



Mass Cultivation of Mung Beans in Rural and Saline Areas of Bangladesh

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Subject

- 1. How did we establish GYM?
(History)**
- 2. Project Plan and Contents**
- 3. Addressing Climate Change
Issue**

What is Moyashi Sprout ?



Why GYM was born ?



Why GYM was born ?



Sprout market in Japan

**1. Market Sales in Japan:
60 billion JPY (2011)**

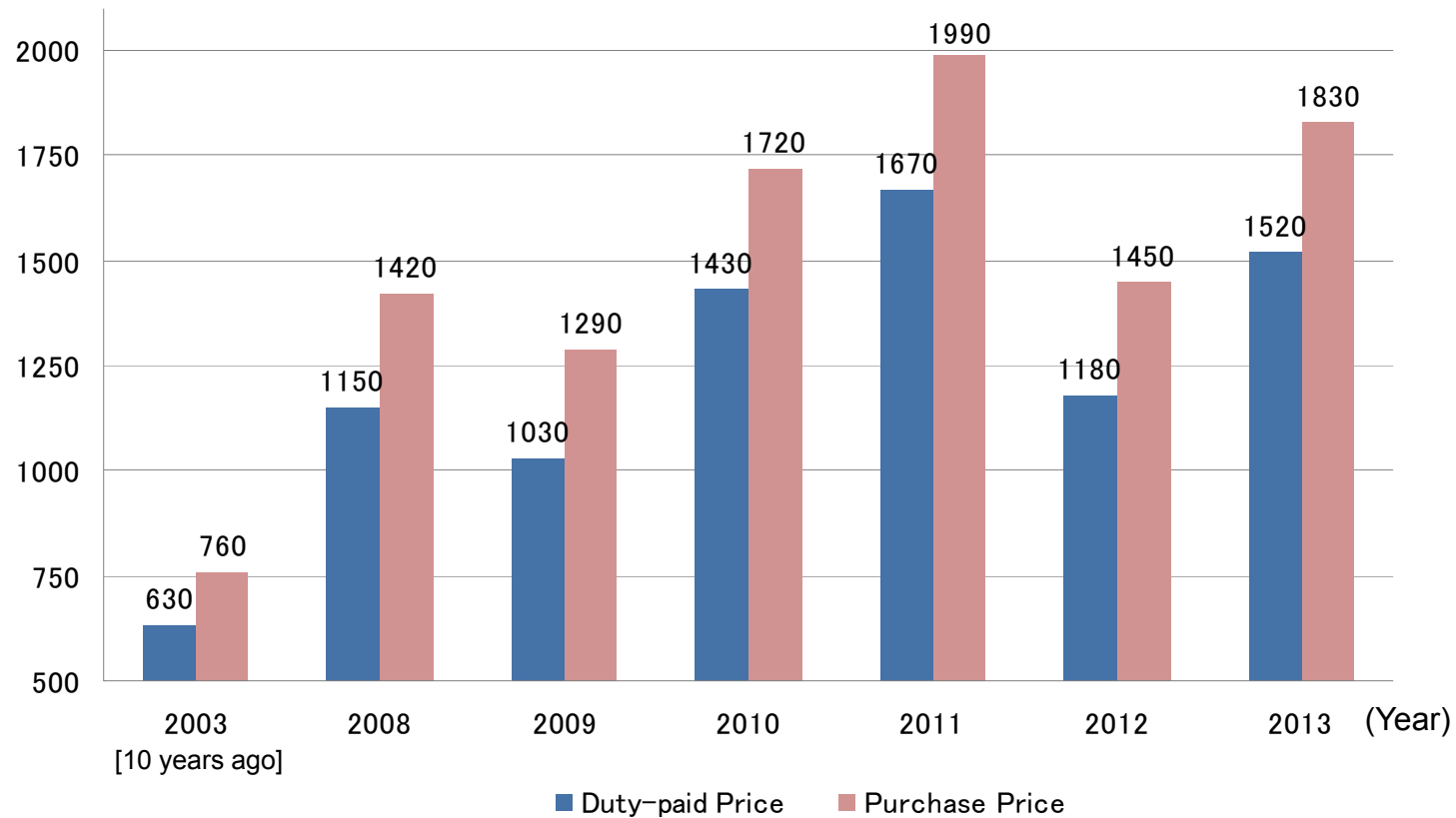
**2. Import Amount:
66,660t (2012)**

[Ratio] China 89%, Myanmar 10%

Sprout market in Japan

3. Price Trend

(Unit : US\$ / ton)



Sources : Customs clearance data, Ministry of Finance data

Win-win Benefits for Japan

Mungbean



- 1. Sustainable supply for Japan**
- 2. Avoid the price risk to rise**
- 3. Supply safe and reliable bean by using YMC check-system for pesticide like that**

