MAIN CHALLENGES AND CONSTRAINTS OF CONSERVATION AGRICULTURE MECHANIZATION IN INDONESIA

Presented by
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Regional Workshop on the Role of Mechanization in Strengthening Smallholders' Resilience through Conservation Agriculture in Asia and the Pacific
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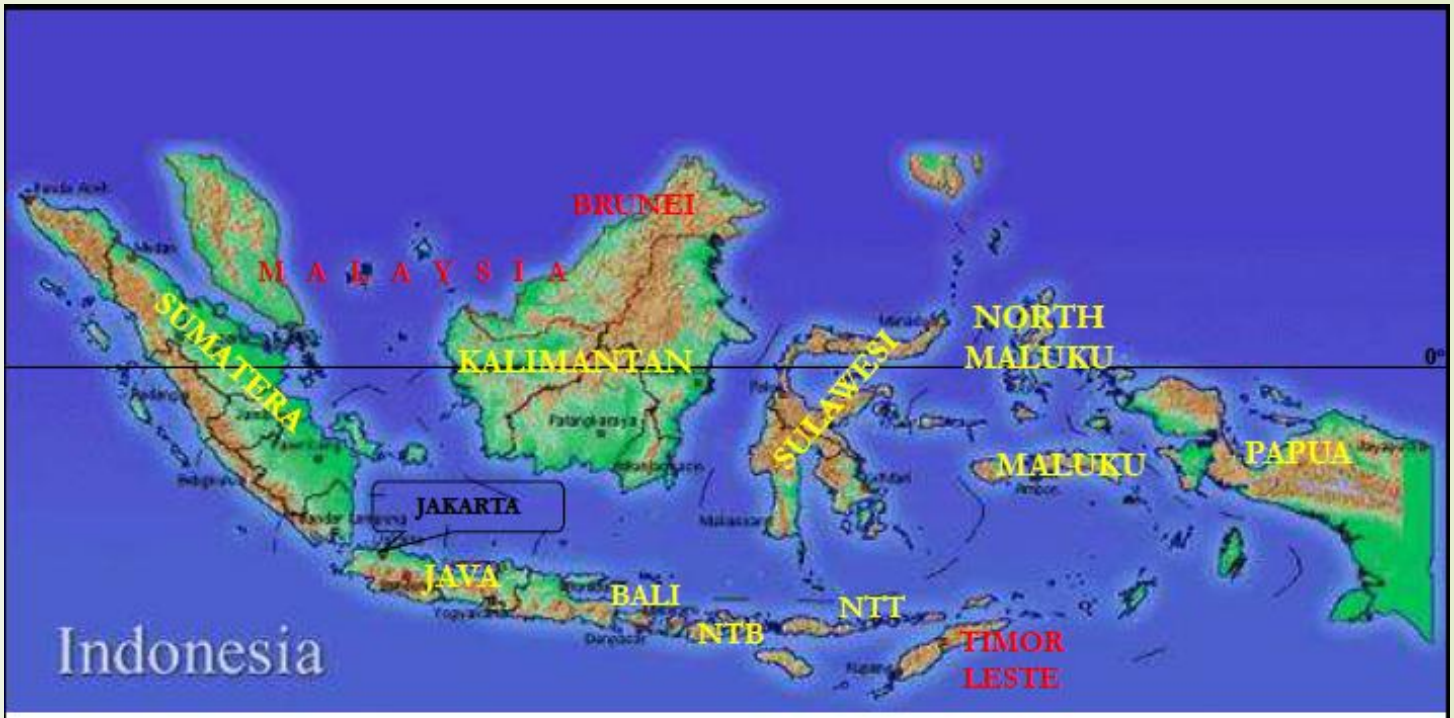
INDONESIA



GEOGRAPHICS :

-Archipelago country >17,000 islands

- Landmass : 1.8 million kms2

- 6° North latitude - 11° South latitude

- 95° West longitude- 141° East longitude

CLIMATE :

TROPICAL CLIMATE (dry season and wet season)

Rainfall : Rata2 996 – 4927 mm/year

Temperature : 24° – 35°C

Introduction

Profile of Agriculture in Indonesia : 2017

Country population (million)	≈260
Population growth rate (%)	1.15
Rural population (%)	56.9
Strategic food crops	Rice, Corn, Soybean, Sugarcane, Meat
Number of rice farmers (m household)	39.68
Total crop area ('000 ha)	20,000
Total rice harvest area ('000 ha)	15,69
Average rice yield (ton/ha)	5.16
Rice Production (million ton)	81.07
Rice Imports ('000 ton)	-
GNP (US$/capita)	3,716

Agriculture Development Target and Strategy

- Four Targets of Key Success of MoA :
  - achievement of sustainable self sufficiency
  - increasing food diversification
  - increasing added value, competitiveness, and export
  - improving farmer's welfare
- Strategy and efforts (implements the 7 revitalization strategies)
  1). improvement of agricultural land
  2). seed and nursery industry
  3). Infrastructures
  4). human resources
  5). capital
  6). farmer's institution, and
  7). technology.

