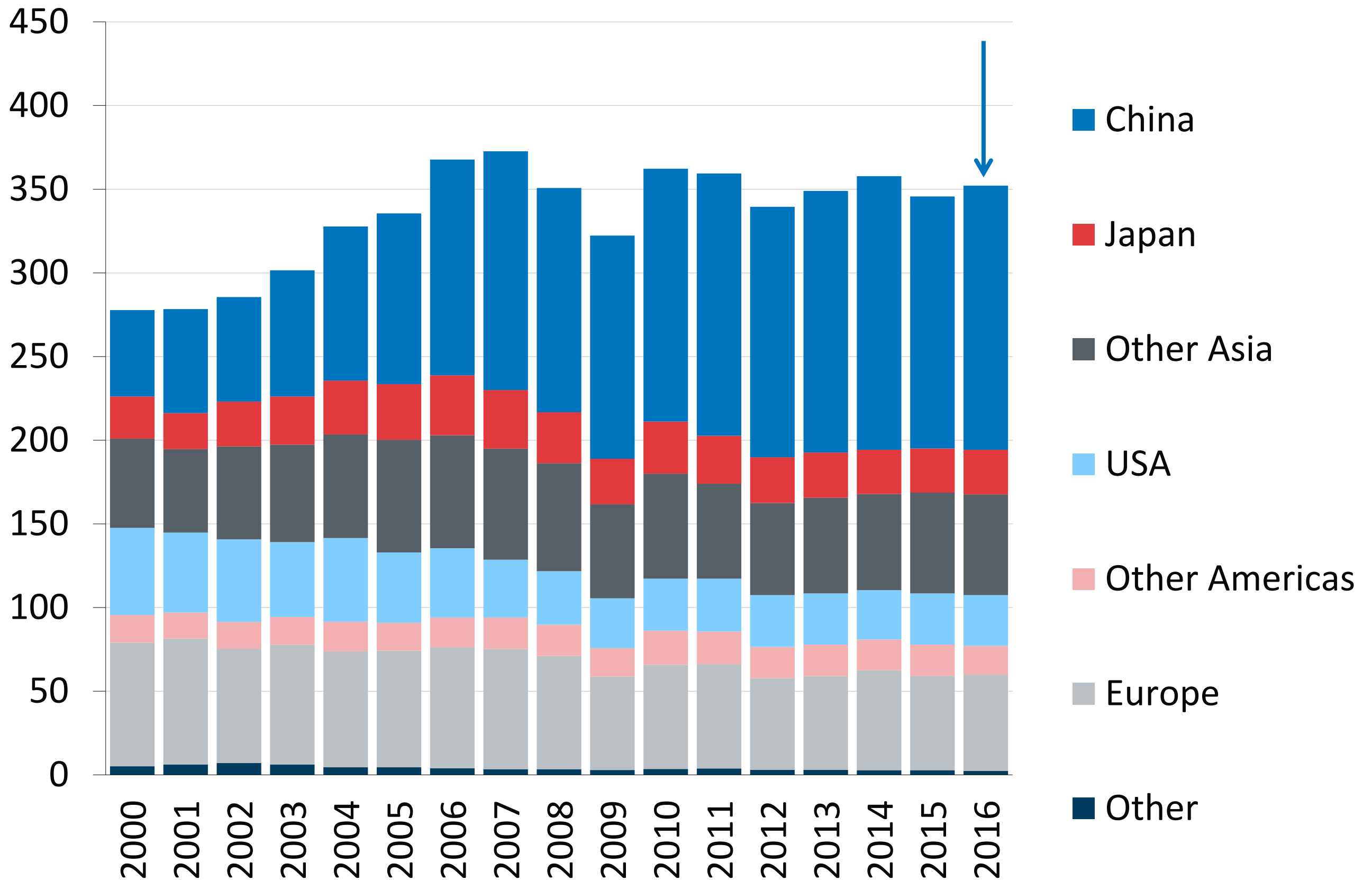
Manufacturing PMI Index



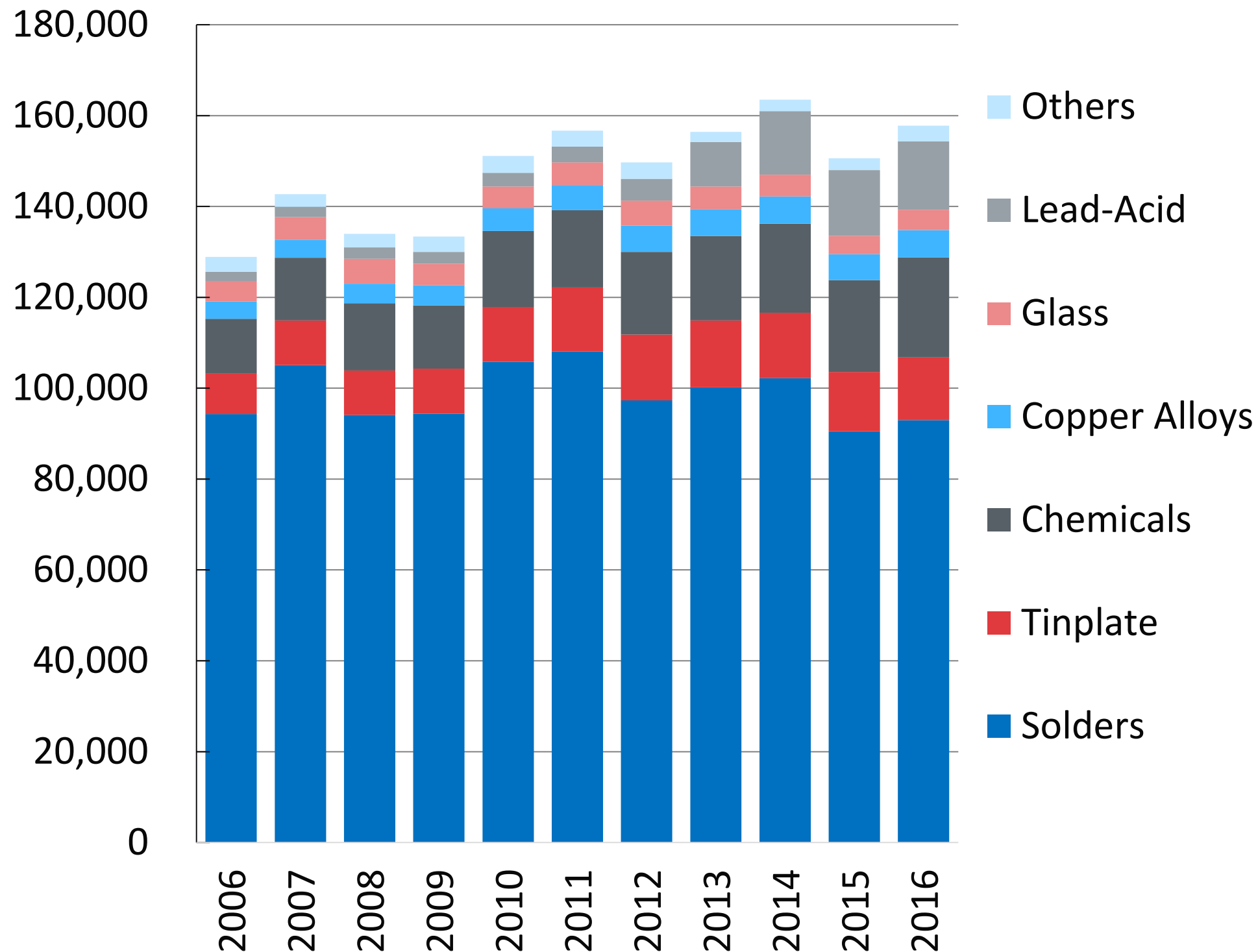
Positive growth in 2016, now slowing

World refined tin consumption 2000 – 2016e

'000 tonnes



Tonnes refined tin use

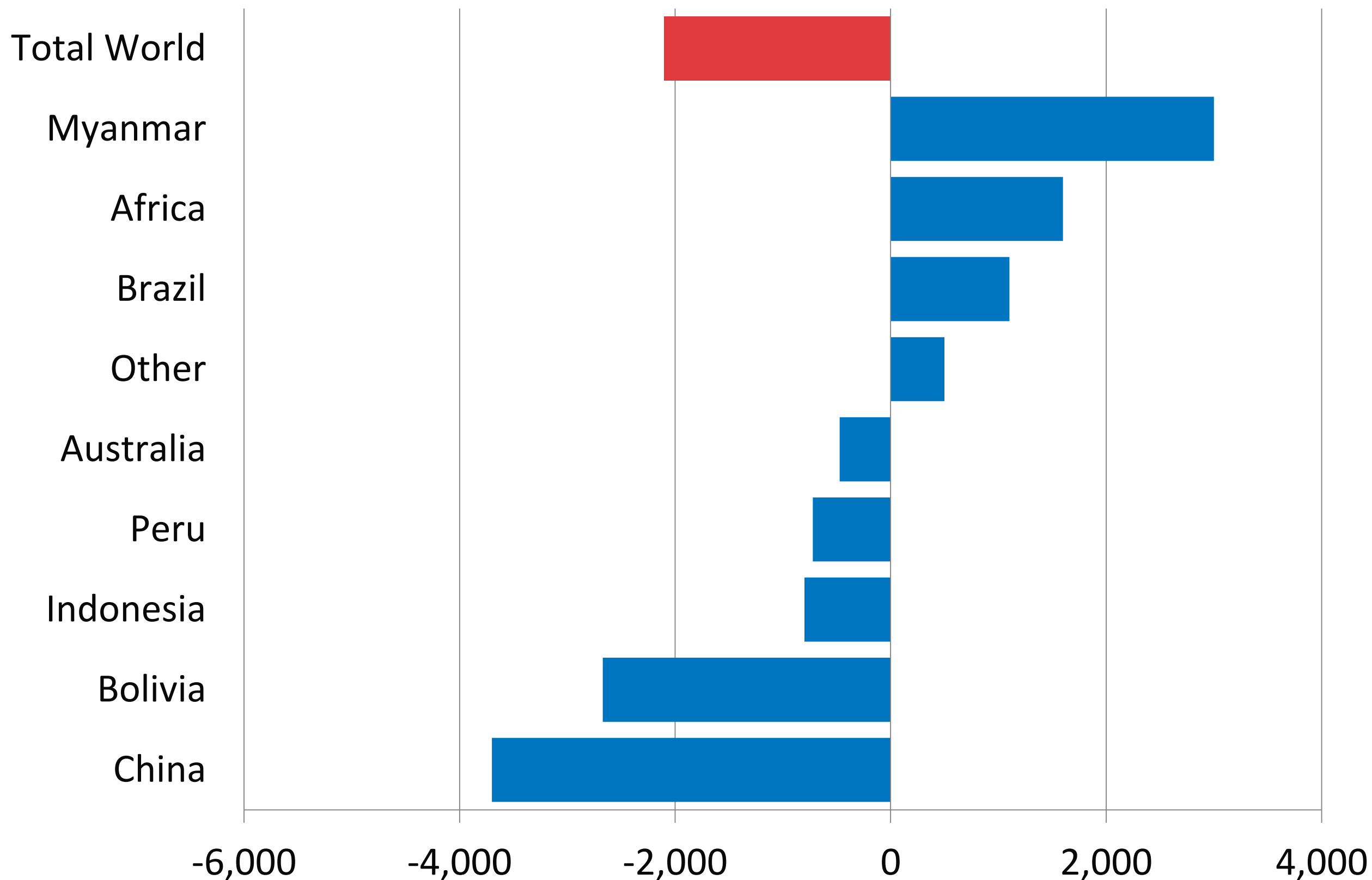


- Solder use in minor applications (photovoltaic cell, LED) has increased, offsetting the impacts of miniaturization
- Tin chemical use had a big growth with strong demand in US, South Asia and China