Win-win Benefits for Bangladesh

- 1. Job Creation at rural area**
- 2. Supply low-priced mung beans for the local people**
- 3. Introduce the high technology know-how from Japan**

GYM creates jobs [Cultivation]



7500

Farmer Interview

District: Ishwardi (West Area)
Farmer: Mr. Shahidul



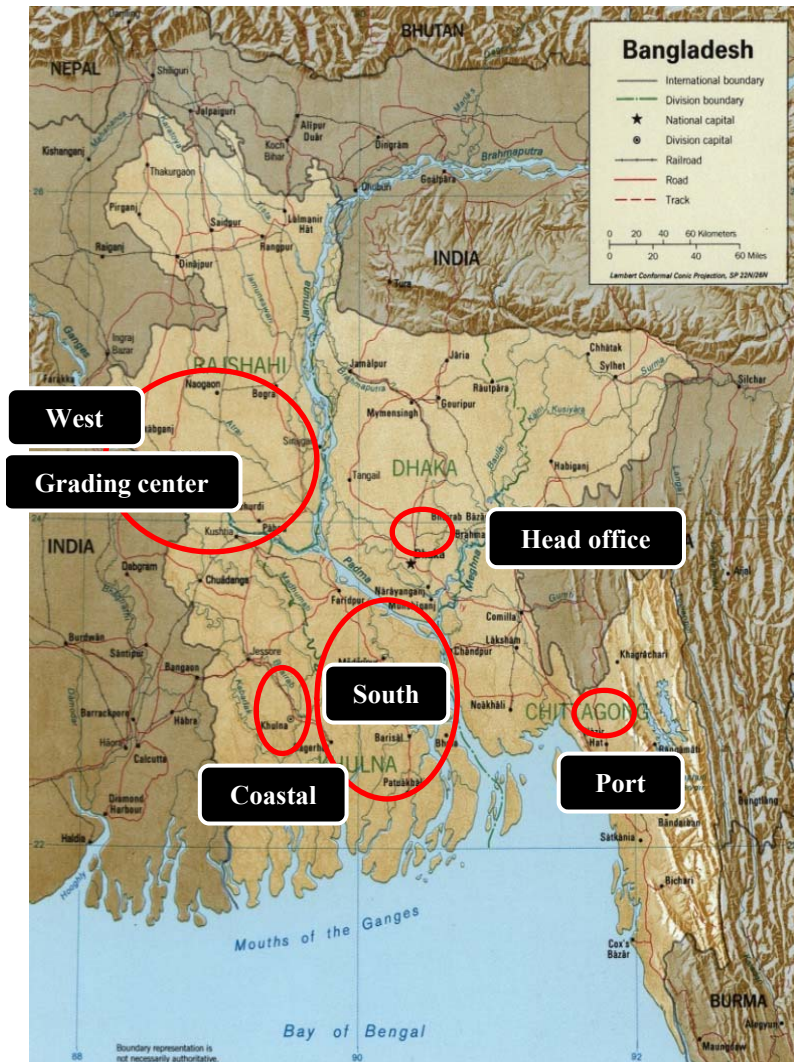
| | 2011 | 2012 |
|----------------------------------|-------------|-------------|
| Harvest ※ 1bigha=0.2ha | 160kg/bigha | 320kg/bigha |
| Sales Price | 43BDT/kg | 60BDT/kg |

2012

| | | |
|-------------------------|---|-------------------------|
| Invest 23,250BDT | → | Income 48,000BDT |
|-------------------------|---|-------------------------|

