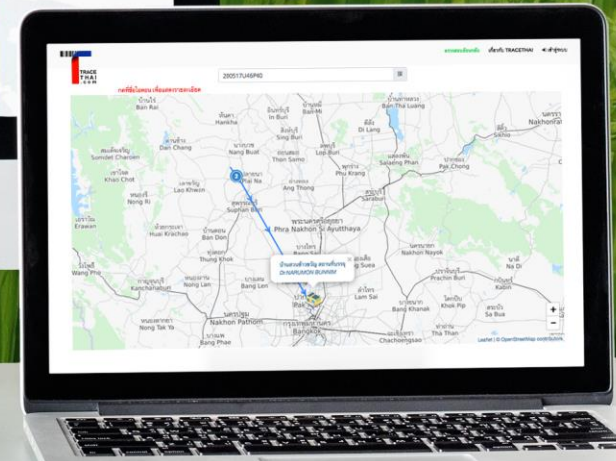
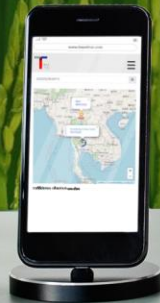




TRACEABILITY

THAI FOOD AND AGRICULTURAL PRODUCTS
TRACEABILITY SYSTEM
USING BLOCKCHAIN TECHNOLOGY



Guidelines for smart agricultural product development and promotion



Farmers are encouraged to produce high value or premium products so that they can rely less on price competitiveness

and avoid receiving income only from agricultural commodities or mass production. This could be achieved by promoting trade and production of higher value products such as organic and safe agricultural, processed agricultural products including all kinds of foods, crop-based biodegradable packaging, alternative energy, herbal medicine, etc.



Several nations start to produce more agricultural products due to food security

and disaster and pandemic risk reduction resulting in the decrease of mass market size. The trend would reduce the volume of global agricultural market. Consumers also tend to have greater concern and demand for safer and healthier food. Therefore, it is important to create product uniqueness and value addition in Thai agricultural products to serve new markets which are niche markets with fewer competitors than mass markets.



Value creation could be done by various methods. In this case, value added is created through confidence and trust building process

because adding values to agricultural products do not include only creating new products but also include new business models and processes. The traceability system of TPSO, Ministry of Commerce, will add more value to agricultural products by assuring consumers about products' origins, producers and their organic processes which are certified, as traceability of products may become a compulsory measure for imports into foreign countries in 2-3 years.



This system was firstly implemented for organic rice, but it will not be limited only to that. The system could include other commodities in the future.

Organic rice was chosen in the pilot project because standards for organic products are the highest among other products. If the system could be used to trace organic rice chain, it would support other product chains. There are limited number of participating farmers and producers because starting in small reliable groups would make the traceability system becomes more trustworthy. The extension of the system is under TPSO's consideration.



consumer trust and transparency.

It creates consumer trust and transparency. Its system and data are selected, **administrated and protected by the government**. It shows data to consumers and business partners according to data access rights. It is user friendly as the system supports QR code scanning and lot tracking number filling in the website.



Key Highlight



**TRACE
THAI
.c o m**

There is quantity control from the beginning of the supply chain and data is collected by each production lot to assure that the products are genuinely organic.

It is used to trace back products by each production lot. Inputs and outputs information of each production/transaction stage as well as organic certificates throughout the production supply chain are recorded on the system. Domestic and foreign distribution information will possibly be included in the system in the future. In the end, the whole value chain will be traceable.

access by rights specification and encrypted code

No price information is recorded due to trade secret sensitivity while other trade information, such as product names, volume, sellers, buyers and organic certificates, is given access by rights specification and encrypted code. This keeps protecting trade secrets and personal data. Blockchain characteristic in decentralized data collection helps protect data fraud well.