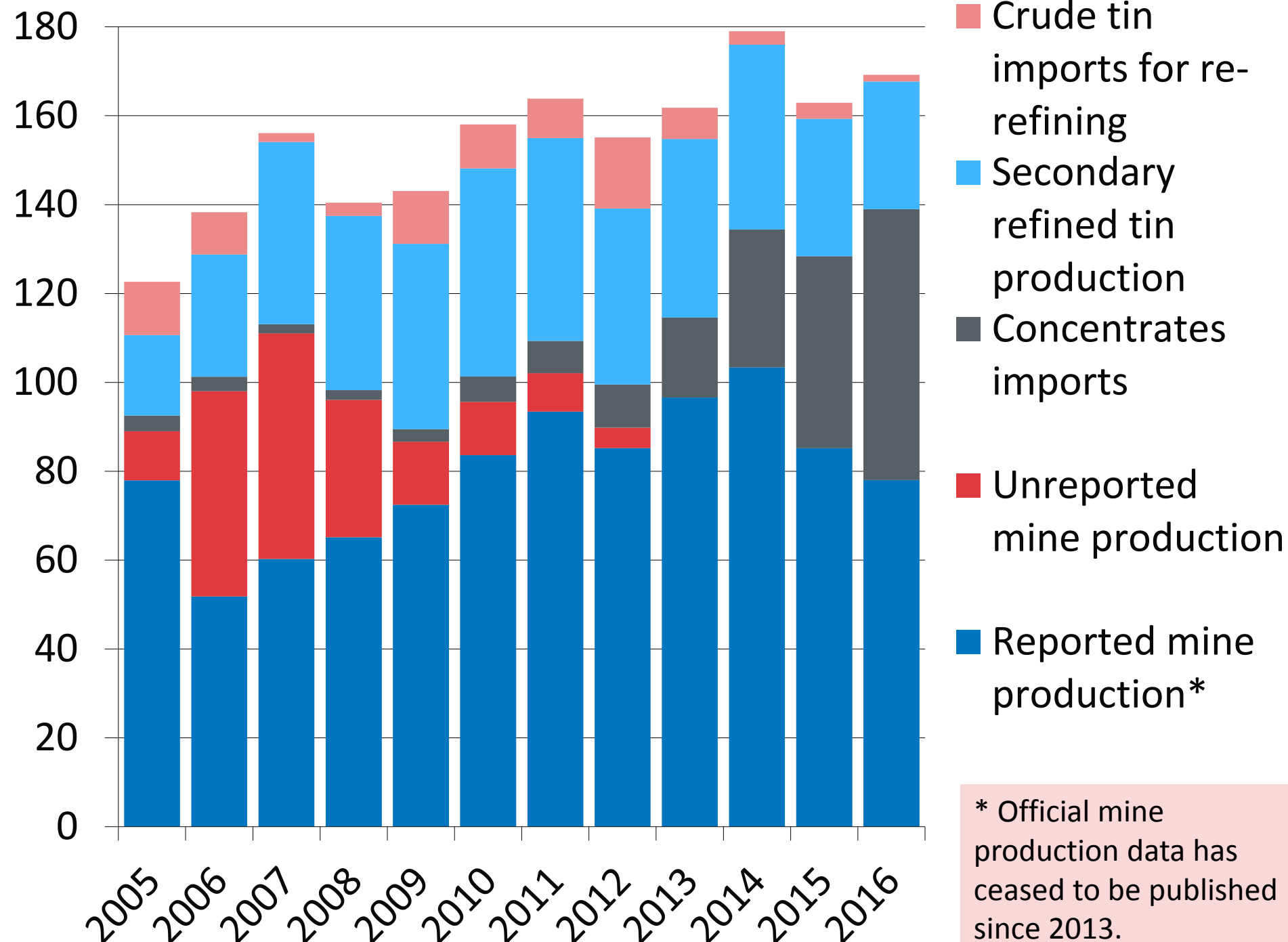
China consumption increasing slowly

Changes in 2016 tin mine production

tonnes



Sources of China tin raw materials, '000t



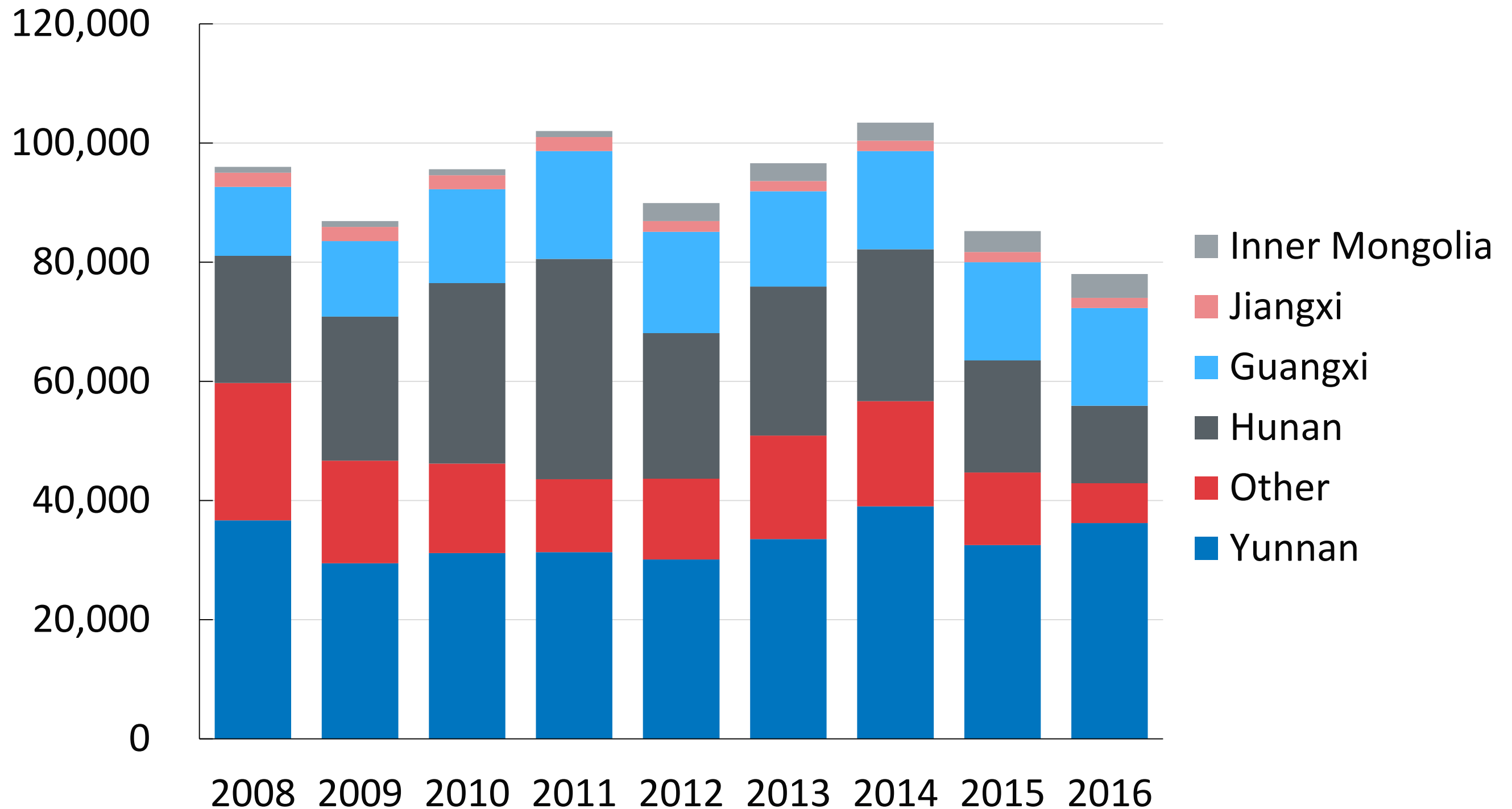
Data: ITRI, CRU, CNIA

Supply increase was wholly from imported concentrate

- China imported around 61,000t tin concentrate and ore in 2016
- Mine production and secondary refined tin in China reduced in 2016
- Refined tin production in China was also impacted by environmental control

