



Food and Agriculture
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TOWARDS ZERO POLLUTION

4 June 2021

Launch of the
Global Assessment
of Soil Pollution Report



INTERGOVERNMENTAL
TECHNICAL PANEL ON SOILS

UN
environment
programme





Food and Agriculture
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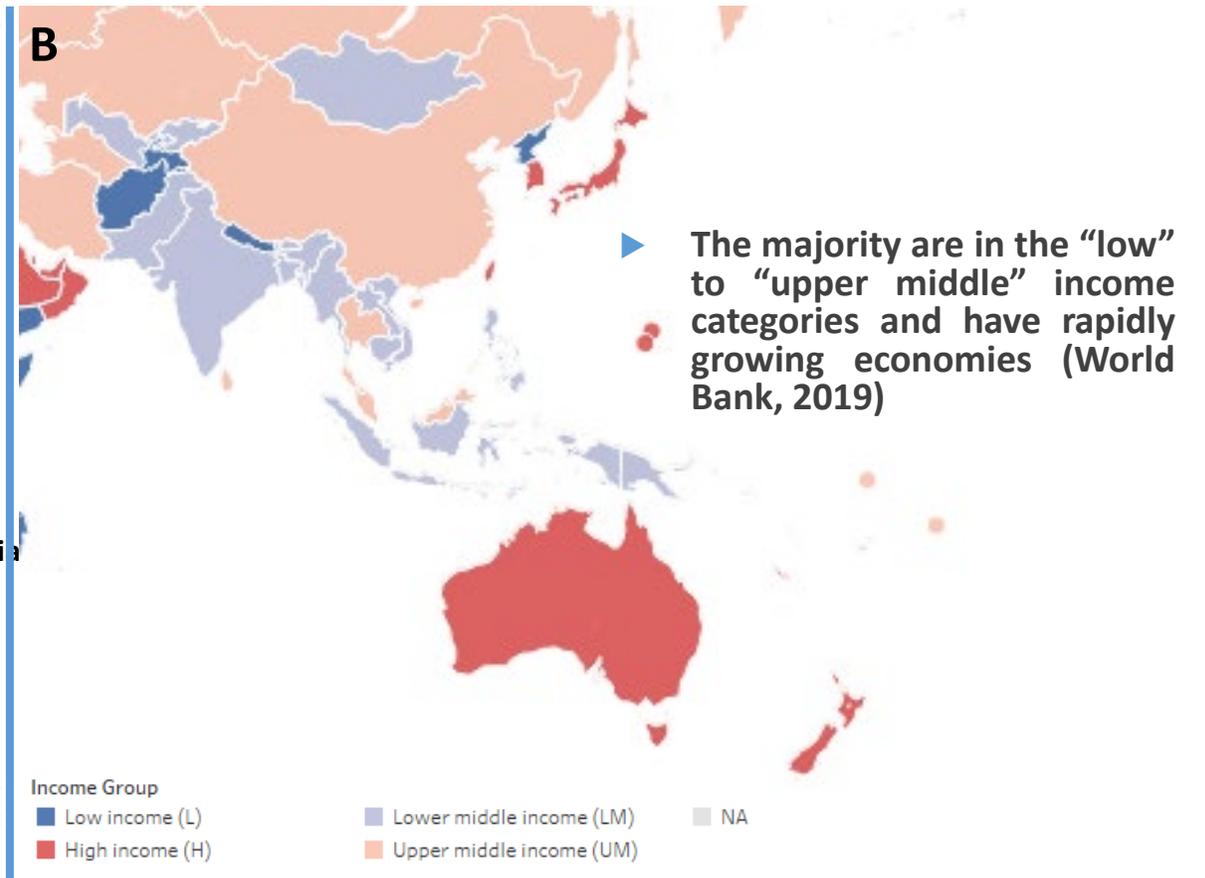
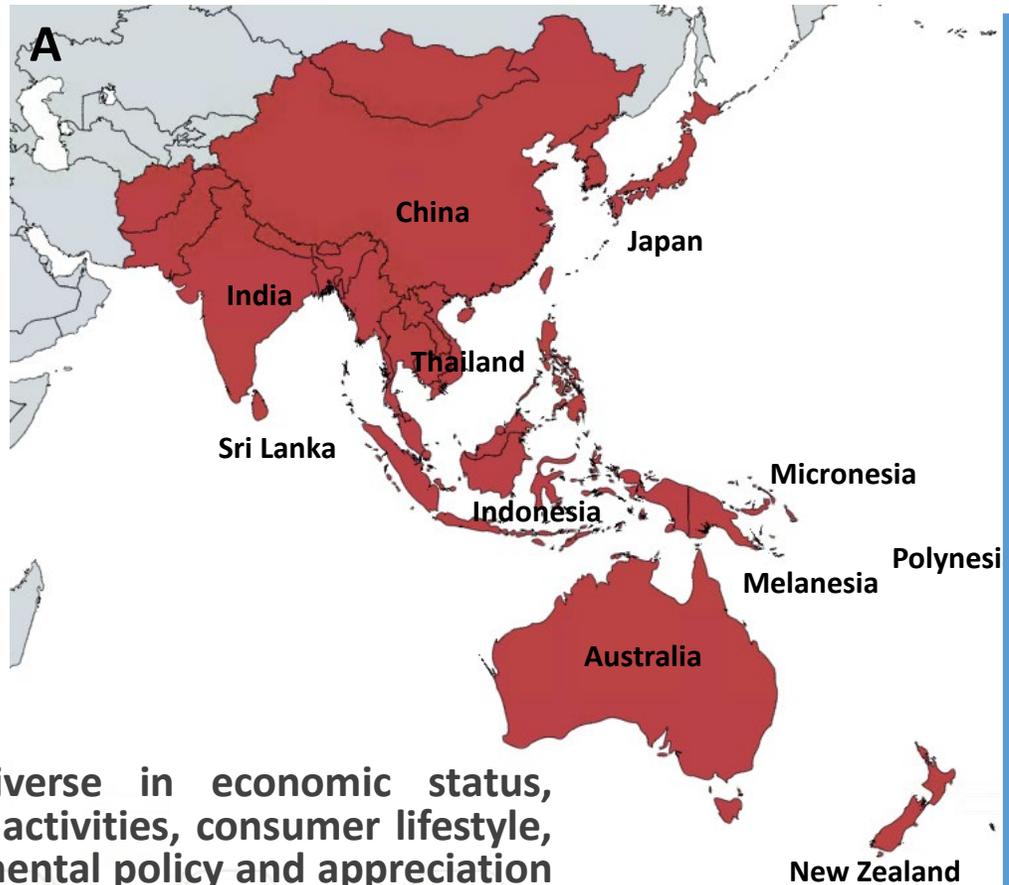
Global Assessment of Soil Pollution: Asia-Pacific