It could be used to create story telling of the products

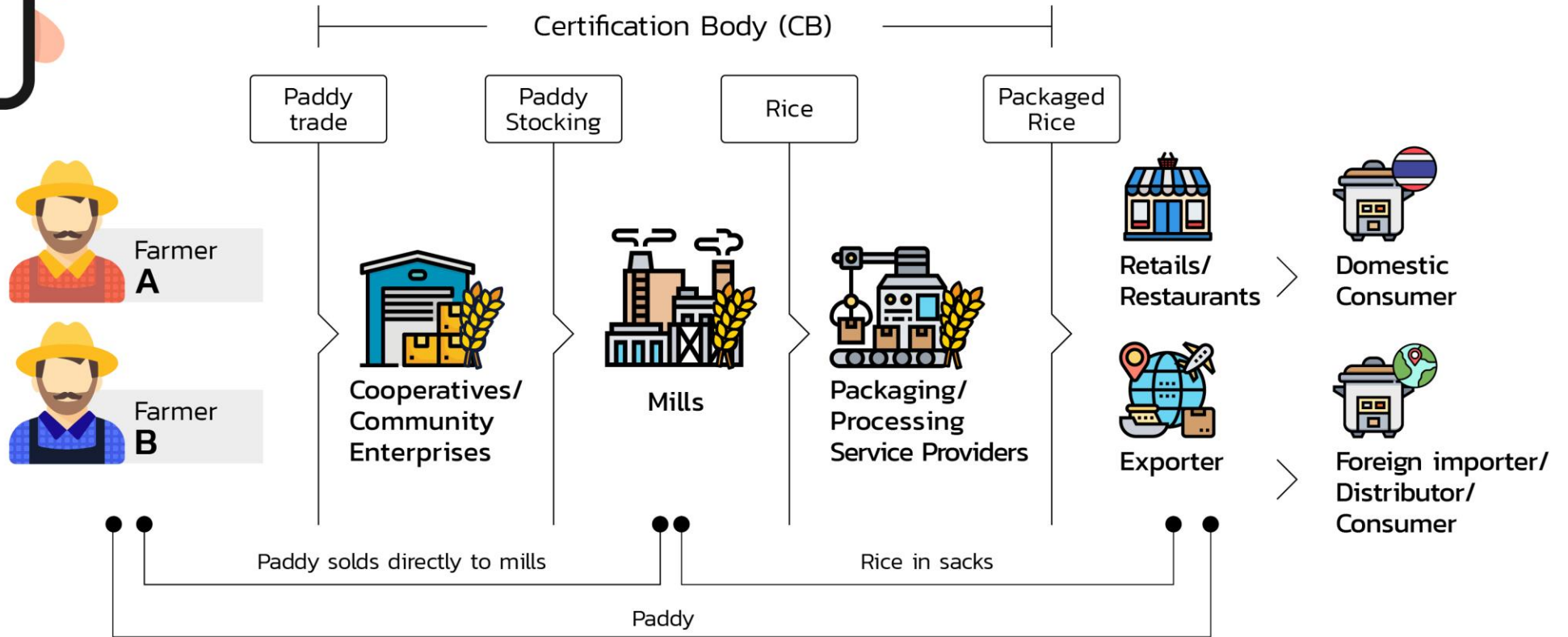
to enhance brand awareness or other marketing strategies by allowing participants to include their stories, pictures or video links.

Blockchain

Traceability for organic rice



Stakeholders | Prototype



Data secured, system quality controlled and system administrated by Government (Ministry of Commerce)

www.tracethai.com



Prototype for organic agricultural product traceability using **Blockchain**



Recording the data
according to activities,
input and output



**Protect trade secret
and data privacy**



Outputs recorded
then become inputs
for another business.
Outputs are monitored to
ensure that the total outputs
do not exceed total inputs
at any given stage.





Using **BLOCKCHAIN** In food and Agriculture

Blockchain is a decentralized database that effectively prevents data alteration and manipulation

Data Entry are
Encrypted onto the
BLOCK



Connected via
CHAIN
in food and
agricultural industry



DATA ENCRYPTION
AND DECRYPTION



PREVENT DATA
ALTERATION AND
FALSIFICATION



PROTECT TRADE
AND DATA PRIVACY



Store Organic Certificate with encryption and certification by Certification Bodies (CBs)

Protect trade secrets with data access restriction such as tailoring information to consumers, monitoring agencies or trade partners.

How to start?



Recording information
on www.TraceThai.com



Fill out
production details



System generates
QR code and production lot number
for producers and consumers to scan



Data
includes producer's information, transaction history,
production information, location of business
and certified organic certificates

Benefits for Farmers/ businesses

- 1 Access to recording, controlling, and monitoring system for both raw materials and finished products. The system provides better stock monitoring to ensure that the quantity does not exceed the actual certified amount while shifting towards paperless system.
- 2 Record organic certificate issuance data to better create confidence among trade partners
- 3 Add values to Thai organic agricultural products.