China mine production by province

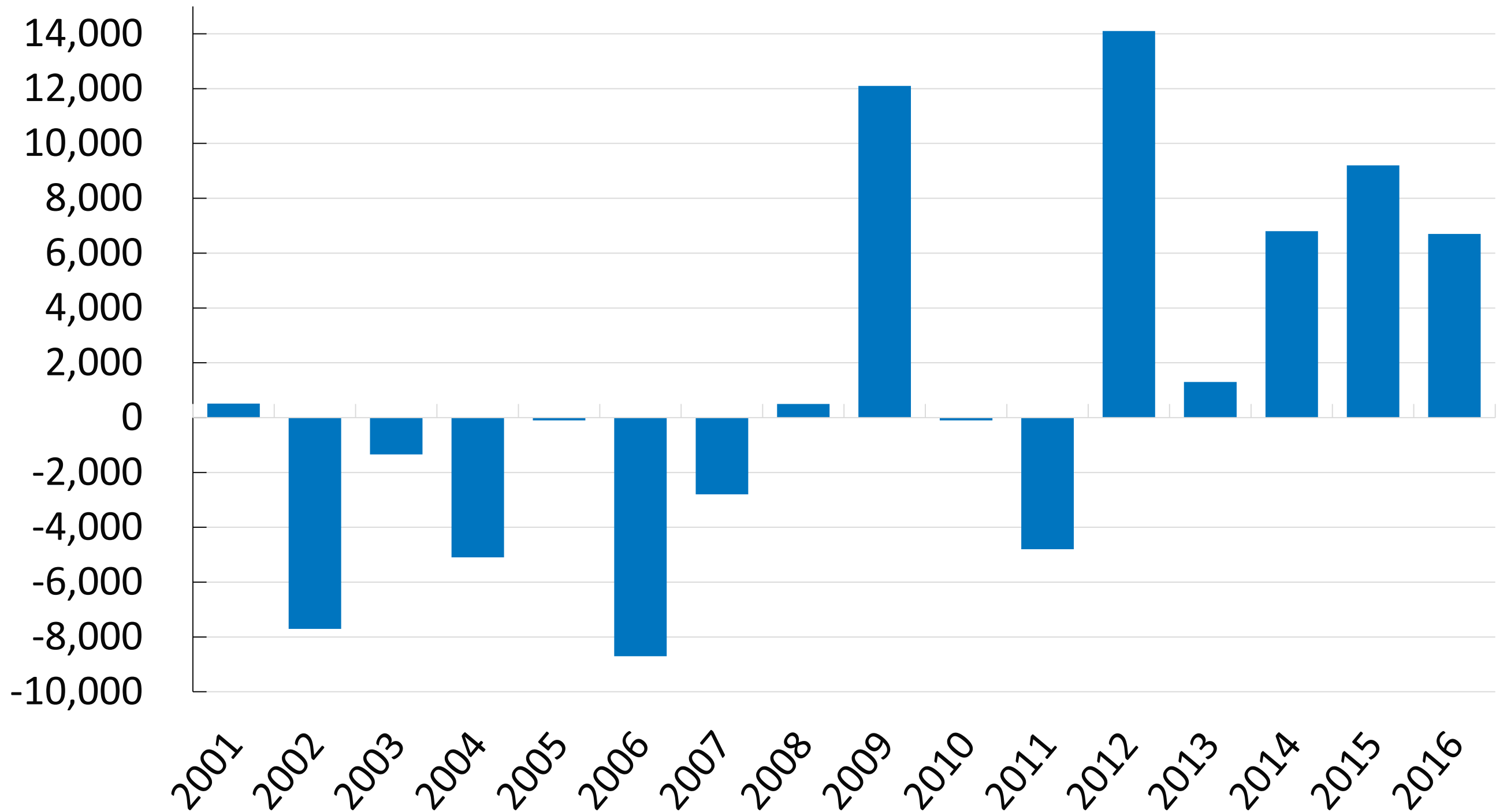
Tonnes of tin-in-concentrate



Mine production decreased significantly

China market balance

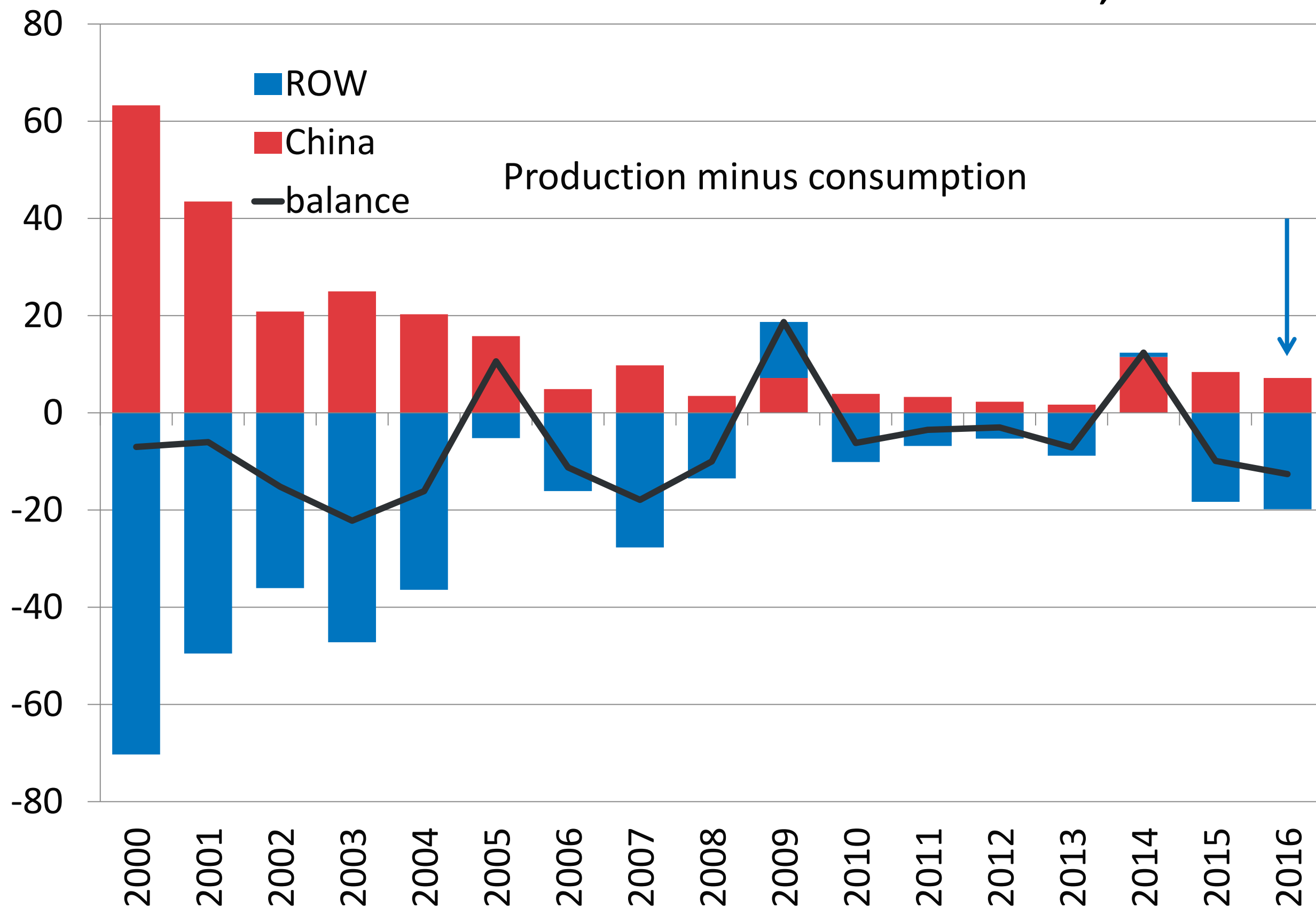
tonnes



China refined tin stock relatively high

China vs rest of world apparent market balance

Refined tin, '000 tonnes



Recent market trends

- ☒ 2016 in review
- ☐ **Recent market trends**
- ☐ The outlook for supply and demand
- ☐ Summary