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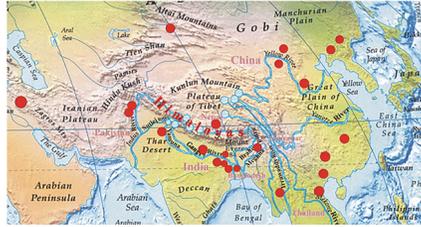
Brief about Asia-Pacific: **Heterogeneity**



▶ Quite diverse in economic status, business activities, consumer lifestyle, environmental policy and appreciation of sustainable development

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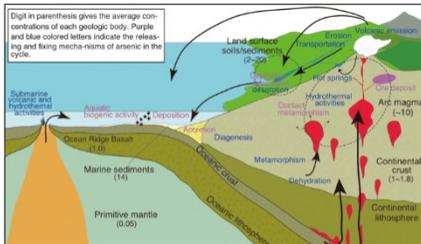
Sources of soil pollution: **Natural** & **Man-made**



(Chakraborti, et al. 2017: Hydrogeol J. 25: 1165-1181)

Natural

▶ **Arsenic > irrigation to surface soil**



(Masuda, 2018: Pro Earth Planet Sc. 5: 68)

▶ **Heavy metal(oids) > eruption to soil**

▶ **e.g., Hg in New Zealand**



(source: Flickr)

▶ **PAHs > wash-up to soil**

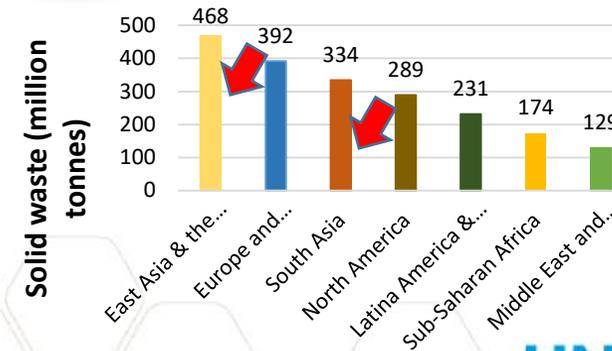
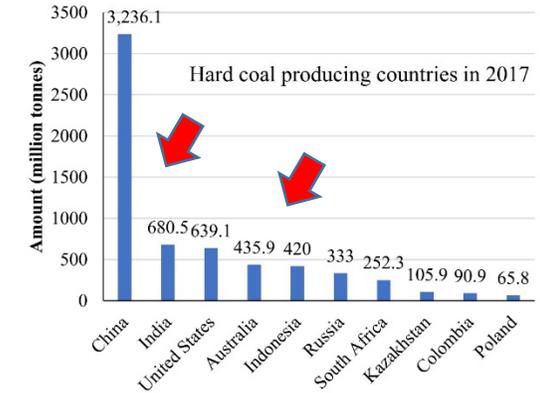
▶ **e.g., PAH in AUS and S. Korea**

photo source: Creative Commons Licence



- ▶ **Industrial activities**
- ▶ **Mining & Quarry**
- ▶ **Agro-chemicals**
- ▶ **Energy production**
- ▶ **Transport**
- ▶ **Solid waste and others**

Man-made



Pesticide use (kg/ha)

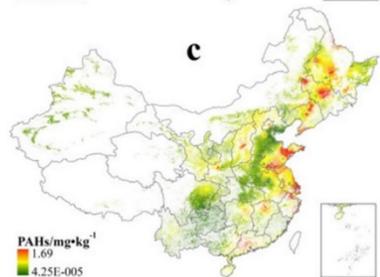
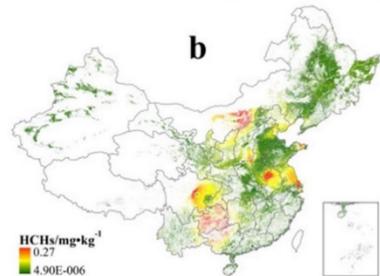
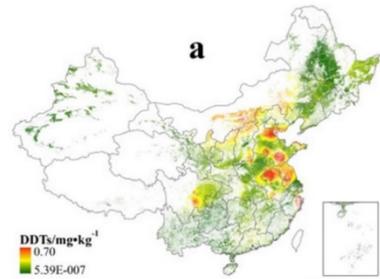
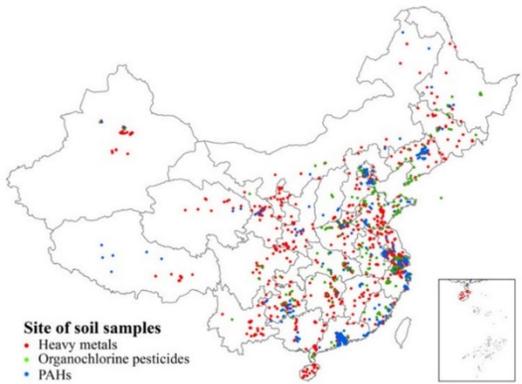