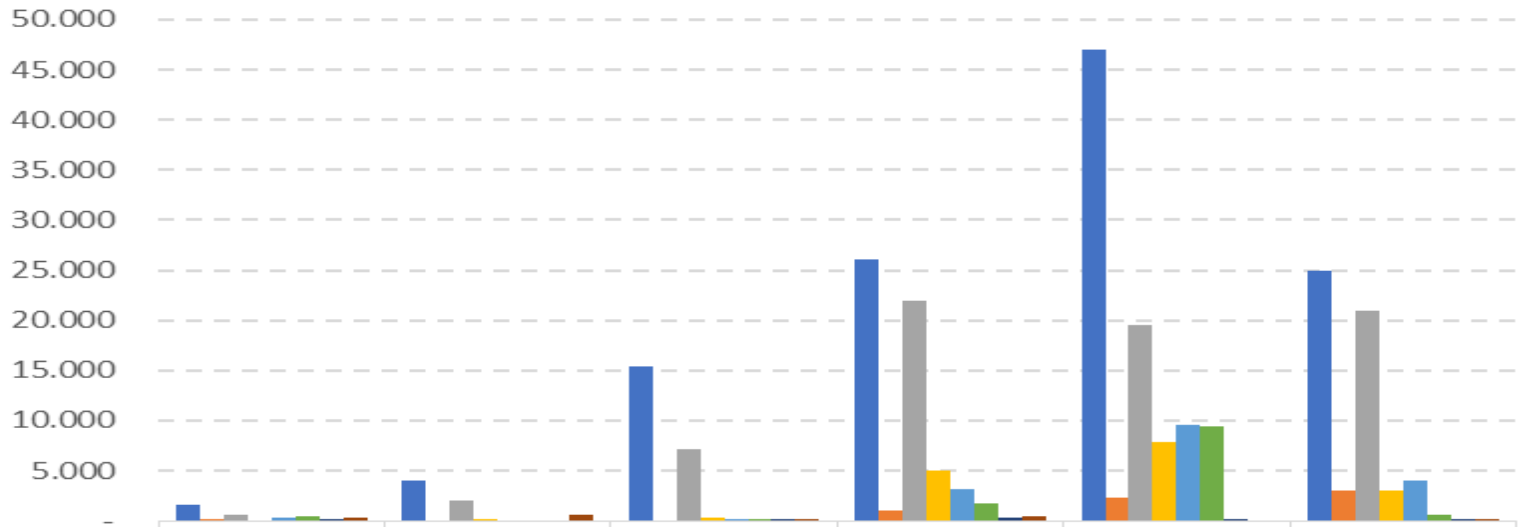
Production of strategic food crop

	2013	2014	2015	2016	2017
PADDY :					
- Total land (mil. ha)	13.835	13.797	14.117	15.156	15.697
- Productivity (ton/ha)	5.15	5.14	5.34	5.36	5.16
- Production (mil. ton dried)	71,280	70.846	75.398	79.355	81.073
MAIZE :					
- Total land (mil. ha)	3,822	4.184	3.896	3.997	3,822
- Productivity (ton/ha)	4.84	4.31	4.46	4.74	4.84
- Production (mil. ton dried)	18,512	18.016	17.392	18.945	18,512
SOYBEAN :					
- Total land (mil. ha)	551	0.678	0.592	0.566	551
- Productivity (ton/ha)	1.42	1.37	1.38	1.29	1.42
- Production (mil. ton dried)	780	0.927	0.819	0.779	780
SUGARCANE :					
- Total land (mil. ha)	460	0.429	0.435	n.a	460
- Productivity (ton/ha)	6.51	5.31	4.89	n.a	6.51
- Production (mil. Ton sugar)	2,254	2.277	2.126	n.a	2,254

