


# TIN FOR TOMORROW


DATE: 01/12/2023      PREPARED BY: DR JEREMY PEARCE  
PREPARED FOR: ITA INVESTING IN TIN 2023





- 
- 1 Where we are
  - 2 Where we are going
  - 3 How we will get there

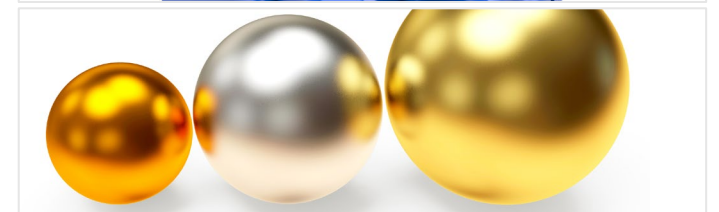
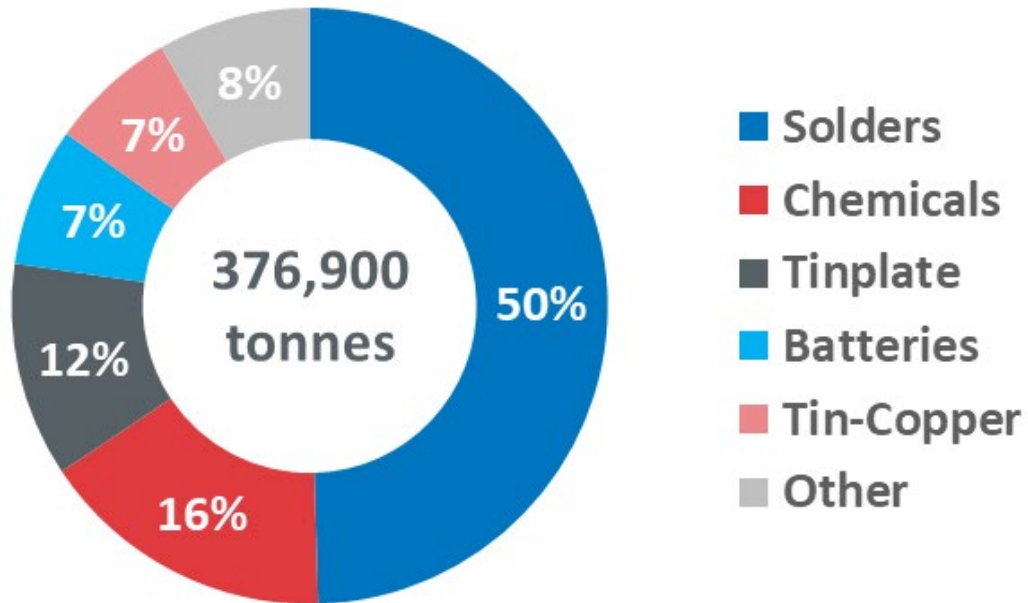


