Strategies and best practices of IP management and technology transfer – Thailand experiences

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National Science and Technology Development Agency

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National Science and Technology Development Agency (NSTDA): National Research Centers

National Center for Genetic Engineering and Biotechnology

BIOTEC a member of NSTDA

National Metal and Materials Technology Center

MTEC a member of NSTDA

National Electronics and Computer Technology Center

NECTEC a member of NSTDA

National Nanotechnology Center

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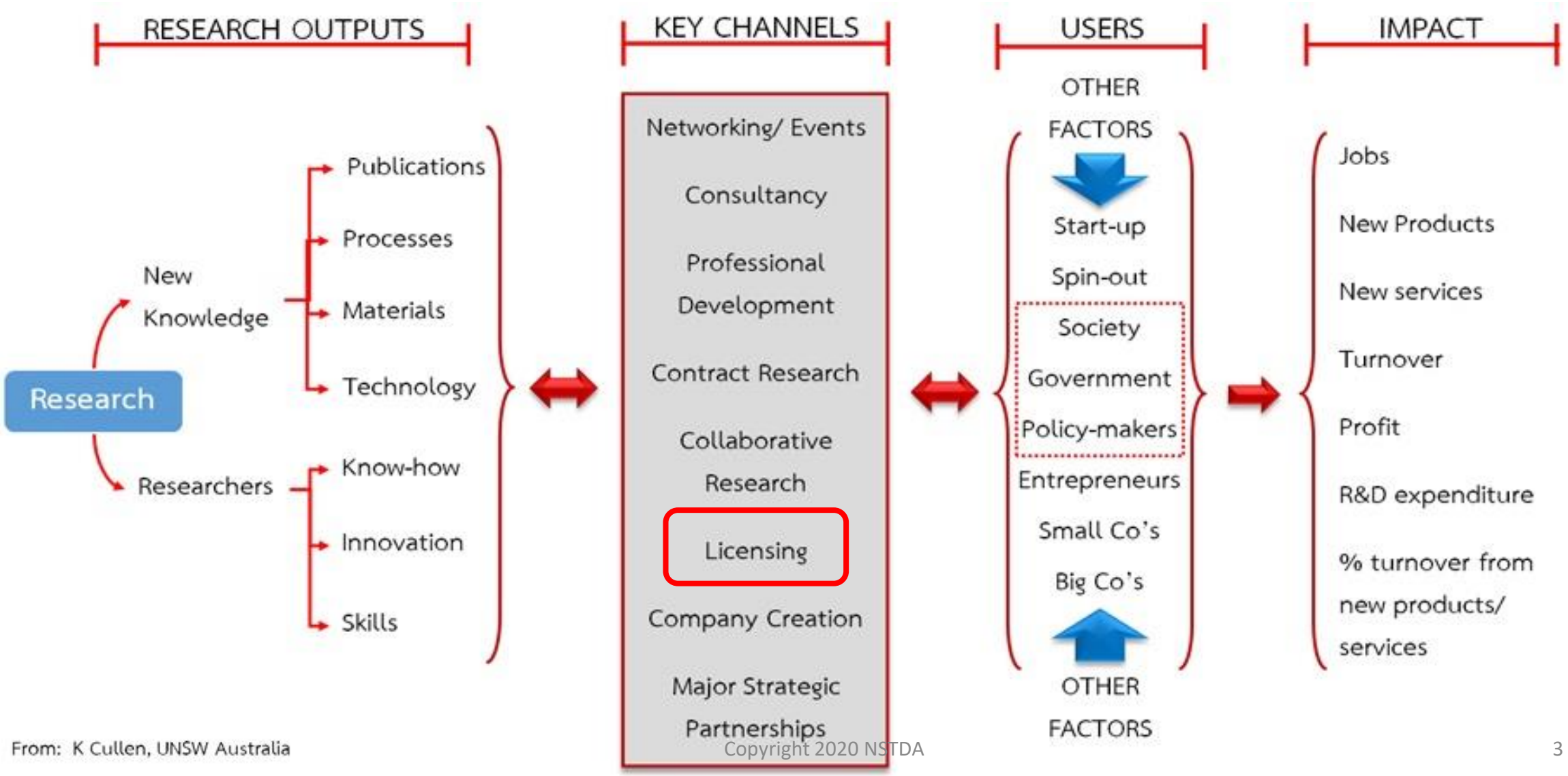
Strategies: Technology Transfer / IP Management