Agricultural Mechanization

- Intensive rice farming system with partly mechanized has been started in **1972** since high yielding variety was introduced as the program componen to increase rice production.
- Agricultural machinary as an input of production has helped farmer in increasing their capability to cultivate land, process their product while increasing rice production
- The development of agricultural machinery technilogy and industry for rice in asian countries gave good impact for indonesian farmer to modernise rice farming system using various types or agricultural machinary.
- Modern rice farming models fully mechanised in Indonesia was started in 2014. The opproaches of modern rice farming system was not only to increase rice production at reasonable cost, but also increase farmer income and welfare
- in various condition of agro-ecosystem, social, economic and culture. This also conseder ias the key sucsess for development of sustainable agricultural mechanization

Loan and grand of agricultural machinary from Ministry of Agriculture to famer group in 2012-2017



	2012	2013	2014	2015	2016	2017
Traktor R2	1.567	3.996	15.435	26.100	46.980	25.000
Traktor R4	50	-	-	1.000	2.280	3.000
Pompa	600	2.002	7.122	21.953	19.518	21.000
Rice Transplanter	-	153	279	5.000	7.854	3.000
Combine Harvester	355	-	180	3.185	9.564	3.984
Power Thresher	400	-	201	1.654	9.432	604
Dryer	183	-	29	271	11	2
RMU	333	575	151	386	-	21

Conservation Agriculture (CA) In Indonesia

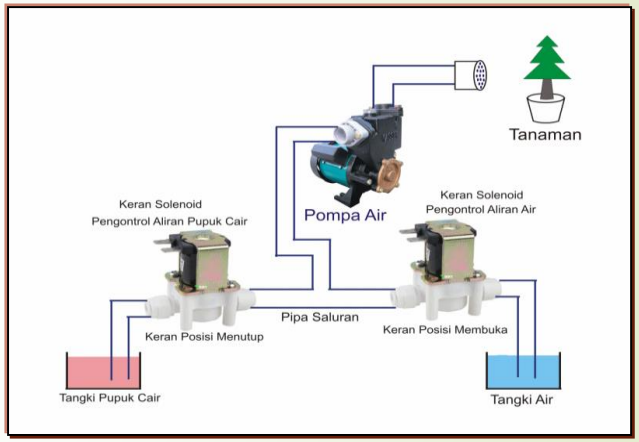
CA activity by **FAO** and **MOA** Indonesia (2015-2017):

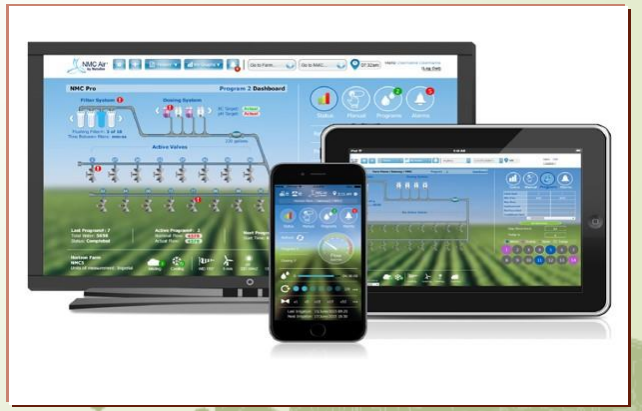
- Location : West Nusa Tenggara and East Nusa Tenggara Timur
  (Poor farmer in East to Indonesia;
- Smallholder famers are among the poorest in Indonesia
- Involve 10 District, 264 farmers group with 6.000 farmers

Mr. Smulders,
FAO Representative for Indonesia

CA MECHANIZATION

SUB SURFACE IRRIGATION AND SUGAR CANE PLANTER





- Agricultural activities basically can contribute both positive and negative effects to the environment.
- It is diverse significantly as a function of the type of production and management system.
- When it is carried out in a sustainable manner, agriculture surely can be expected to:

  (1) conserve the natural resource and prevent the degradation of soil, water, and air quality;

  (2) contribute to the economic and social well-being;

  (3) ensure a safe and high-quality supply food and other agricultural products;

  (4) safeguard the livelihood and well-being of farmers, agricultural workers and their families.

Conclution

A sustainable approach of agriculture in Indonesia is necessary to keep growing the productivity (to fulfill human need) whereas at the same time it has to be in harmony with environment (to maintain environmental balance).

The approach strategy may consist some aspects, such as:

(1) production and management practices (precision input, appropriate technologies and mechanization, mix cropping system, diversify output, waste recycle etc.);

(2) socio-economic (scale of production, capital and purchasing ability, efficiency & productivity, food safety & security, infrastructures);

(3) policy and institutional drivers (fair trade, investment, competition, eco-labeling, incentives, R&D);

(4) socio-cultural (local wisdom & indigenous knowledge, formal education, community education, consumer awareness, etc.);

5) regional and international networking and cooperation.

THANK YOU