- 
- 1 Where we are
  - 2 Where we are going
  - 3 How we will get there



## Global tin use by application, 2022

ITA estimates global refined tin use share, tonnes

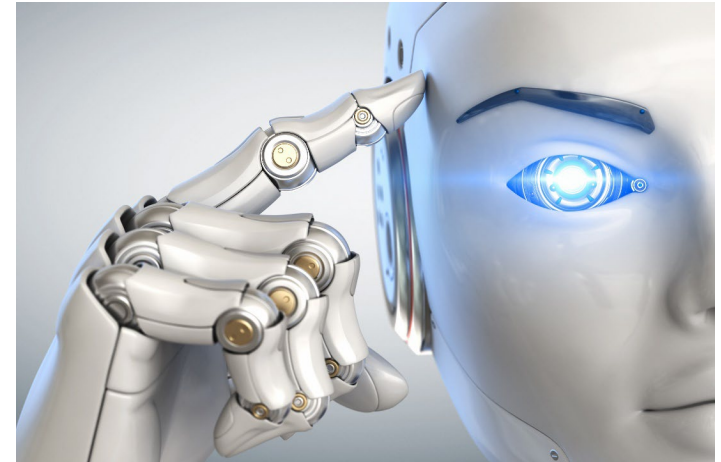


Tin already an essential metal

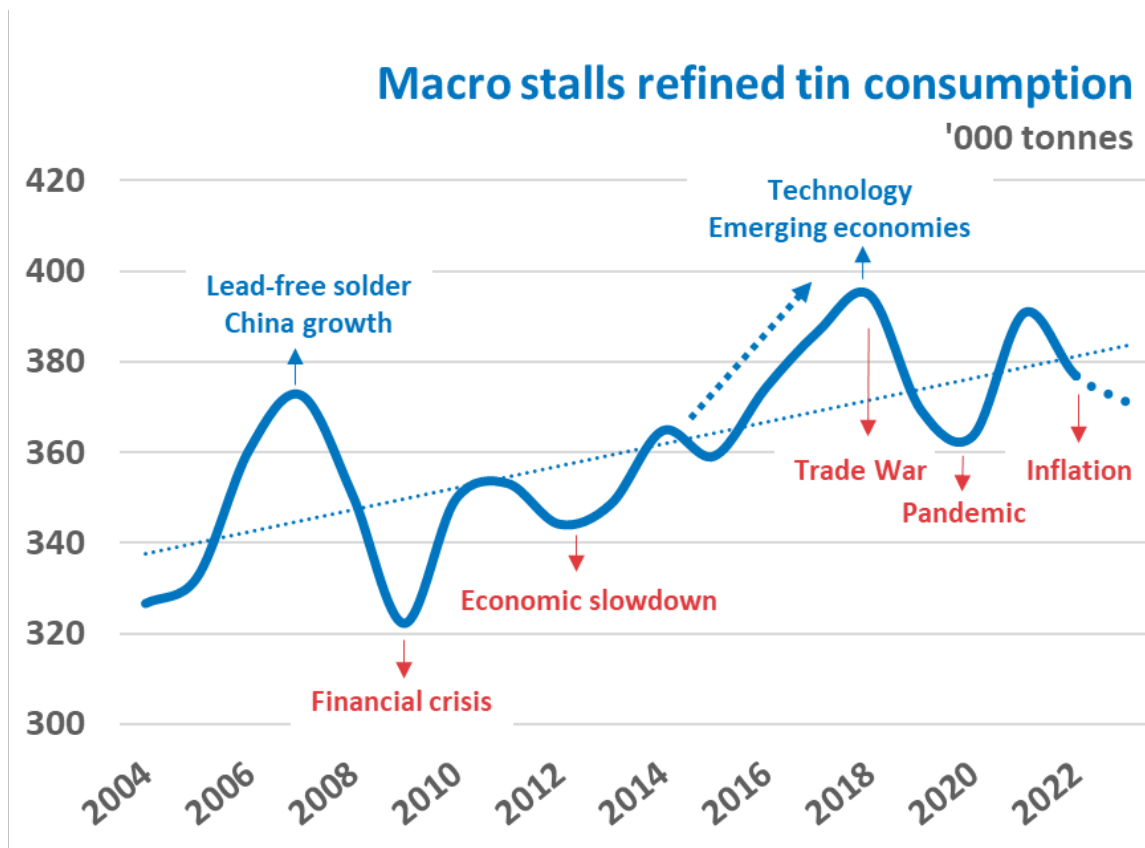
## Climate change



## Digitalisation



Tin a strategic metal for our future



## ▲ Strong growth to 2018

Emerging economies, technologies  
Growth rate 3-4%, up on 2% long-term

## ▲ Series of macro shocks

Five years of instability  
Growth disrupted, especially consumer  
2023f low demand despite technology

