

Plenary Session III (PL III) of the WIF3 (Sub-theme 2)
 "Role of civil society and NGOs with focus on farmers and extension facilities"



Keynote

Changing the nervous mind of small-scale farmers who are reluctant to invest for their development

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3rd World Irrigation Forum
 1-7 September 2019, Bali, Indonesia

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Title of submitted papers



- W.1.3.27
- Increasing water productivity and saving energy by high yield rice ratooning in Myanmar
- Kazumi Yamaoka, Khin Mar Htay, Resfa Fitri and Erdiman
- W.3.1.19
- New strategy to drastically increase water productivity through high yielding perennial rice ratooning in Ghana
- Kazumi Yamaoka and Joseph Ofori

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A Message from Japan and Asia to the World Water Discussions



- Written by Kazumi Yamaoka et.al in 2003 in occasion of 3rd World Water Forum held in Kyoto, Japan

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Equation of Green Revolution

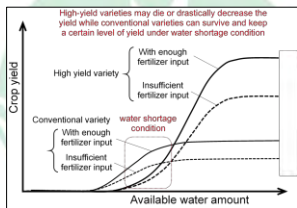


$$\text{Green Revolution} = \text{Irrigation development (X)} \times \text{Introduction of high-yield varieties (Y)} \times \text{Fertilizer input (Z)}$$

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Crop yield response of rice to available water



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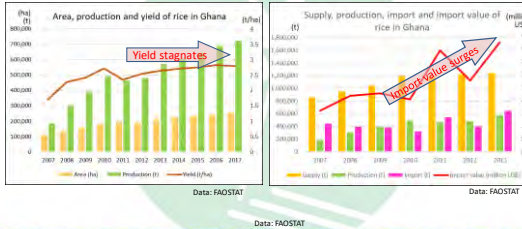
Questionnaire field surveys in Ghana



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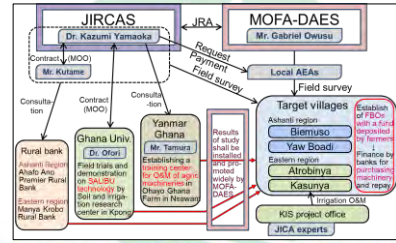
Yield stagnates, Import value surges



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Formation of field study in Ghana



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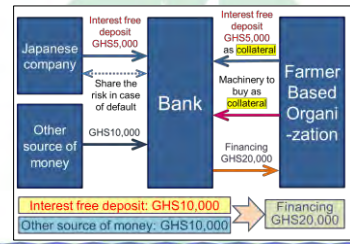
Agricultural machinery for small scale farmers



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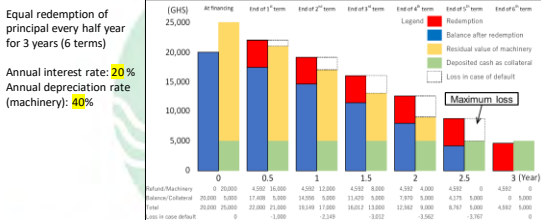
Proposal of pilot project for new finance scheme



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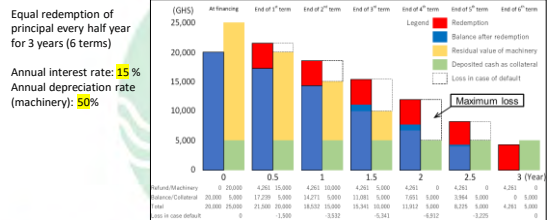
Simulation of repayment and loss in case of default



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Simulation of repayment and loss in case of default



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How to share the risk burden in case of default

- Sharing the risk burden in case of default
 - First foreclosure: **GH\$5,000** deposited as collateral
 - Second foreclosure: **Residual value** of machinery to buy
 - Losses shared between bank (50%) and company (50%)
- Maximum loss in case of default by interest/depreciation rate

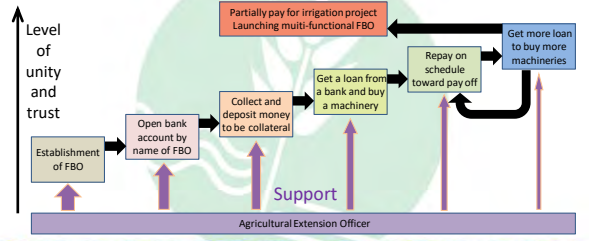
		Annual interest rate (%)					
		15	20	25	30	35	
Maximum	Annual	33.3	-341.5	-1,012.1	-1,682.2	-2,351.0	-3,018.0
loss in case	depreciation	40.0	-3,224.5	-3,766.8	-4,319.0	-4,880.2	-5,538.2
of default	rate (%)	50.0	-6,911.6	-7,582.0	-8,212.2	-8,876.2	-9,538.2
Each period	redemption		4,260.9	4,592.1	4,933.6	5,284.7	5,645.1
Total	repayment		25,565.4	27,552.9	29,601.6	31,708.4	33,870.5
Gross	interest amount		5,565.4	7,552.9	9,601.6	11,708.4	13,870.5

- Japanese company deposits GH\$5,000 in bank account as a source of money and security in case of default



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Sustainable gradual development of multi-functional FBO



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