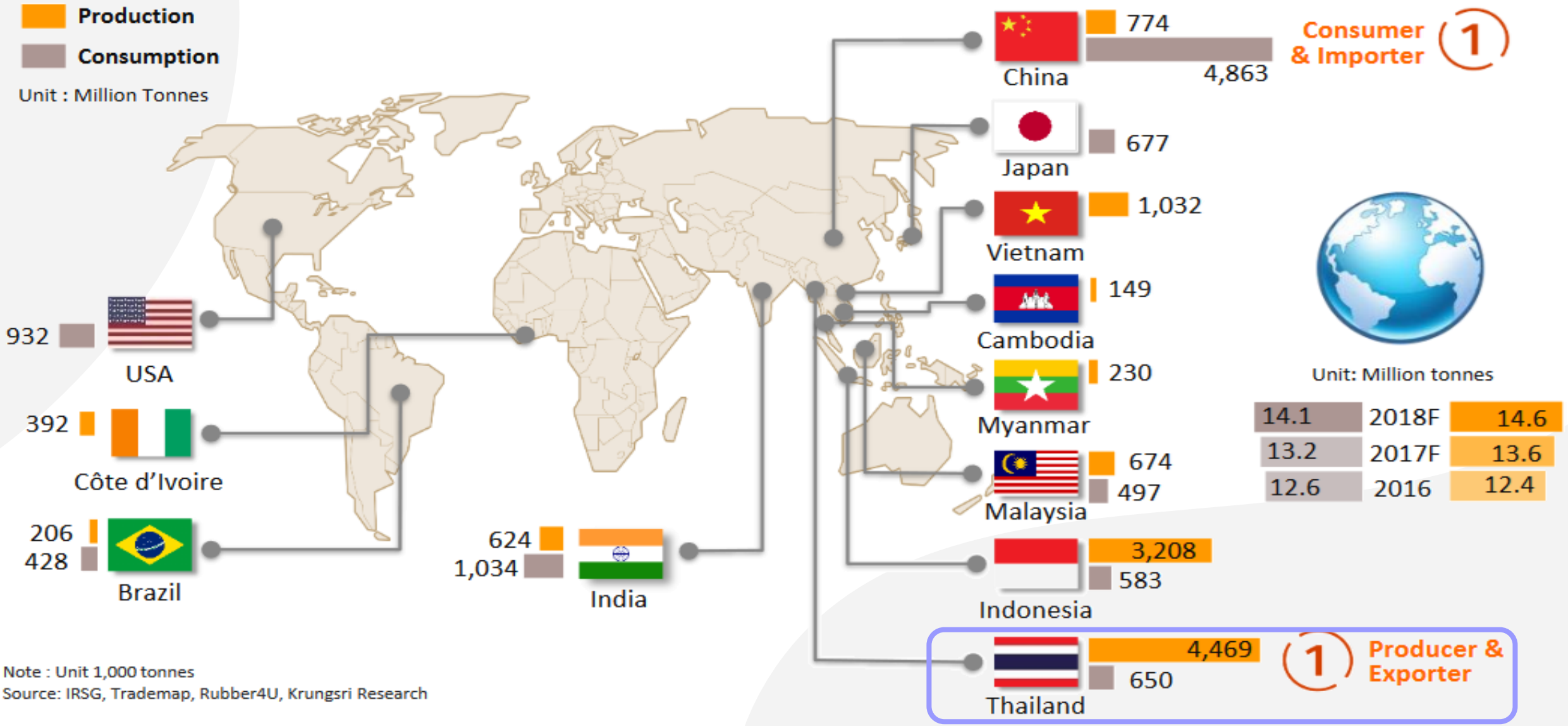
From: K Cullen, UNSW Australia

A Case Study of a License of Ultra-Low-Ammonia Latex for Asphalt Cement in Thailand

