

CASE STUDY

Synergetic Inter-linkages for national SDGs implementation :
“Knowledge-Based Sharing Platform for Sustainable Food Production-
Supporting and Monitoring System for Women Farmers”

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Fig. 1 The Inter-linkages on Sustainable Agriculture

Agriculture is the basic source of the food supply of all the countries of the world. According to the high demand of agricultural products is increasing every year due to the number of population while the decline in crop productivity is facing to our societies. As the critical issue on food production and poverty, Scientific tools and Technology can support and achieve the sustainable agriculture and close the gap

between household level, community level, and national level. This case study reviewed the Knowledge-based sharing platform or 5D World Map System which is able to utilize the community-based information analysis for crop condition monitoring and provide decision-making for the working out of agricultural policy and commissariat.

The knowledge sharing and visualization platform called 5D World Map System [1] that offer the ability to collect and analyze 'real time' information from across local communities for facilitating policy making in the country. By using this technology, the users are able to get supporting and suggestion in several aspects such as economy, social impact and environmental outlook.

The case study aims to provide a future reference on SDGs contribution as: (1) Achieve food security and promote sustainable agriculture that aims for zero hunger in the future; (2) Ensure sustainable consumption and production patterns; and (3) Adapting farming for climate change that aims to take urgent action to combat climate change and its impacts. This case study presents the effective system to support the sustainable agriculture production that can be helped to increase high quality and quantity agriculture products.

This case study mainly focus on women farmers according to Food and Agriculture Organization of the United Nations (FAO) said "If woman had access to resources, on-farm yields could increase 20-30% and this extra output could reduce the number of hungry people in the world 12-17%" [2], which means our case study shown the possibility to support non-educational woman farmers to produce the agriculture products by using a new technology and knowledge-sharing and learning platform.

I. Basic scientific tools and data: 5D World Map System : Science and Innovation Tool for Global Farming Analysis

A fundamental concept for realizing the environmental system with three basic functions of Sensing, Processing, and Analytical Actuation" to design a global environmental system with Physical-Cyber integration [3]. SPA concept is highly effective to detect environmental phenomena as real data resource in physical space and mapped those data to cyber-space to make an analytical and semantic computing, while actuation process aims to actuate the analytically computed results to real space by visualization for expressing environmental phenomena with causalities and influence. By using 5D World Map System integrated with these functions, the users are able to perform a global analysis on the environmental sensing data along with the related multimedia data on a single view of time-series maps, based on the spatiotemporal and semantic correlation calculations.

The community-based Data Collection by 5D World Map System can be the action awareness building for societies on sustainable agriculture, especially combating poverty issue. This scientific tool integrated big data analysis and its application that can be supported SDGs implementation and awareness building-where discussions will delve into detail the role of local community and national level.

II. The national SDGs implementation on sustainable agriculture

This system can be supported in three level as (1) household level; (2) community level; and (3) national level. which aims to promote women farmers in rural areas for expanding sustainable agriculture and To produce food for combating starvation in their communities.

- (1) Household level: System provides the knowledges and practice case to the users.
- (2) Community level: Information sharing and agriculture production monitoring.
- (3) National level: Market sharing and Implementing national SDG progress.