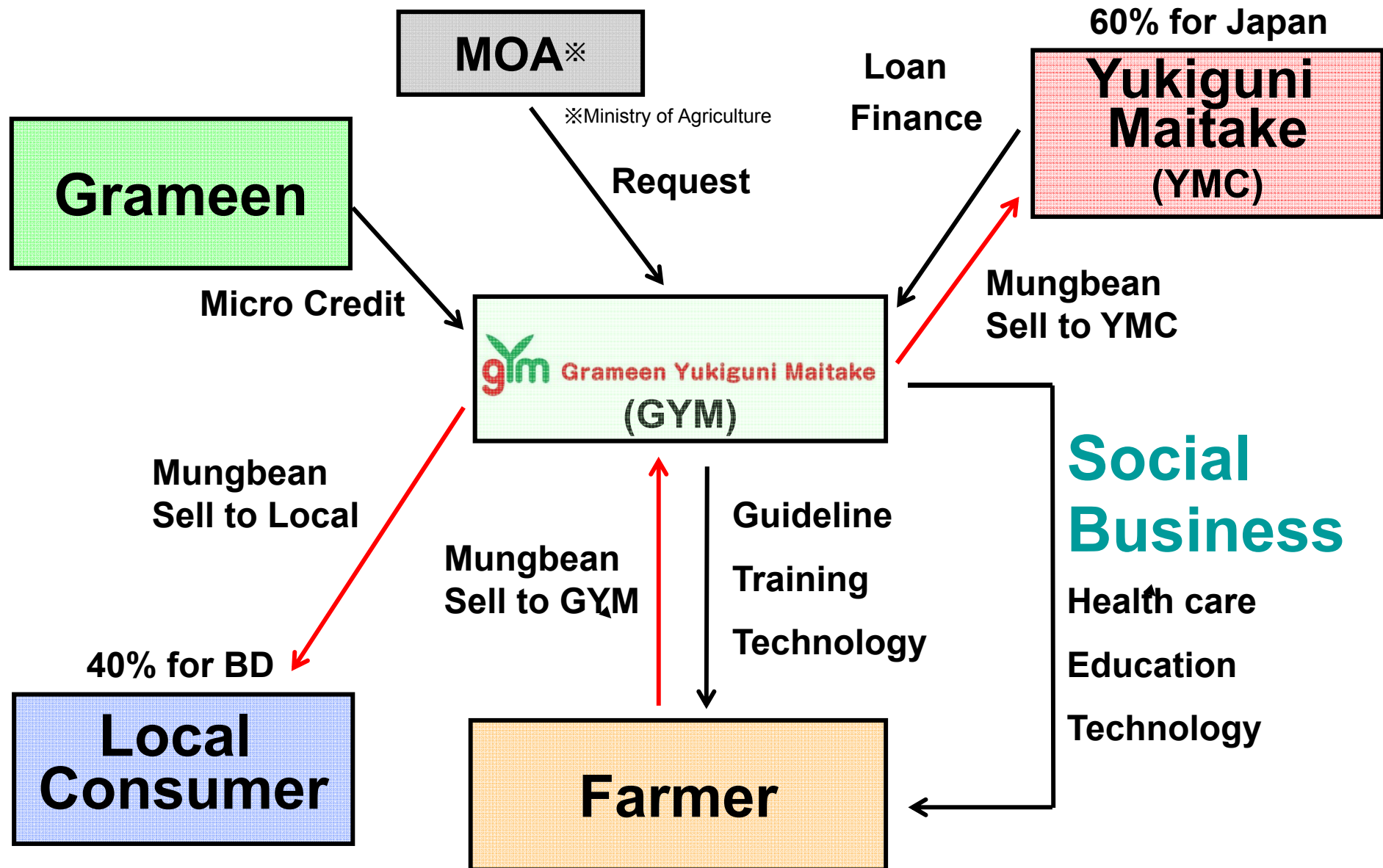
※BDT:Currency Unit in Bangladesh 1,000 BDT=12.8 USD (Feb.26, 2014)

GYM Activities Area & Harvest



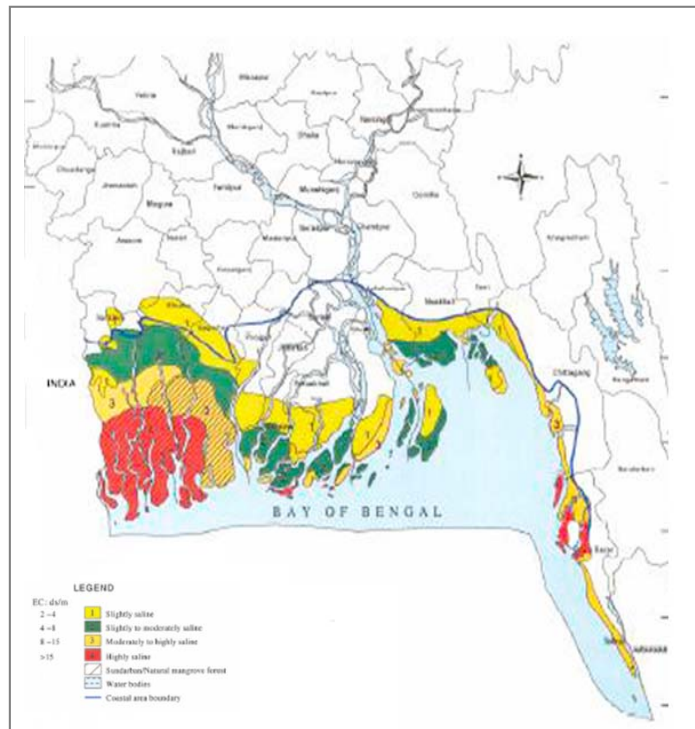
| Year | Number of Farmers | Area (hector) | Harvest (ton) |
|------|-------------------|---------------|---------------|
| 2010 | 51 | 5 | 0.1 |
| 2011 | 91 | 12 | 2 |
| 2012 | 7,510 | 2,284 | 1,417 |
| 2013 | 5,649 | 2,043 | 761 |

