

## Development of Common Agricultural Vocabulary in Thai

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Diversity of vocabulary is high in the agricultural domain by the people different in a background such as farmer, distribution processor, researcher, and so forth. The diversity is a hurdle to share and exchange agricultural information. In order to lower this hurdle in Thailand, we considered to create the common agricultural vocabulary (CAVOC) in Thai. To realize this, we created the CAVOC translator. It is a mechanism to translate based on CAVOC in English and Japanese defined by Japanese research group. As a result, we confirmed that our system can easily create CAVOC in Thai, and eliminate obvious mistakes.

**Key Words :** common agricultural vocabulary, CAVOC, Thai, Google Translate

### 1. INTRODUCTION

The meaning of the vocabulary and the knowledge described by that is sometimes different because of the difference of implicit information in the background of knowledge. Diversity of vocabulary is high in the agricultural domain by the people different in a background such as farmer, distribution processor, researcher, and so forth. The diversity is a hurdle to share and exchange agricultural information. In order to lower this hurdle, the common agricultural vocabulary (CAVOC)<sub>1,2)</sub> in English and Japanese were defined by the National Institute of Information (NII) in Japan and the National Agriculture and Food Organization (NARO) in Japan. Thailand is an agricultural country, and the necessity of common vocabulary is considered high. However, it is not in Thai yet.

From this background, we considered to make CAVOC in Thai. To do that, we need a native Thai speaker in agricultural field. However, unfortunately we are not specialist for agriculture in Thai. Instead of building CAVOC in Thai from scratch by native Thai speaker in agricultural field, we considered to create one based on already existing CAVOC in English and Japanese by machine. This paper proposes how we can translate CAVOC in English and Japanese into Thai quickly and correctly.

### 2. METHOD

We created a web service which is called “CAVOC translator”<sub>3)</sub> as shown Fig.1.

Japanese	English	Thai	Verified	Translate
作物生育制御作業	Handling for plant growth control	การควบคุมการเจริญเติบโตของพืช	✓	TRANSLATE
繁殖制御作業	Regulation of plant propagation	การขยายพันธุ์พืช	✓	TRANSLATE
採種	Seed production	เมล็ดพันธุ์	✓	TRANSLATE
苗取り	Pulling seedlings	การถอนต้นกล้า	✓	TRANSLATE

Fig.1. CAVOC translator.

According to Google services, we are able to use Google Translate Application Programming Interface (API) which can translate 104 languages of the world mutually as of September 28, 2017. Google Translate API use neural network machine learning algorithm for their translating model and make it precisely. We created a web application to translate vocabulary. Because this is the easiest way to add a new word, editing and spelling check via online platform. For frontend side, we used VueJS which is a framework for creating a website based on JavaScript language.

On navigation bar, we put “DOWNLOAD CSV” and “ADD NEW WORD” button. The “DOWNLOAD CSV” button is a button for downloading the translate word table in Comma Separated Values (CSV) format. The “ADD NEW WORD” button is a button that insert a new word into database.

Next we show the “Translate” window in Fig. 2. If you click “TRANSLATE” button in Fig.1, this window will be displayed. The “TRANSLATE”

button in Fig.1 has a function to add a translated word in Thai and verify the corrected spelling and meaning word. The “G Translate” button in Fig.2 is a button that sending a request to Google Translate API to get a translated word directly from Japanese to Thai. If user is satisfied with the translation, check the “Verify?” check box. This human check process makes CAVOC meaningful as Thai language.

Translate

Japanese	English	Thai
作物生育制御作業	Handling for plant growth control	การควบคุมการเจริญเติบโตของพืช
	<input checked="" type="checkbox"/> Verify?	
G TRANSLATE	SUBMIT	CANCEL

Fig. 2. If you click “TRANSLATE” button in Fig. 1, this window will be displayed.

For backend side, we use Firebase service because it has a realtime database when we translate a word or add a new word each translator on the website will see a change at the realtime. Database service is a part of Firebase system which is a NoSQL database. For the operation side, we use CircleCI for an integration testing the frontend side and building a production website index page then deploy to the Firebase service automatically.

### 3. RESULT

In Fig.3, we show some records of translation table as one of the case example. By using CAVOC translator, we could create CAVOC in Thai easily.

A
Japanese
作物生育制御作業
繁殖制御作業
採種
苗取り
穂木採取
種子繁殖作業
B
English
Handling for plant growth control
Regulation of plant propagation
Seed production
Pulling seedlings
Scion collection
Treatment for seed propagation

C
Thai
การควบคุมการเจริญเติบโตของพืช
การขยายพันธุ์พืช
เมล็ดพันธุ์
การถอนต้นกล้า
รวบรวมกิ่งพันธุ์
การดูแลรักษาเมล็ดพันธุ์

Fig.3. A case example of translate table.

### 4. CONCLUSION

We created CAVOC translator for creating CAVOC in Thai easily. Then we translated some records of CAVOC into Thai by using the system. We confirmed that the system can easily create CAVOC in Thai, and eliminate obvious mistakes. It is important to verify that CAVOC in Thai can be used to express agricultural process in Thailand.

### REFERENCES

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(Received September 29, 2017)