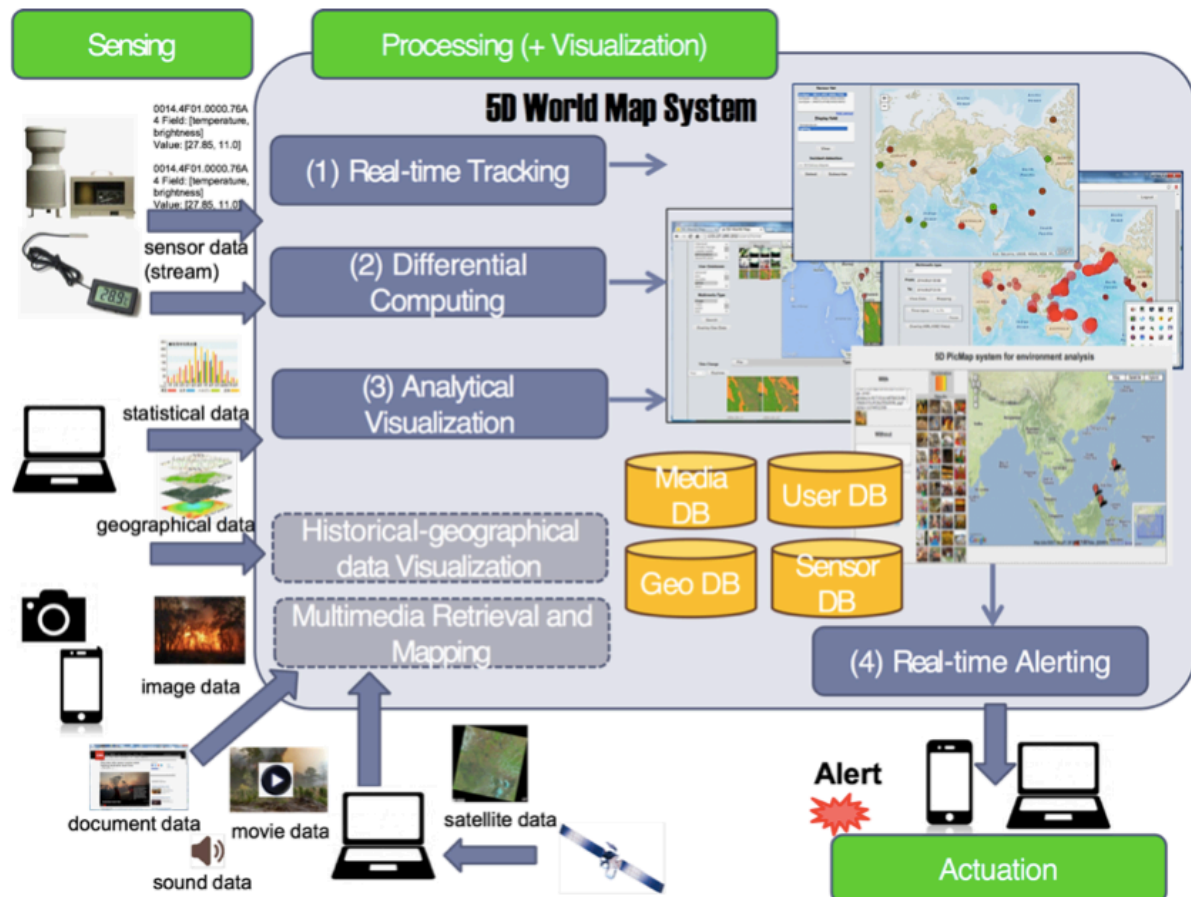


Fig. 2 Sensing, Processing, and Actuation process on 5D World Map System [3]

This system also implement the sustainable development goals (Goal 1,2,4,5,6,7,8,12,13 and 15) and targets that related to sustainable agriculture to achieve the sustainable food production and zero end hunger in societies. The figure 1 shows the inter-linkages of sustainable agriculture-Goal 2.

III. Expected outcome

- (1) To provide the technology and information to improve quality, increase crop and animal output
- (2) To integrate the collaboration among local farmers, state and national government and research institutes for achieving the sustainable agriculture
- (3) To support the women farmer on food production process and acquire the actual data from them

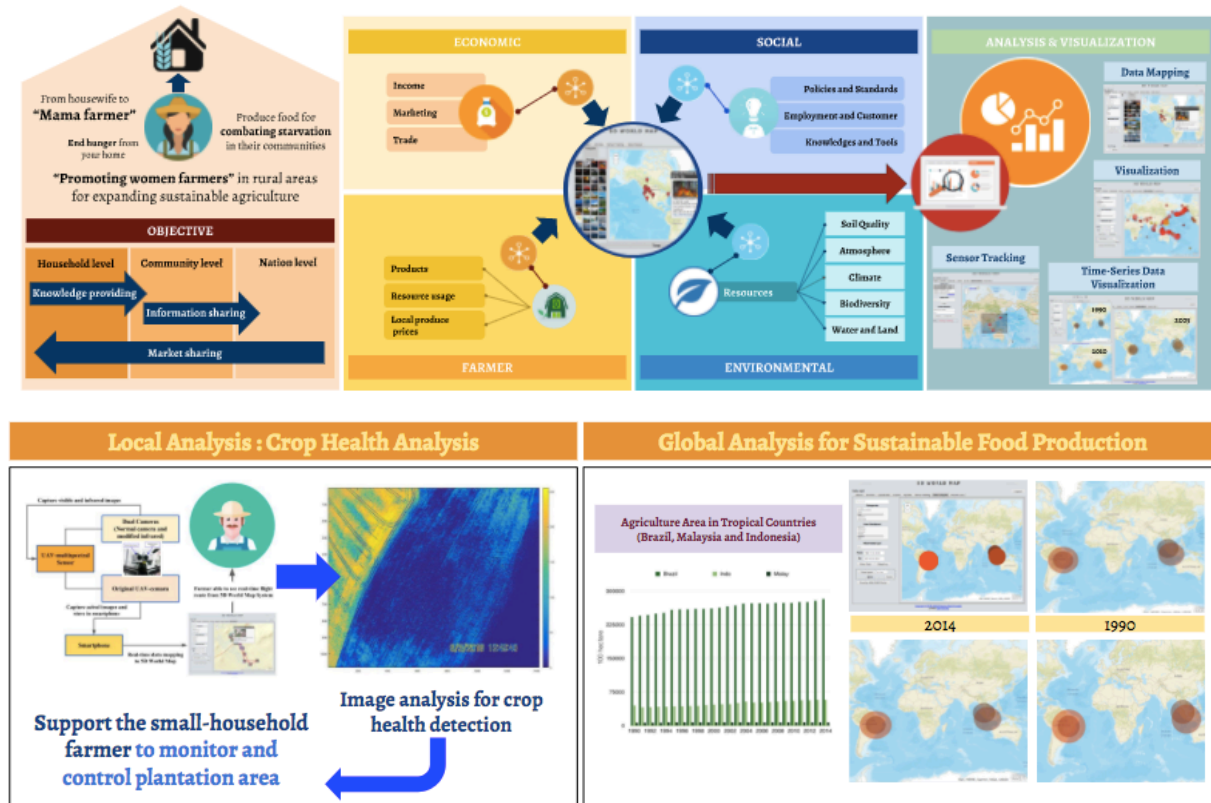


Fig. 3 The overview of Smart Mama Farming system

IV. Conclusion

This case study aims to provide the effective knowledge-based sharing platform to support the sustainable agriculture production that can be helped to increase high quality and quantity agriculture products and to provide a future reference on SDGs contribution as:

- (1) Achieve food security and promote sustainable agriculture that aims for zero hunger in the future
- (2) Ensure sustainable consumption and production patterns
- (3) Adapting farming for climate change that aims to take urgent action to combat climate change and its impacts

References

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