National Metal and Materials Technology Center, NSTDA

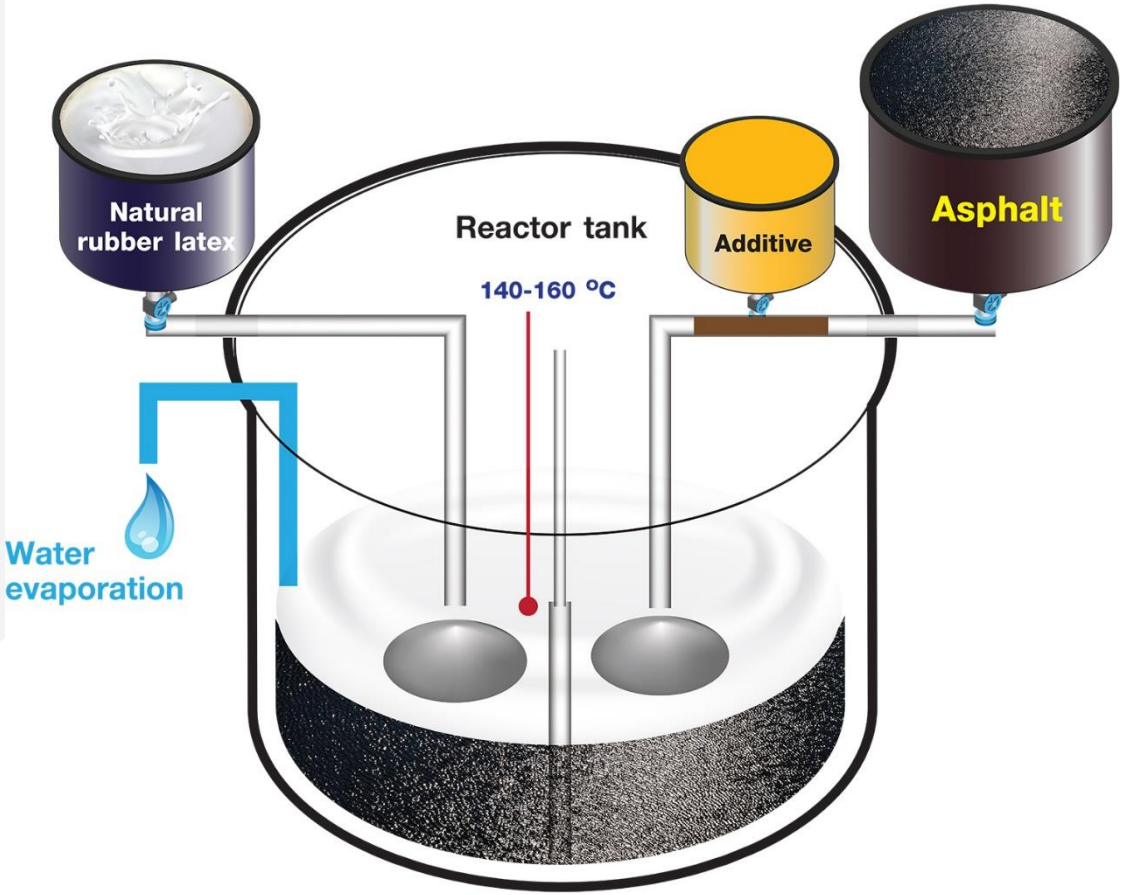
Source: Asia-Pacific Tech Monitor, Apr-Jun 2020 available at http://techmonitor.net/tm/images/e/ef/20Apr-Jun_sf3.pdf

Global Rubber Market in 2018



Note : Unit 1,000 tonnes
Source: IRSG, Trademap, Rubber4U, Krungsri Research

Identifying Research Problems



Natural Rubber Modified Asphalt Cement Production in Thailand

- *Pollutions from ammonia vapors (pungent odor)*
- *Complaints from nearby communities*
- *Needs of ammonia gas trapping equipment and additional wastewater treatment ponds*
- *Clogging in pipelines*

Subject matter arising from the research project

Ultra-Low Ammonia (ULA) Latex

Patent protection

A method of increasing the stability of latex and reducing the amount of ammonia in the production of low ammonia concentrated latex for use at high-temperature applications

Thai trade secret

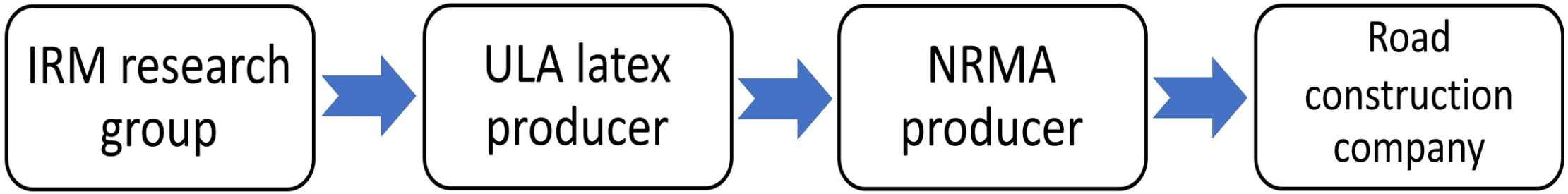
A formula of an ultra-low ammonia for concentrated latex to be used with the asphalt cement