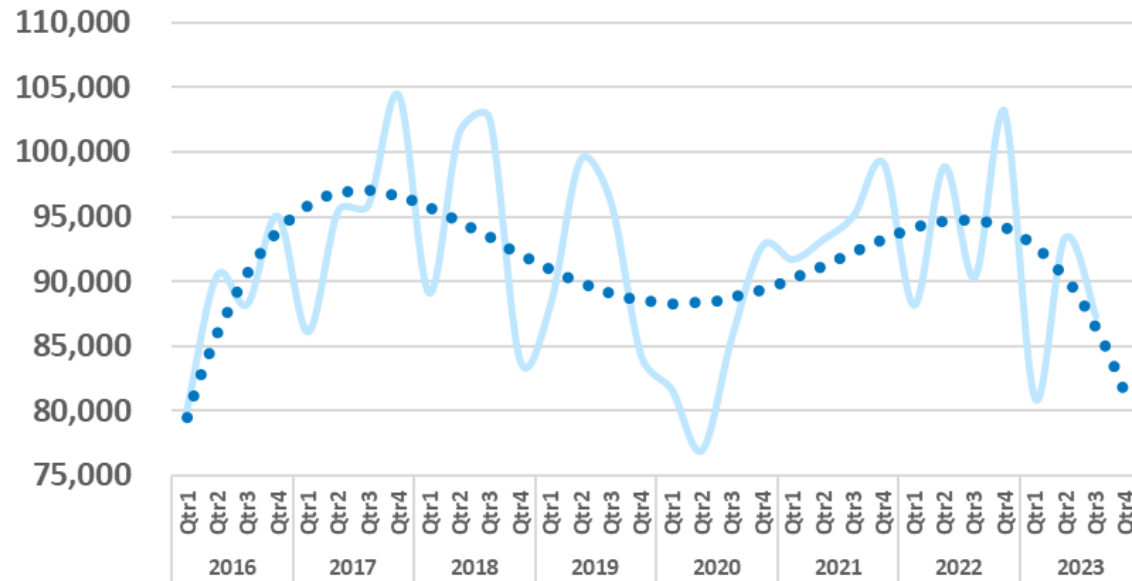
## ▲ Record price volatility

Turbulent fundamentals  
Increased influence of speculation

**But it's a bumpy ride for demand**



## Refined tin production disrupted 2023 tonnes



Region	Disruption
Peru	Political protests
Bolivia	Financial issues
Brazil	Feedstock squeeze
Indonesia	Delayed licenses, operations
China	Feedstock, grades
China Wa State	Mining suspension