Internal
Control
System
(ICS)

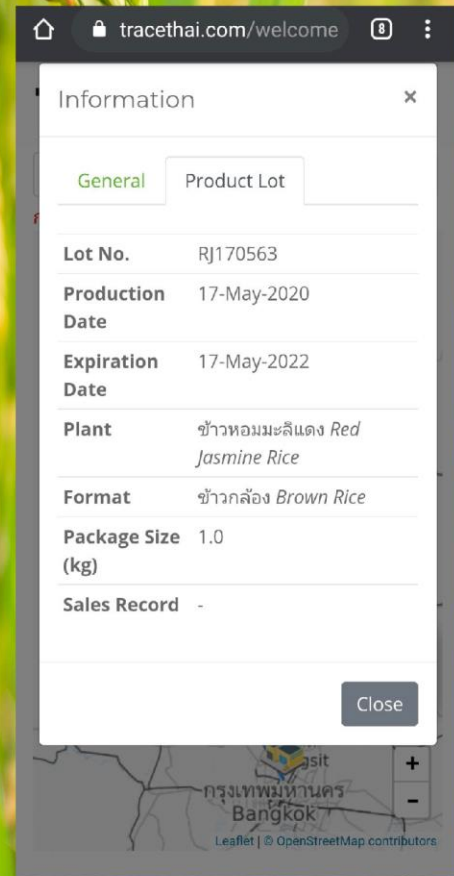
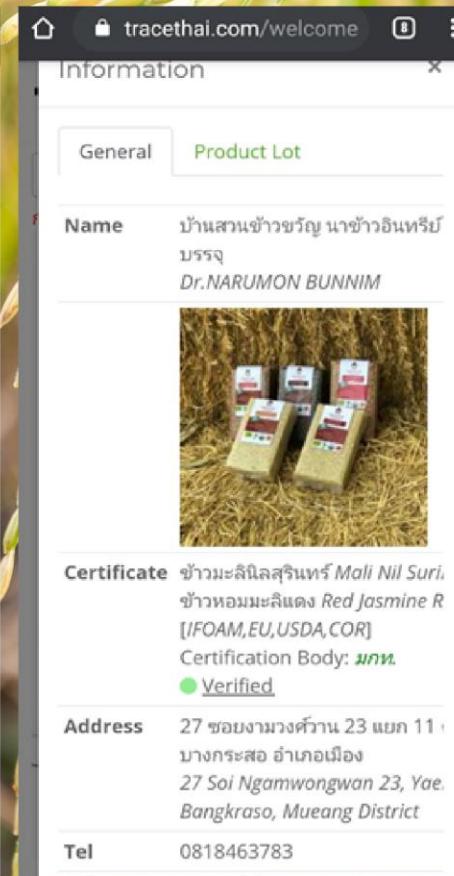
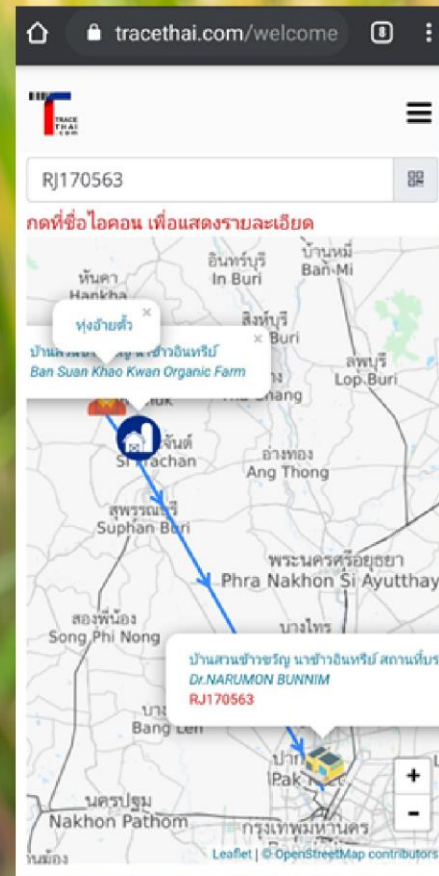


Organic
Certificate/
Trade
Documents



Benefits for Consumer

- 1 Trace the origins and production process of organic agricultural products
- 2 Assured that the products are certified organic by CB (Certifying Body)





Contact

Trade Policy and Strategy Office (TPSO)
Ministry of Commerce

563 Sanambin Rd, Bang Kraso,
Mueang, Nonthaburi 11000 Thailand



(+66) 2507 8535, (+66) 2507 5895



tracethai@moc.go.th

TPSO
Trade Policy and Strategy Office