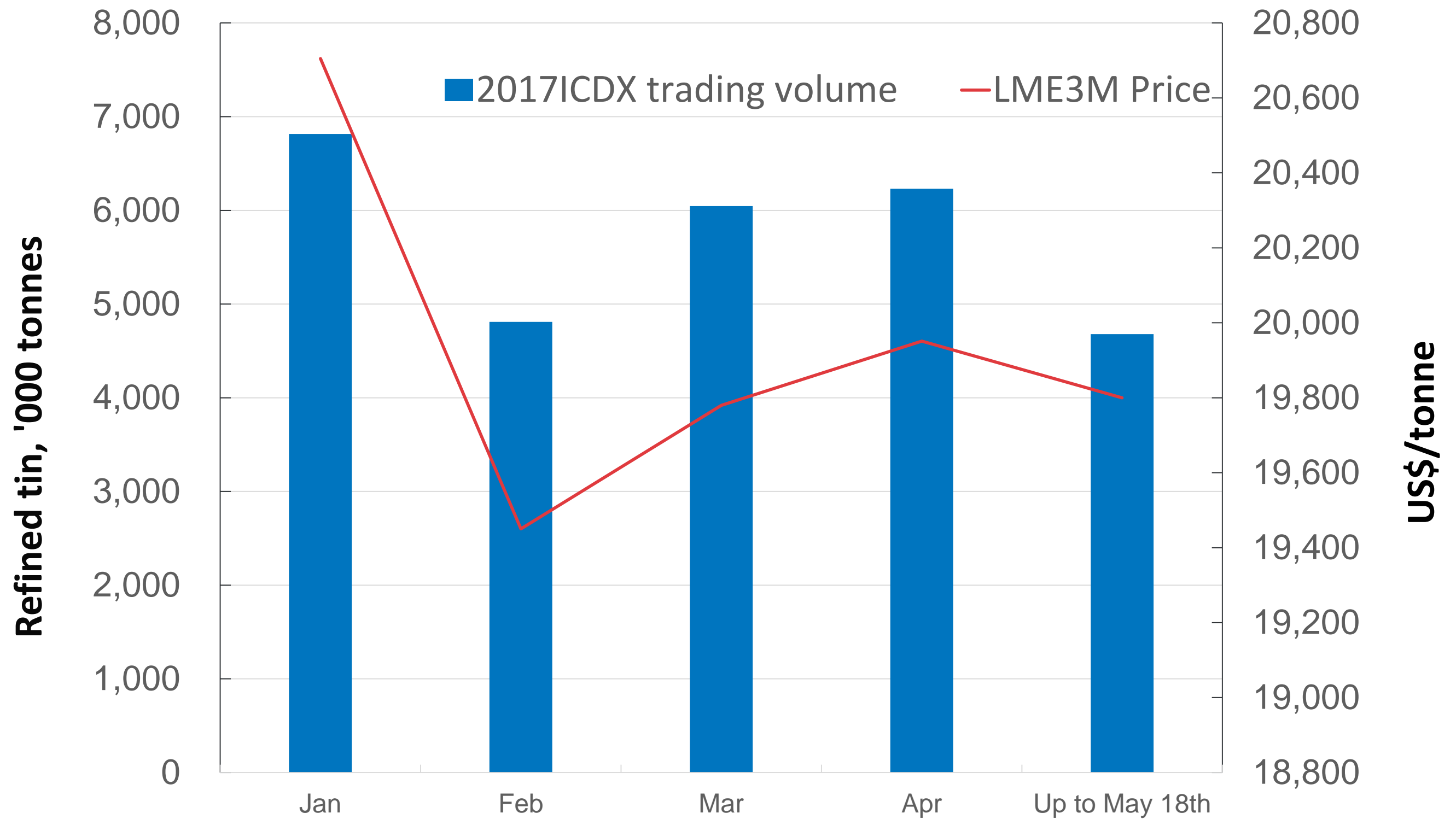


12-month rolling Indonesian refined tin exports

Refined tin, tonnes



Data: Indonesian surveyor data (tonnage checked prior to export)



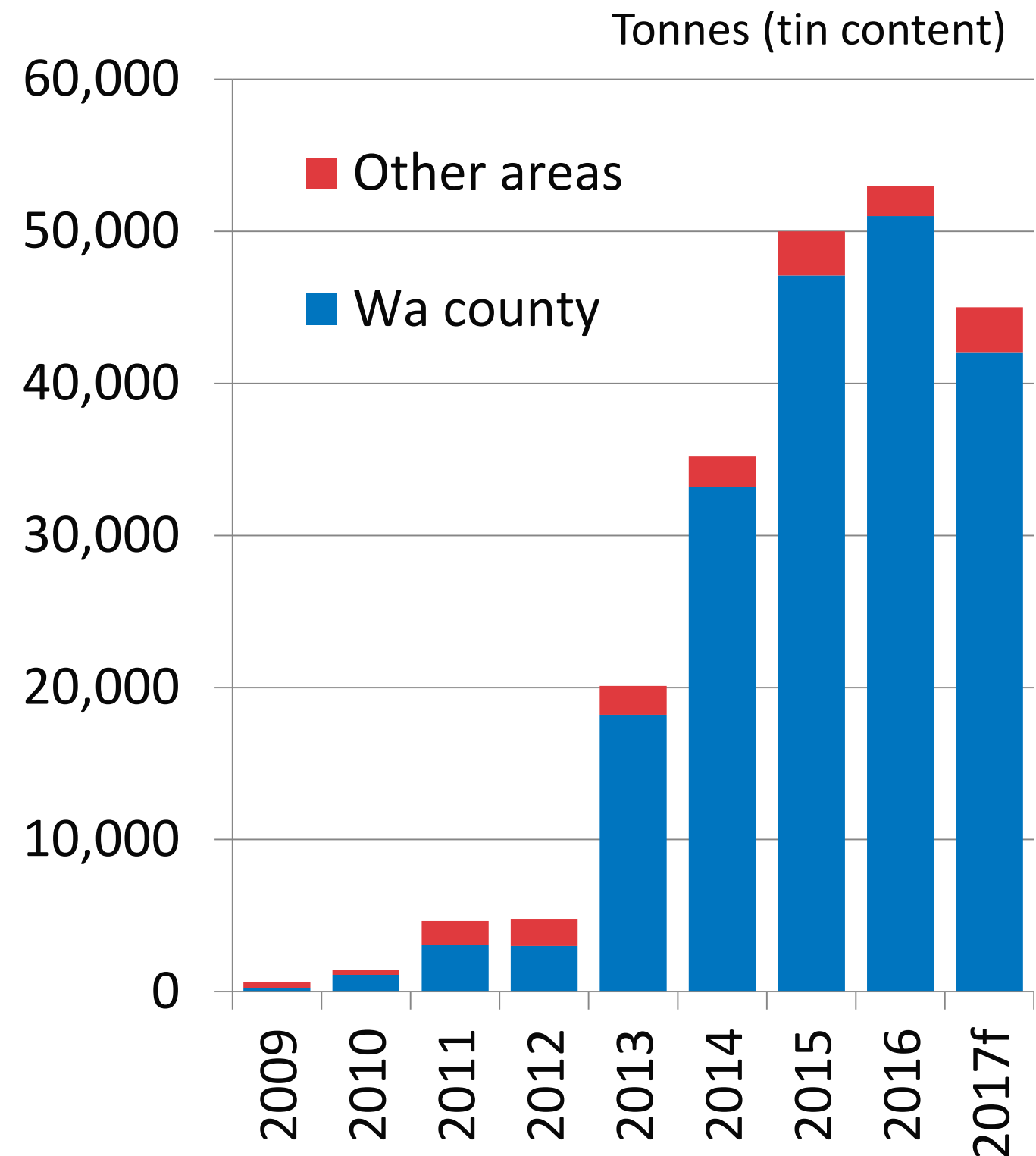
**Indonesian export price
relationship**