And there are new supply dynamics

## ▲ Overall trend towards deficit

Existing supply not expanding overall

Long-term decline in stocks

## ▲ Dynamics disconnecting

Reasons for s/d decline are not linked

Price has 'normalized' around \$25k

±20,000 t might have been possible

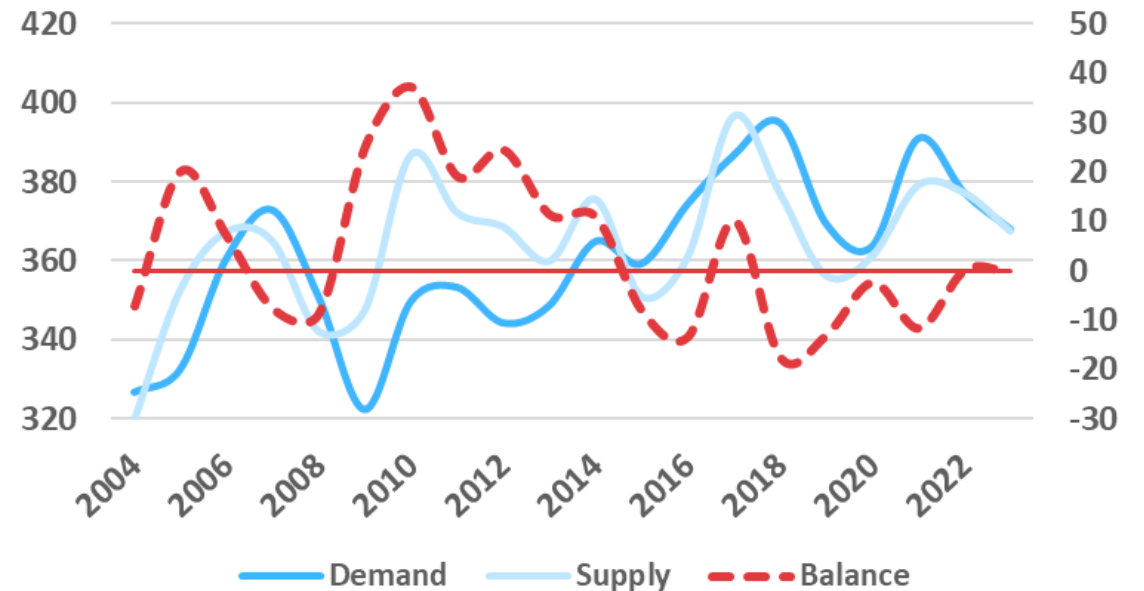
## ▲ Geography matters

Multipolar supply chains

Increasingly regional s/d analysis

### Tin market finely balanced

'000 tonnes

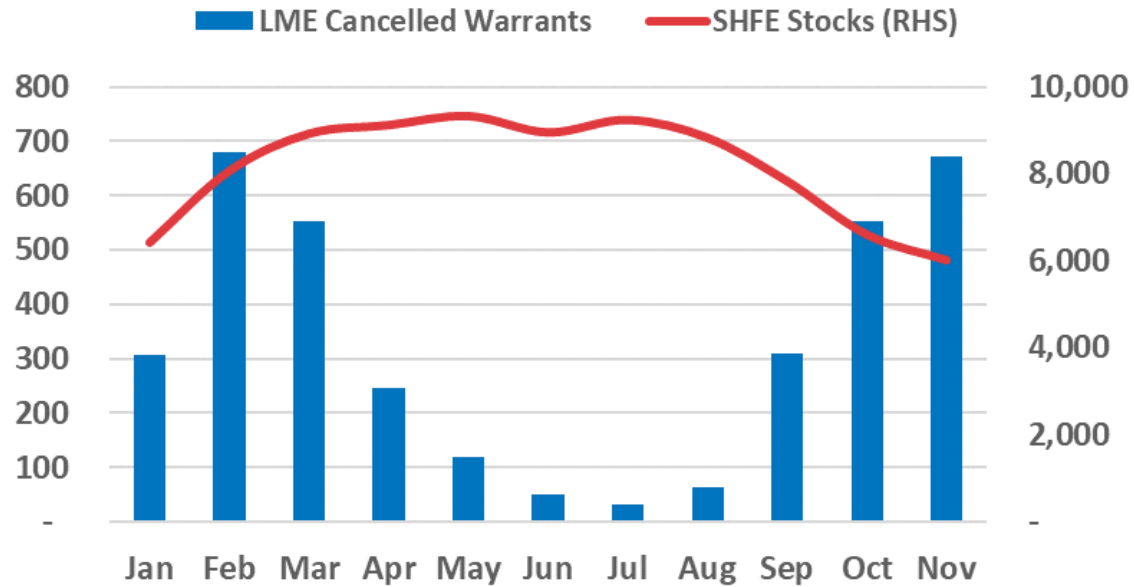


Leaving the market balanced



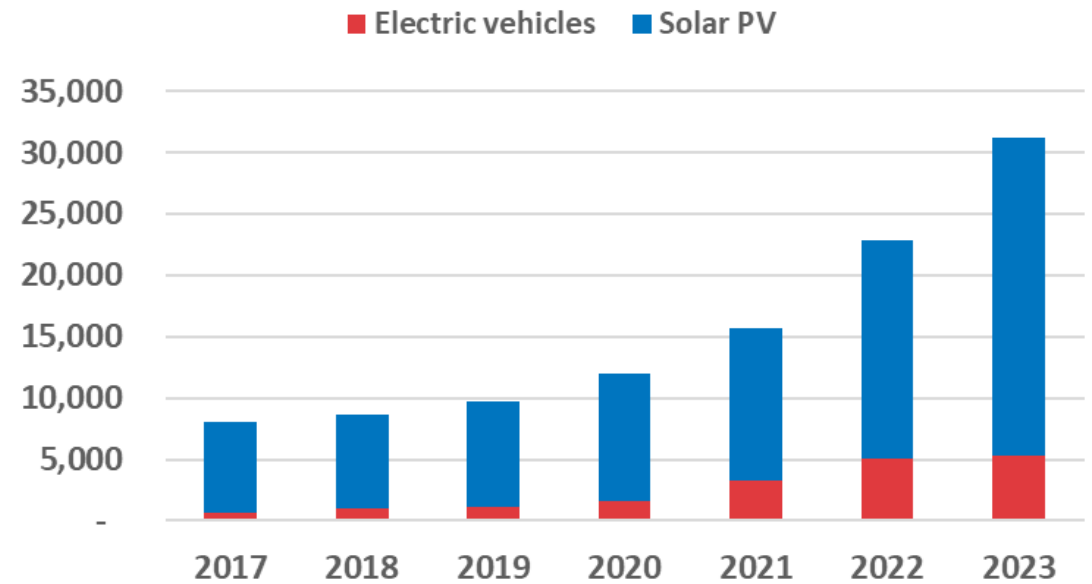
## Exchanges trade passes July trough

LME/SHFE daily averages, tonnes

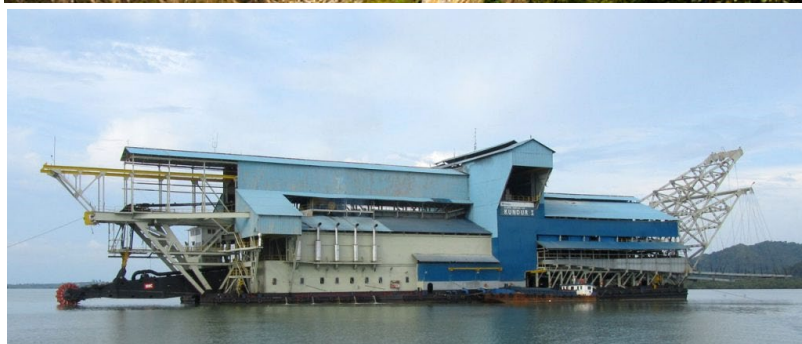


## Tin demand technology boost

tonnes



There are green shoots for demand



