SUSTAINING RICE PRODUCTION UNDER CHANGING CLIMATIC CONDITIONS IN SOUTHERN GHANA. A CASE STUDY IN THE AHAFO ANO SOUTH DISTRICT

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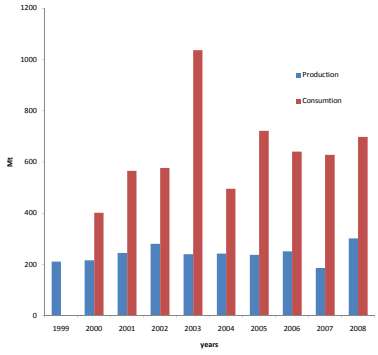
Presentation layout

1. Current rice situation in Ghana
2. Changing climatic conditions
3. Challenges facing rice cultivation
4. Objectives
5. Introduction of interventions
6. Results
7. Conclusions
8. Way forward



Source: MoFA - Ghana

Cereal Imports in Ghana (US $Million)

Year	Rice	Maize	wheat	Sorghum
2000	65.03	0.73	72.03	1.18
2001	72.46	1.52	64.25	2.75
2002	68.85	2.08	78.59	2.25
2003	124.66	0.07	50.7	0.002
2004	119.15	0.086	84.32	0.77
2005	138.94	12.37	99.69	-
2006	159.47	1.43	46.37	-
2007	157.86	0.21	111.38	-
2008	187.28	18.69	175.35	-
Total	1093.7	37.186	782.68	6.952

Challenges

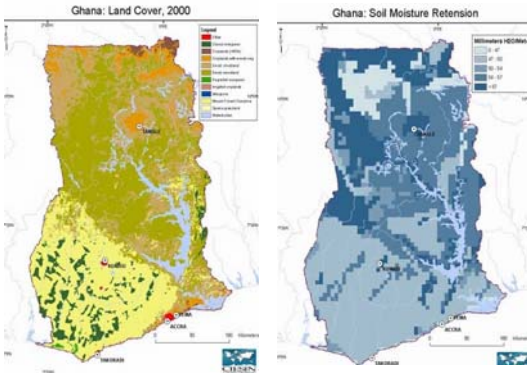
Even though, Ghana has over a million ha of lowlands, which can be utilized for rice production, changing climatic conditions are resulting in:

1.Land degradation,

2.Water unavailability over a greater part of the year

3.Soil fertility levels are fast declining

In addition:
Improved technologies for rice cultivation are very limited.



OBJECTIVES

Development and introduction of improved technologies for increased rice production – " Sawah" system

"Sawah" refers to bunded and well-levelled rice fields with inlets for water intake and outlets for drainage. Can be modified to suit a variety of conditions across different environments or agro-ecological zones

For some time now, improved technologies for rice production in Ghana are mainly limited to only improving varieties, to the neglect of improving the immediate rice growing environment.

PROCESESS

- ❑ Sharing knowledge with farmers
- ❑ Site selection
- ❑ Construction of water harvesting structures
- ❑ Effective land development
- ❑ Effective and timely agronomic practices

SHARING EXPERIENCES AND KNOWLEDGE WITH FARMERS

SELECTION AND SURVEY OF SELECTED SITES

CONSTRUCTION OF WATER MANAGEMENT STRUCTURES

PROCESSES OF LAND DEVELOPMENT

TRAINING IN GOOD AGRONOMIC PRACTICES.

SOME RESULTS

Rice Grain Yield (t/ha) of farmers groups under "Sawah" System

Farmer Group	2001	2002	2003	2004	2005	2006	2007	2008
Adugyama A	4.0	4.7	3.8*	5.0	4.5	5.6	5.6	5.8
Adugyama B	4.4	4.8	5.5	5.5	4.8*	5.7	5.6	6.0
Biemso A	4.8	4.7	4.8	5.5	-	-	-	-
Biemso B	4.7	5.7	5.9	6.5	5.4*	-	-	-
Biemso C	-	4.5	5.4	5.5	5.5	5.8	6.0	6.2
Mean	4.47	4.88	5.08	5.60	5.05	5.70	5.73	6.00

Cost of Production and net returns from operating on "Sawah" system

Adugyama	Grain Yield (t/ha)	Gross Revenue (US $)	Production cost (US $)	Net revenue (US$)
2004	4.3	1712	428	1284
2005	3.9*	988	460	528
2006	5.7	1383	300	1083
2007	5.6	1730	500	1086
2008	6.0	1700	510	1185
Biemso C				
2004	4.7	1847	349	1498
2005	5.5	1363	360	1003
2006	5.8	1396	362	1034
2007	6.0	1854	412	1442
2008	6.2	1756	450	1306

Changes (%) in topsoil (0-30cm) fertility levels (2001 – 2008)

Parameter	Adugyama	Biemso	Mean
Total carbon	3.5	3.0	3.25 ↑
Total Nitrogen	- 3.4	- 4.0	3.70 ↓
Available Phosphorus	10	- 30	- 10 ↓
Exchangeable K	32	35	33.5 ↑
Exchangeable Ca	37	15	26 ↑
Exchangeable Mg	10	12	11 ↑

CONCLUSIONS

- "Sawah" leads to increased grain yield
- "Sawah" leads to improved revenue and therefore reduced poverty
- Sawah leads to maximum water utilization.
- Sawah helps to build up soil nutrient stocks and improves upon nutrient use-efficincy

WAY FORWARD

Under diminishing water availability, land degradation, etc, out-scalling of this systems to cover a wider area, will tremendously lead to improvement in rice production, help to reduce rural poverty and significantly help to reduce rice imports. This is only possible when there is a strong political commitment.

Thank You