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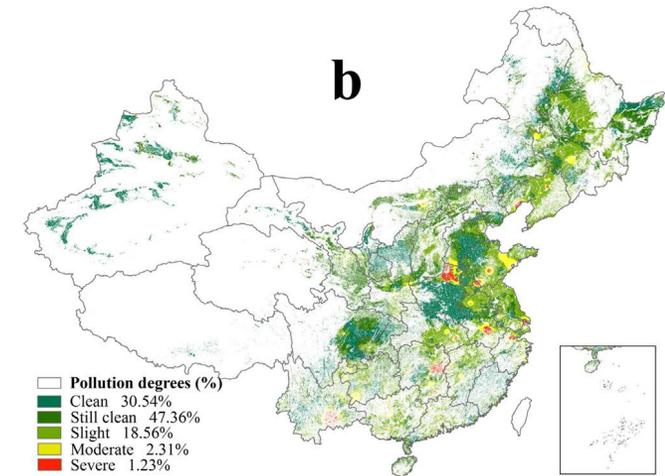
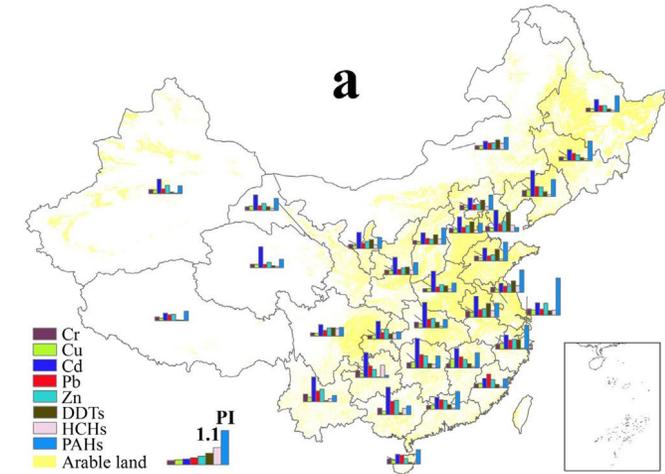


(Graph data source: Statista 2019; FAOSTAT 2019)

Regional extend: **An example of China farmland**



- 22.1% of China's farmland soil present a mixture of contaminants,
- 20.8 percent of soils are likely to pose a carcinogenic risk to the adult population and an even greater risk to children (**left side Fig**),
- Yunnan, Hunan, Anhui, Henan, and Liaoning provinces should be controlled as a priority because of severity and high risks to human health (**right side Fig**).



Source: Zeng *et al.*, 2019, *Science of The Total Environment*, 687: 642–653.

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Legal frameworks addressing soil pollution

- **International legal frameworks addressing soil pollution**

- Most countries in the region pledged to tackle waste management and chemicals pollution, specific to soil pollution, response varies,

- **Regional legal frameworks addressing soil pollution**

- No regional convention on soil protection or soil pollution prevention and control currently exists in Asia–Pacific, but may cover using few existing environmental cooperation agreements,

- **National legal frameworks addressing soil pollution**

- Rare legislation that was drafted to specifically address soil pollution. In these countries soil pollution tends only to be addressed in other sector-specific legislation;

e.g., [Japan] Act to Prevent Soil Contamination on Agricultural Land, 1970; Soil Contamination Countermeasures Act, 2002 [specific to soil pollution], while [Fiji] Environmental Management Act 2005 and Rural Land use policy for Fiji 2005 [part of other legislations]

Key messages and recommendation

Many developed countries in the Asia–Pacific implemented legislation that prevents greater environmental pollution and provides guidance for soil remediation. In contrast, **most developing countries in the region are still struggling to cope with soil pollution.**

These gaps has been identified:

- (a) Register of potentially contaminated sites;
- (b) Human capacity;
- (c) Contaminated sites assessment;
- (d) Source-receptor pathways/life cycle analysis;
- (e) Lack of awareness;
- (f) Food Security & Safety;
- (g) Soil pollution exclusive guideline.

Thank you for your attention!



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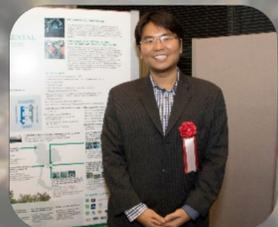
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**Thanks to GSP team at FAO and
all regional coordinators for Group
discussions time-to-time**

The Asia-Pacific team