## ▲ Resource nationalisation

Increasing political, government intervention

Equity protests, export 'ban', relicensing, mining policy

## ▲ Every major producing region affected

China – Wa State mining suspension

Indonesia – 2023f output down 12%

South America – Continuing disruptions

## ▲ Price a factor


ASM response likely, some stock liquidity dependence

## ▲ China vs RoW

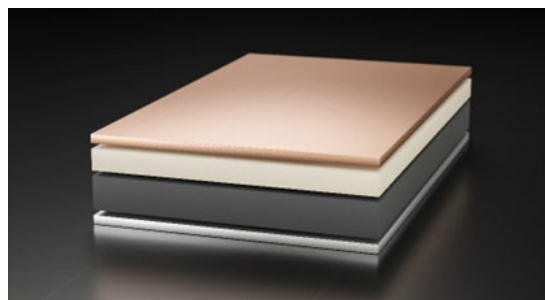
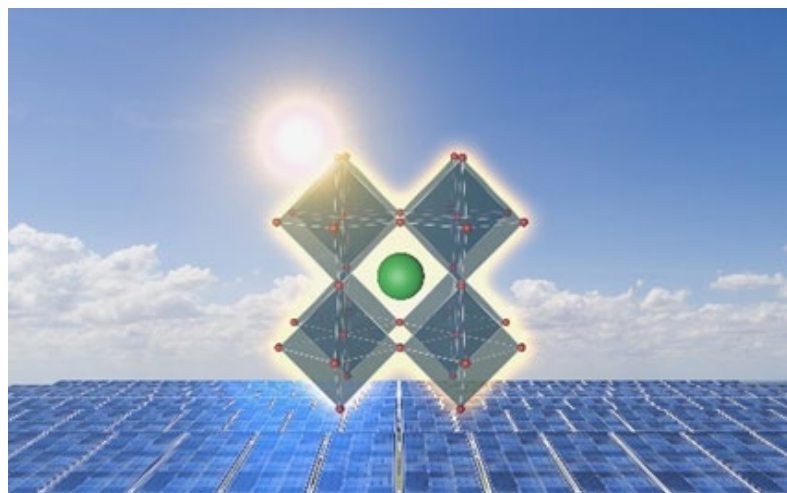
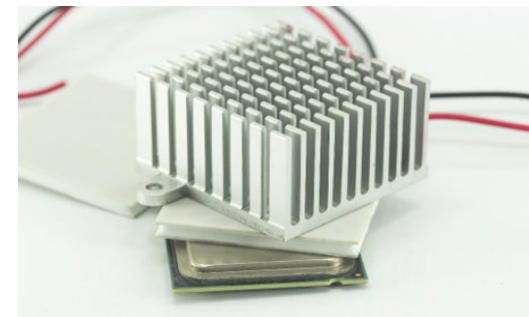
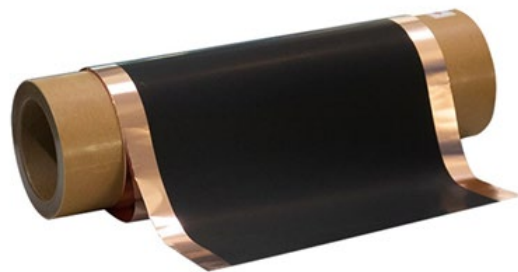
China will lead, risk of RoW supply strain

**But can supply respond to demand recovery?**



- 
- 1 Where we are
  - 2 Where we are going
  - 3 How we will get there





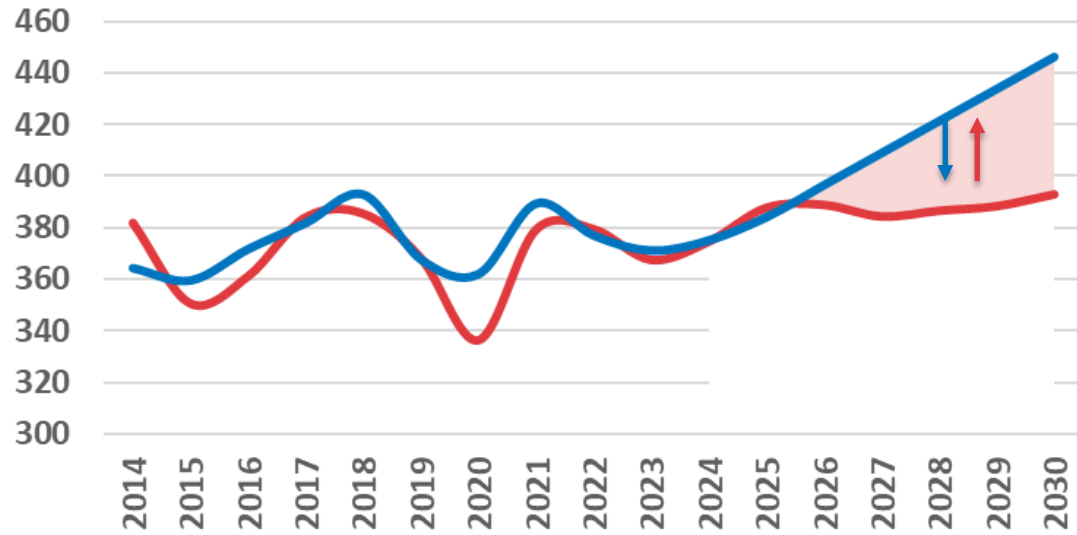
Tin's unique technologies will power growth