Myanmar Tin Production Areas

Tin mine locations in Myanmar



Source: ITRI, UNODCCP

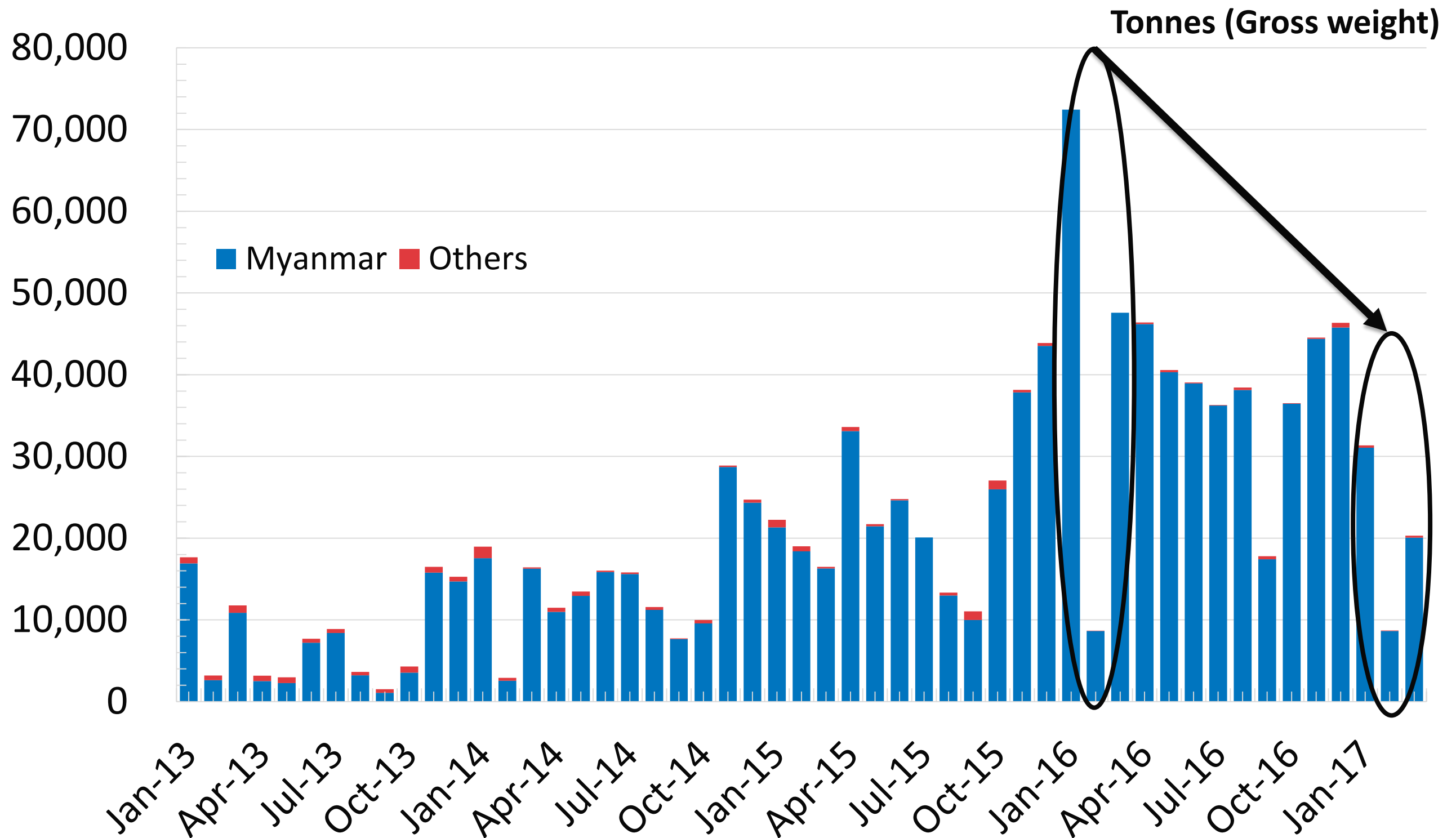




- Processing facility and technology is improving, little ore is exported
- Concentrate grades are 20%+
- Ore stock in mining sites is decreasing
- Local mining is more complicated and difficult, needs more investment
- Ore and concentrate production is estimated to decline in 2017
- Resource prospect is still unknown