Natural Rubber Modified Asphalt Concrete

- *High rutting resistance*
- *High fatigue resistance*
- *Decrease raveling*
- *Anti-stripping*
- *Long lifetime*
- *Save maintenance cost*
- *High skid resistance*

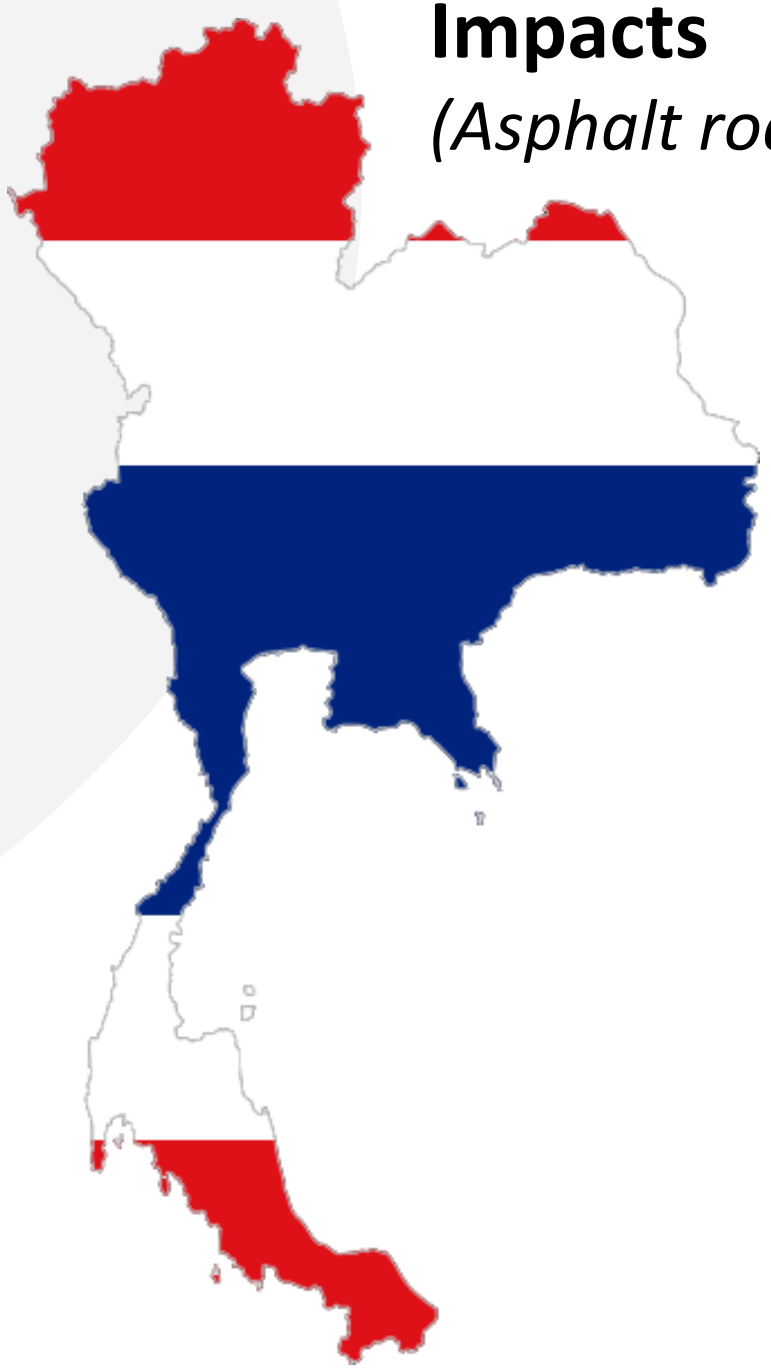
Business Model

A supply chain of the para asphalt road construction



Impacts

(Asphalt road construction industry in Thailand)



- ULA latex is developed as **an alternative to a commercial latex** in the natural rubber modified asphalt cement production.
- ULA latex **reduces air pollution** from the ammonia vapors at the latex and the natural rubber modified asphalt manufacturing plants.
- ULA latex has been used for the **Road pavement in Thailand** totally more than 3,000 kilometers.
- ULA latex has been **saved the maintenance costs** of the road construction of Thailand more than USD 16 Million/year.

Key success factors and lessons learned

- Understanding the nature of the industry
- Familiarity of the working nature of the industry
  - *Expertise of the team and understanding the key players including end users*
  - *Gone through the up-scaling process with the industry*
- Clarity of the licensed specification and scope of deliverability
- Expectation management

Thank you for your kind attention

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