## Tin supply deficits likely

'000 tonnes

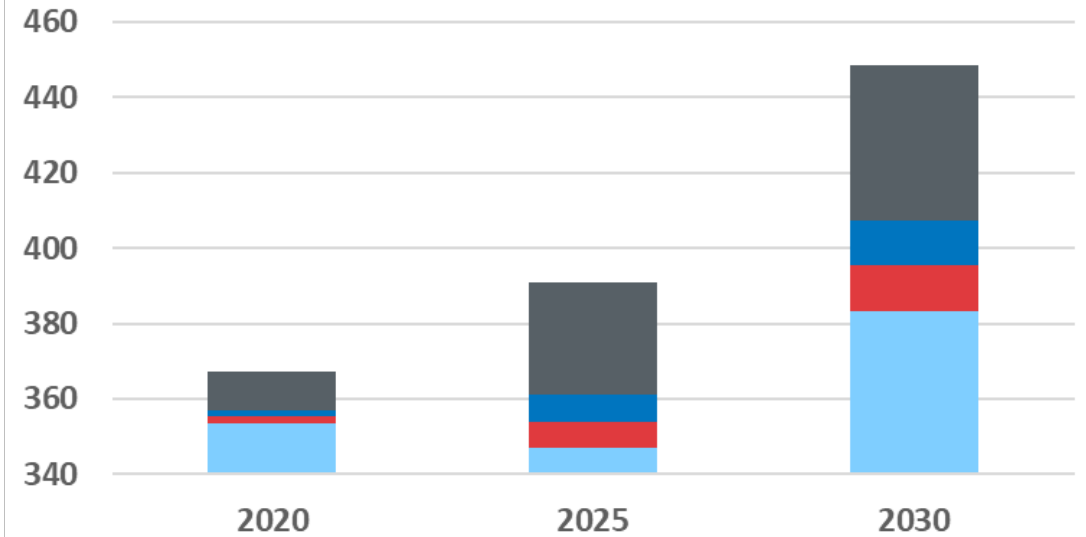
— Supply — Demand



## Tin technology forecasts

'000 tonnes

■ Baseline ■ 5G ■ eV ■ Solar



There will be a wake-up to tin



## ▲ Supply chain shifts

Increased geopolitical risk, logistics, carbon footprint  
Regionalisation, strategic minerals policies