Wa county tin production

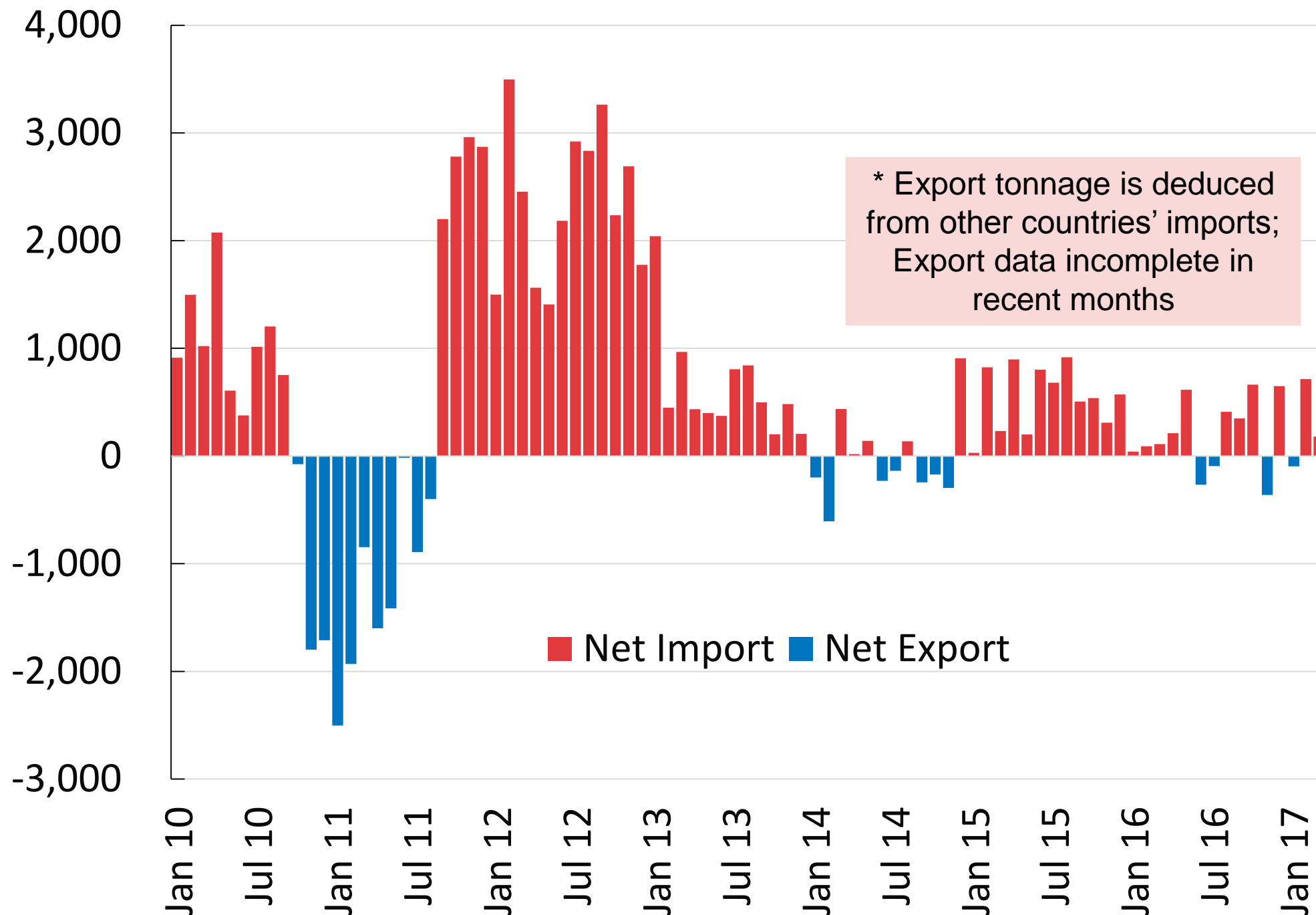
China concentrate and ore imports



**Concentrate and ore from Myanmar
are declining**

China refined tin imports and exports

tonnes

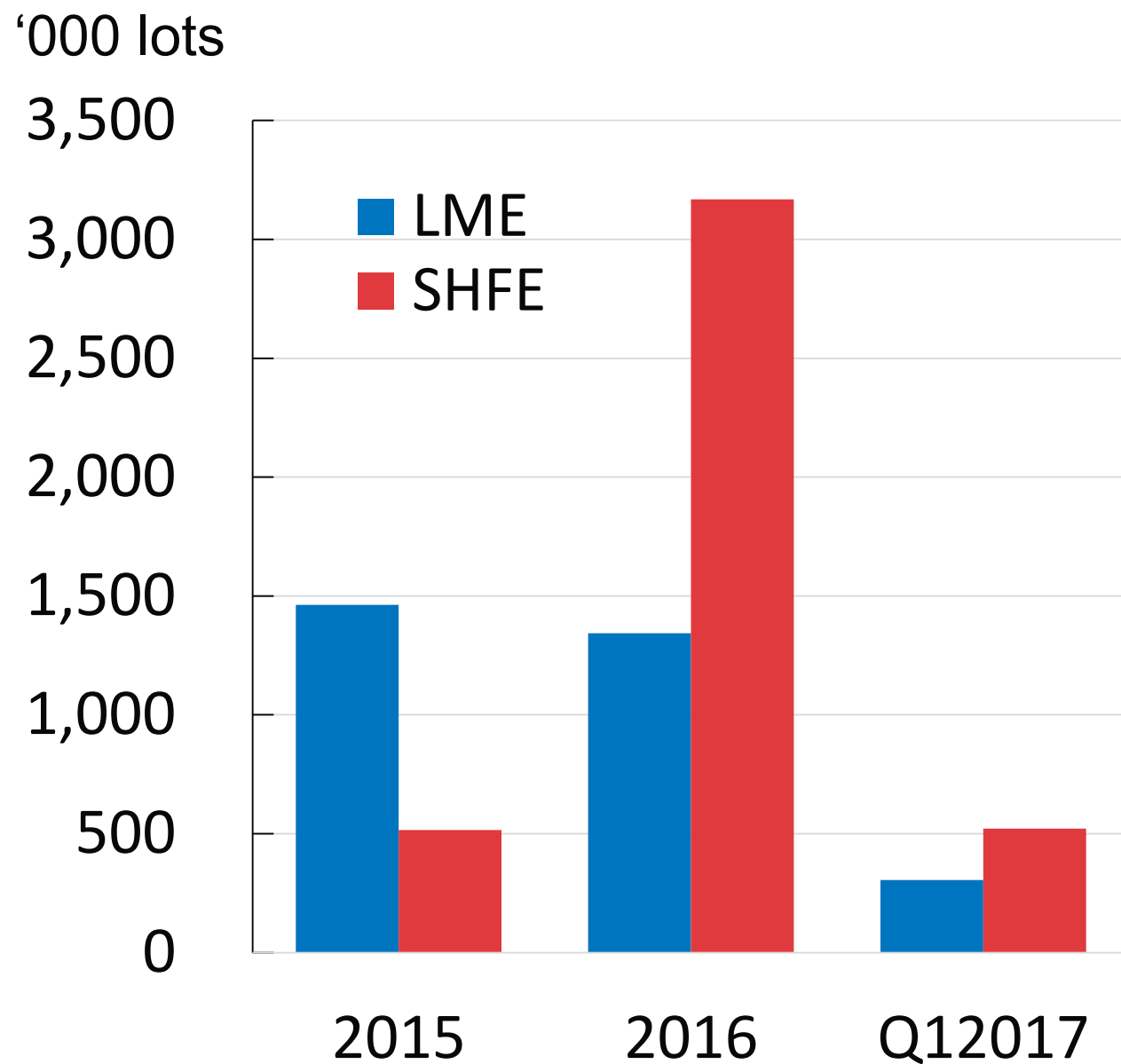


* Export tonnage is deducted from other countries' imports; Export data incomplete in recent months

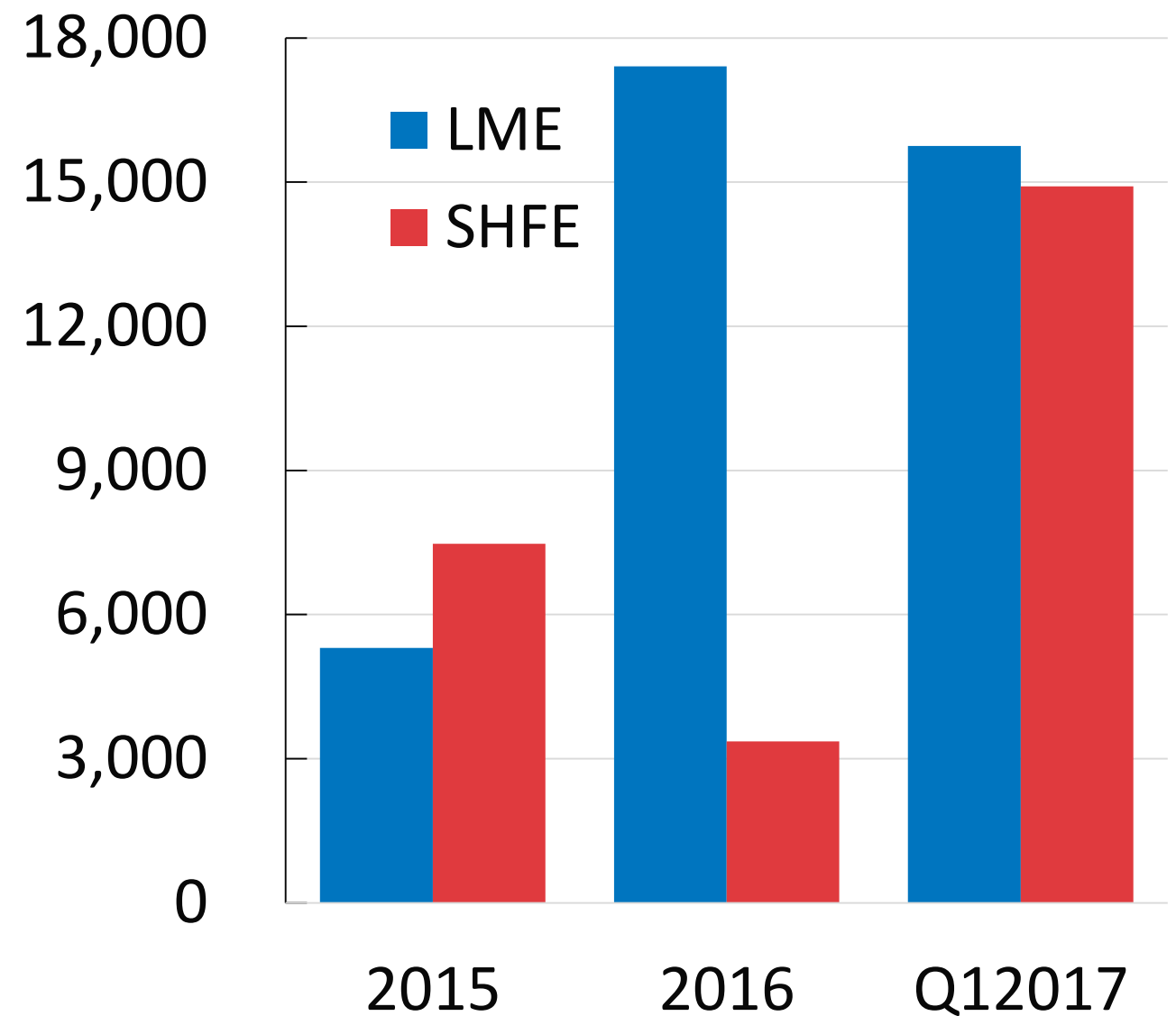
- China cancelled export duty for refined tin from 2017
- Permission for concentrate processing trade is coming

China will become a net exporter again?