## ▲ Expanding ESG focus


Supply disruptions, constraints  
Increased cost, competition

## ▲ Investment strategy rethink

Government intervention to secure supply  
New smelting capacity, resource focus

**But also challenges**



- 
- 1 Where we are
  - 2 Where we are going
  - 3 How we will get there

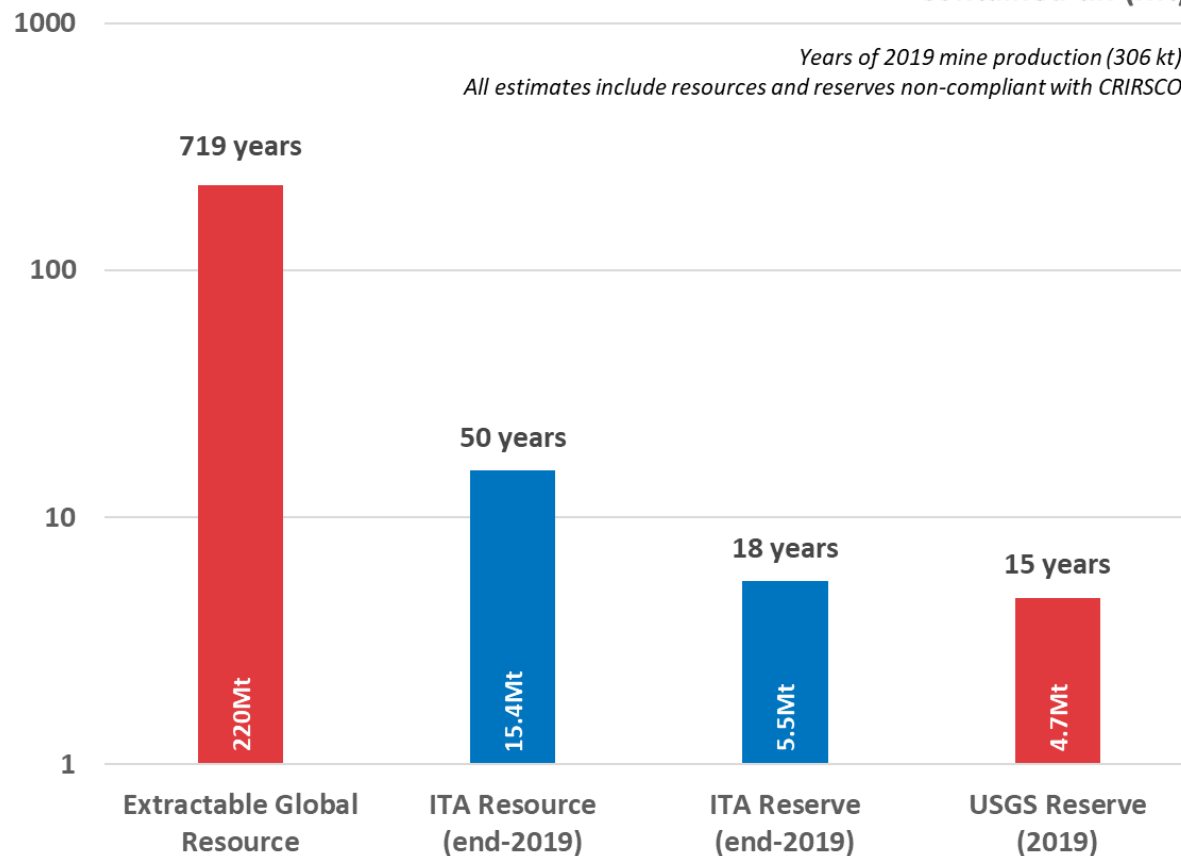


## Estimations of global tin resources and reserves

Contained tin (Mt)

Years of 2019 mine production (306 kt)

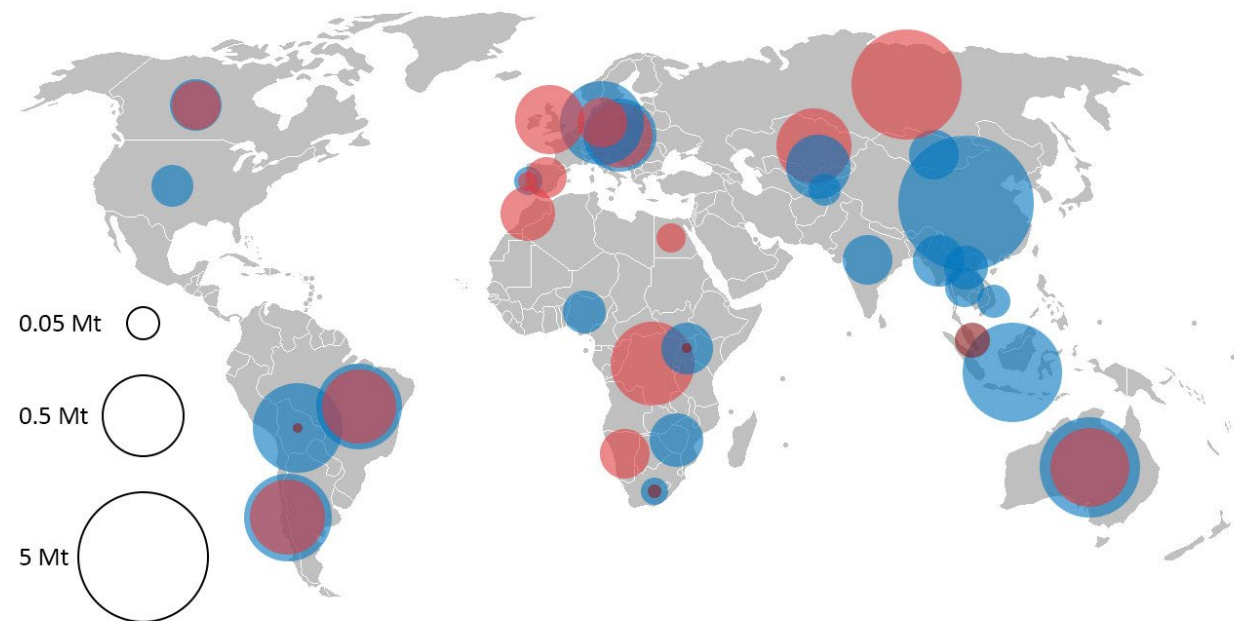
All estimates include resources and reserves non-compliant with CRIRSCO