Trading volume



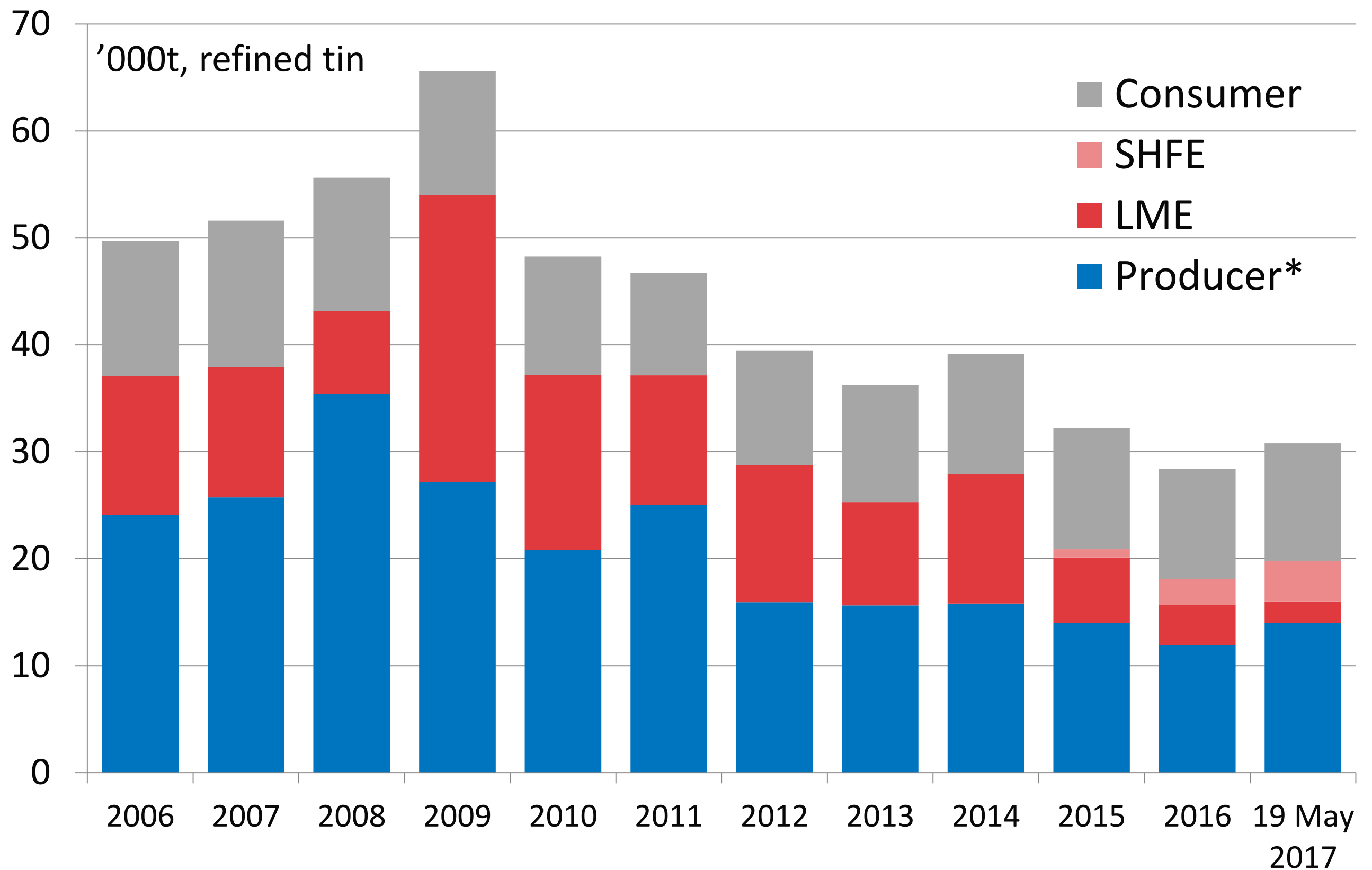
Daily open interest



Data: SHFE, Reuters

SHFE tin trading is more active





Reported refined tin stock

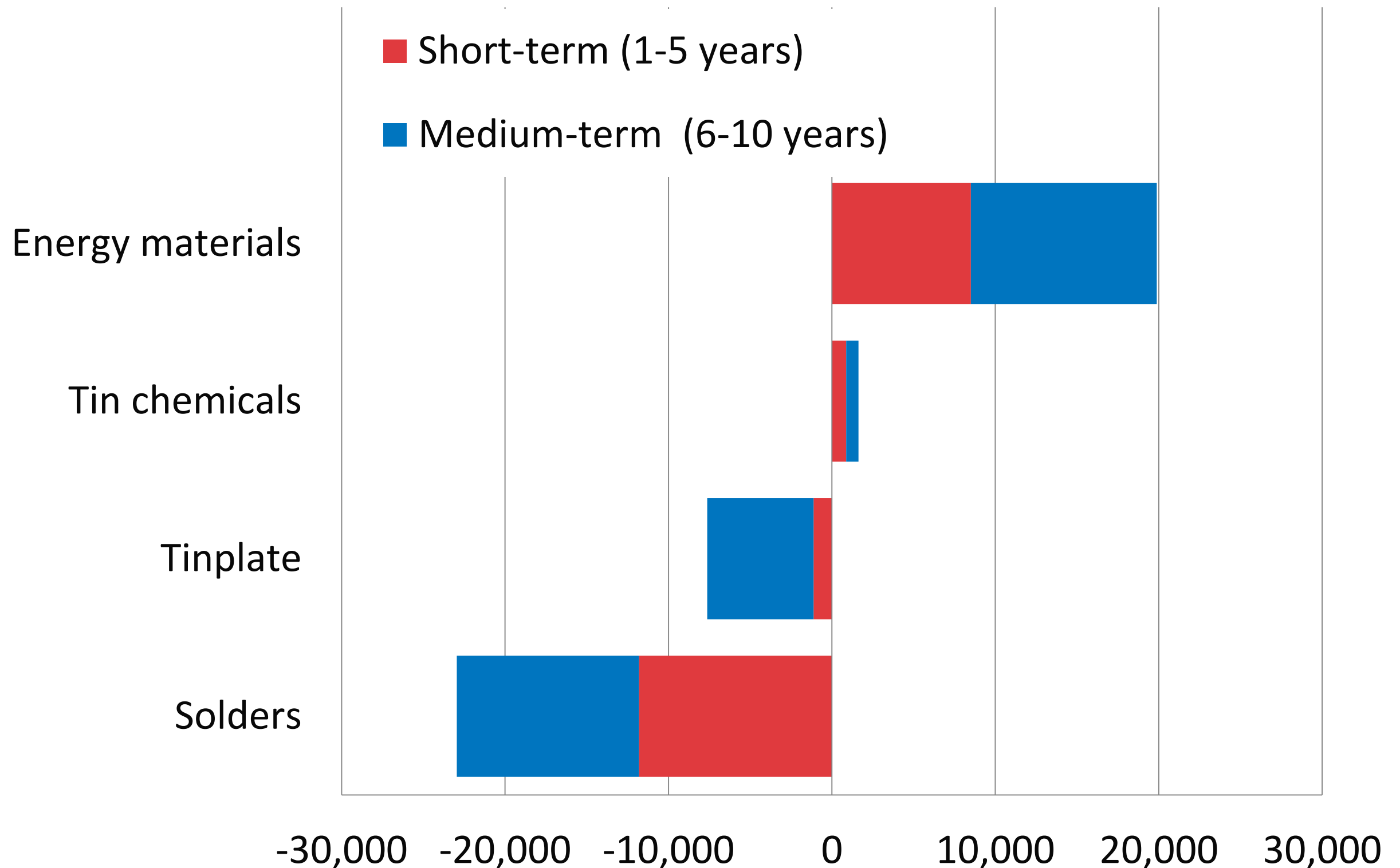
The outlook for supply and demand

- ☒ 2016 in review
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- ☐ **The outlook for supply and demand**
- ☐ Summary



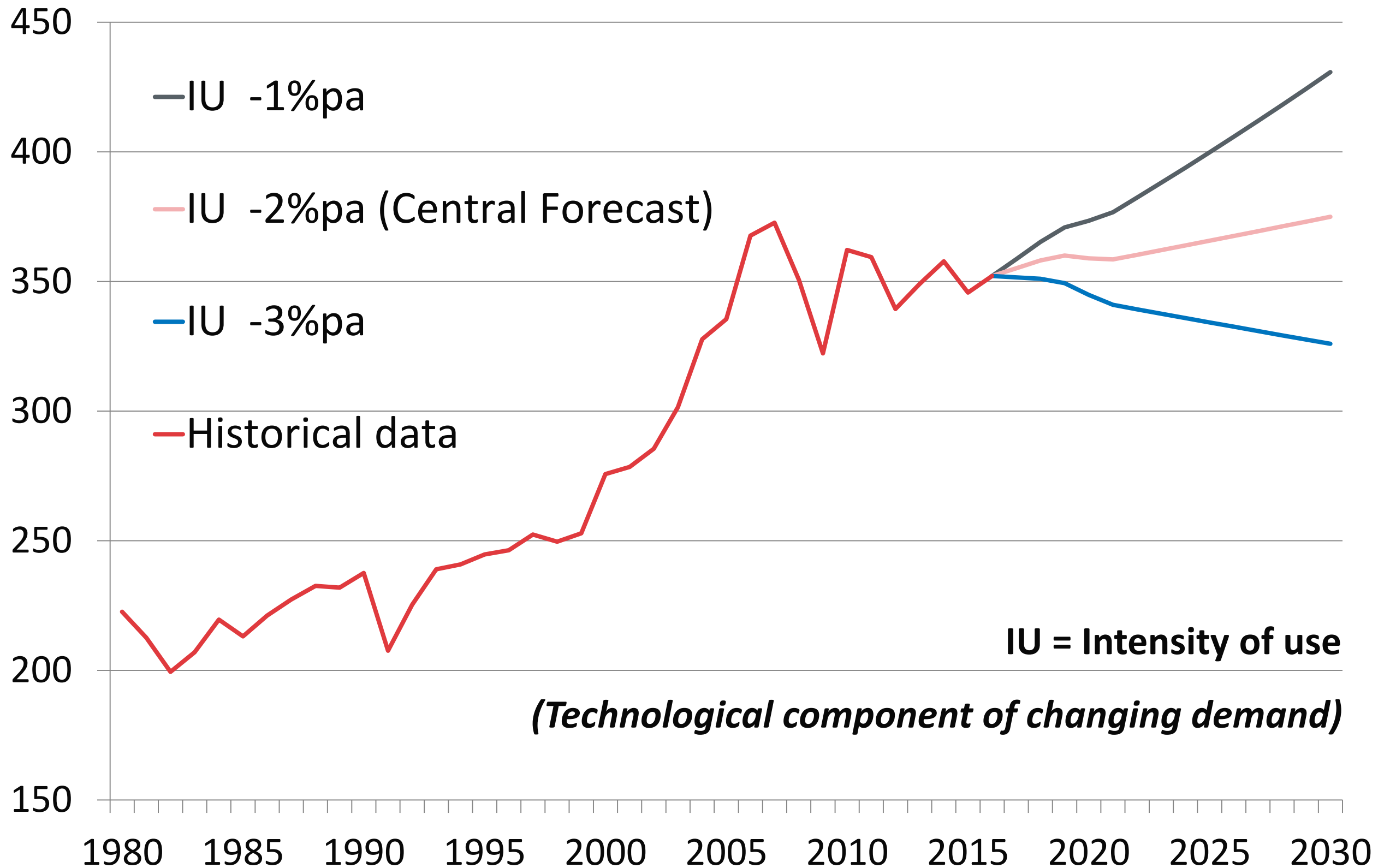
Technology risks over time

Potential net changes in annual tin consumption by sector, tonnes



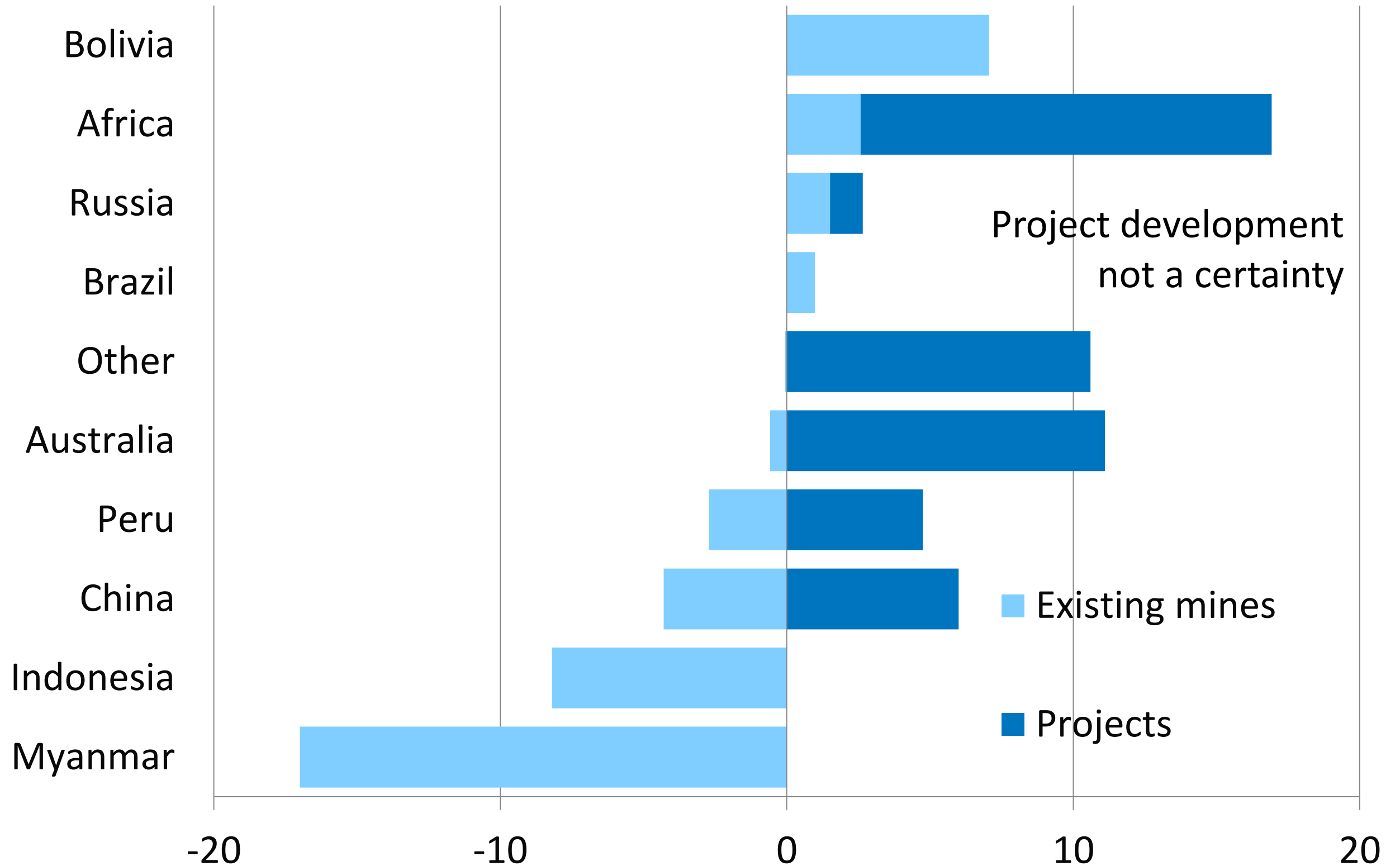
Refined tin use scenarios to 2030

Annual consumption, '000 tonnes



Changes in mine production to 2021

Potential changes in tin-in-concentrate production (2016 vs 2021), '000 tpy



Global supply and demand balances in refined tin

'000t

	2013	2014	2015	2016	2017
World refined tin production	341.9	370.2	335.8	341.4	344.0
World refined tin consumption	349.0	357.8	345.7	352.7	355.1
Global market balance	-7.1	12.4	-9.9	-11.3	-11.1
Reported stocks	34.3	39.1	32.2	28.7	23.0
World stock ratio	5.1	5.7	4.8	4.2	3.4
Base price (US \$/t)					
LME cash price - annual average	22,304	21,893	16,076	17,752	-

Data: ITRI, CRU

Supply deficit maintained

Summary

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An imminent price explosion?



▲ Pressure building in the tin market:

- Sustained global supply deficit
- Visible stocks near historic lows
- Underlying decline in mine supply – rising costs – few alternative sources

▲ But potential ‘pressure relief’:

- Macro-risks to tin demand
- Price responsive Indonesian tin output
- Hard-to-predict Myanmar output
- Chinese exports?

2017 Asia Tin Week

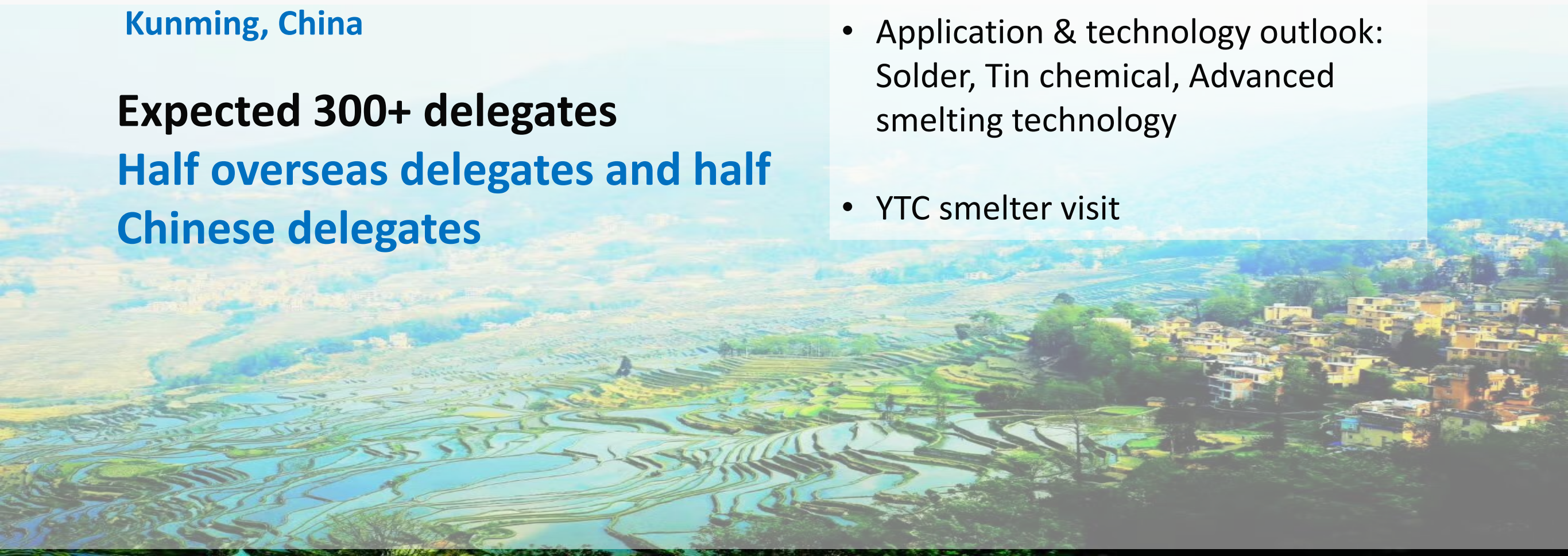


12-15, September, 2017
Kunming, China

Expected 300+ delegates
Half overseas delegates and half
Chinese delegates

Highlights:

- CEO discussion
- Main tin production country reports
- China, Indonesia, South America
- Application & technology outlook:
Solder, Tin chemical, Advanced
smelting technology
- YTC smelter visit



Thank You

We believe that global co-operation on markets, technology, sustainability and regulatory issues is the most cost effective route to achieve long-term success for the industry. If we work together effectively then the outlook for tin is very positive.

Global co-operation for long-term success

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