## Current resource levels could support another 50+ years of demand

Global tin resources (inc. reserves)

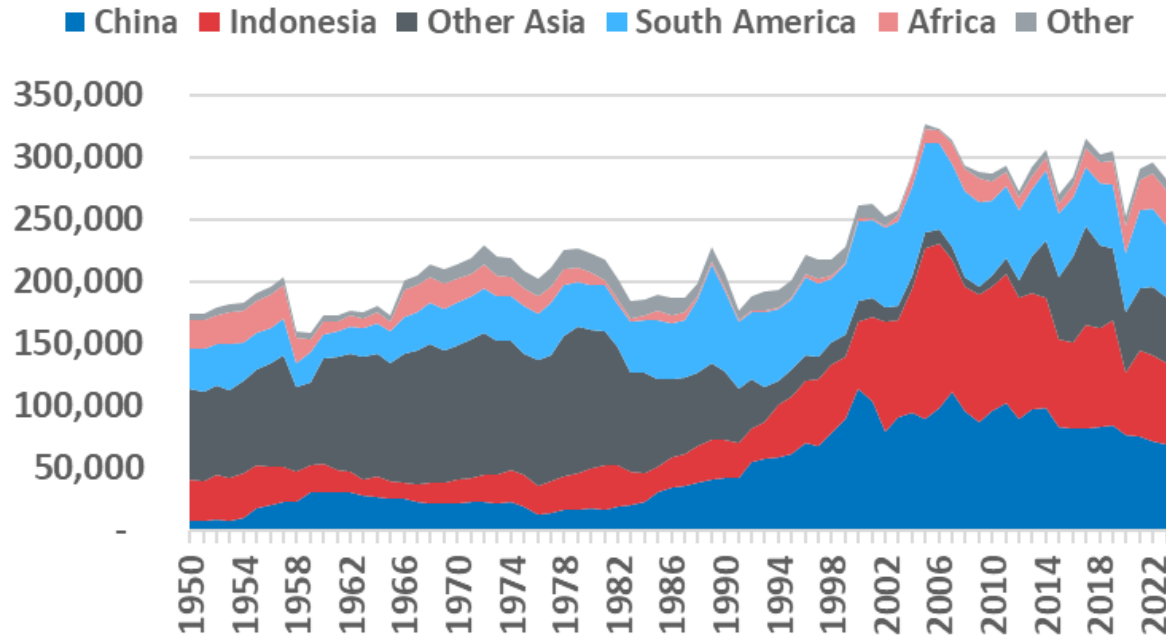
Total Resource (Blue circle) CRIRSCO-Compliant (Red circle)



Large underlying resource base



## Global tin supply declining tonnes



### ▲ Output in major regions sliding

Indonesia especially  
China more slowly

### ▲ Africa promising

Alphamin, MMR, Others

### ▲ Bolivia prospects

Output reported up

### ▲ Myanmar may improve

Mining investment  
Deeper access technology

Major global producers under pressure



- ▲ **Existing secondary sources**
  - Solder, chemicals production waste
  - Lead-acid batteries recycling
  - Detinning tinplate
- ▲ **E-waste the major opportunity**
  - Increased collection, technology
  - Tin coming from the copper circuit
- ▲ **Modest growth likely**
  - Increasing market incentives
  - Constraints – waste reduction, technology

Recycling to increase





## ▲ Explorers

30 currently suspended

27 in early exploration

10 in resource estimation

3 in feasibility

## ▲ Developers

35 ramping

Some suspended, others operating

**Project pipeline but mixed viability**







## ▲ Urgent investment needed

Government carbon targets cannot be achieved without tin

Digitalisation infrastructure needs to be glued together with tin

Tin is a relatively small market

## ▲ Strategic risks are increasing

Macro shocks hold back demand

Supply base needs resilience assessment

Complex dynamics deter forecasting

## ▲ Its time to wakeup to tin

Is it enough?

## 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

International Tin Association  
Unit 3, Curo Park  
Frogmore St. Albans  
Hertfordshire  
AL2 2DD  
United Kingdom  
+ 44 (0)1727 875544  
[www.internationaltin.org](http://www.internationaltin.org)

ITRI China  
Rm 1501, Office Tower 1  
Henderson Centre  
18 Jianguomennei Street,  
Dongcheng District  
Beijing  
100005 China,  
+86-10-6808-0915 / +86-10-8833-3688  
[chinaoffice@internationaltin.org](mailto:chinaoffice@internationaltin.org)  
[www.internationaltin.com.cn](http://www.internationaltin.com.cn)