GYM Social Business Model

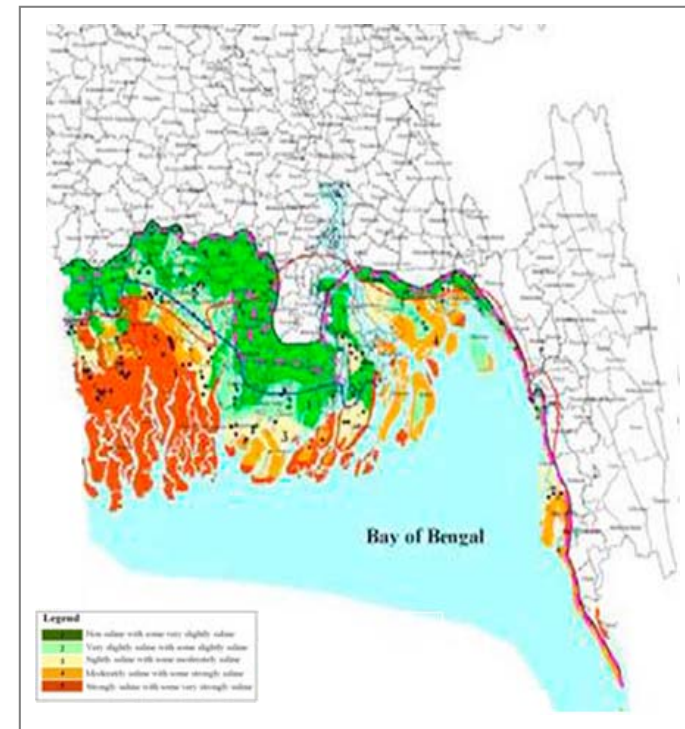


Addressing climate change issue

Changes in soil salinity over the years



1973
833,450 ha



2009
1,056,190 ha

Addressing climate change issue



METI

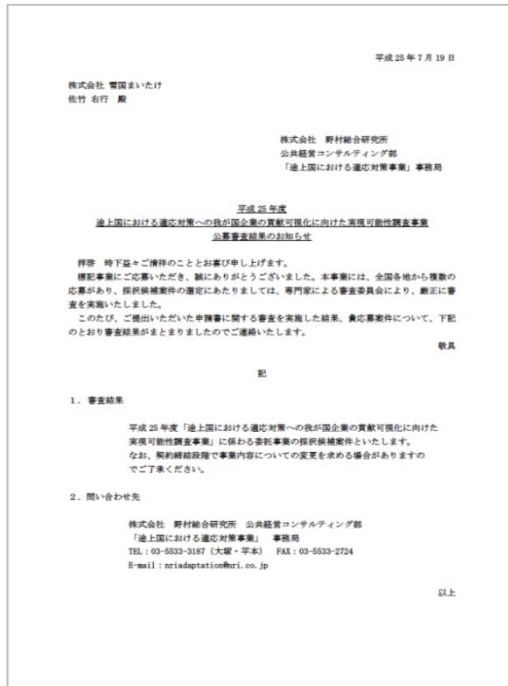
[Adaptation issue of climate change]



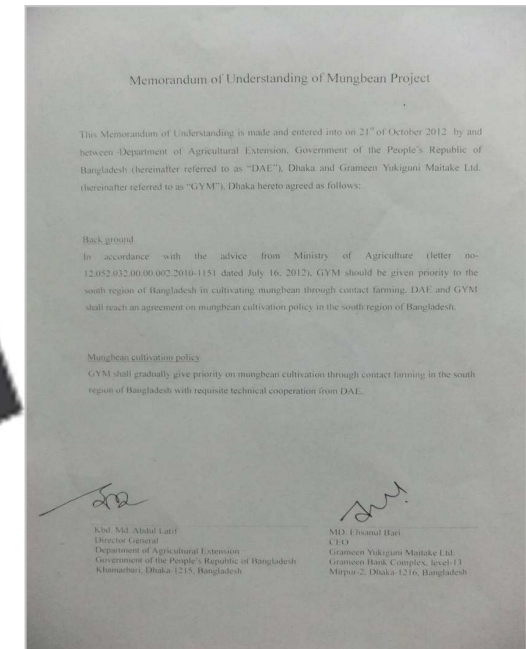
GYM will develop methods for harvesting mung beans in saline area.



MOA



Business under the jurisdiction of METI



MOU concluded with DAE

(METI: Japanese Ministry of Economy, Trade and Industry / MOA: Ministry of Agriculture, Bangladesh)

Addressing climate change issue

Feasibility study of mass cultivation of mung bean in saline area

Survey in 2012/13

- Research of measuring EC & pH (Field/River water/Tubewell water / Cistern water)
- Salt removal work (Plowing/Fertilizing calcium sulfate / Irrigation salt removal)
- Germination test of mungbean using saline soil & water
- Mungbean sowing area was 55 ha in saline field (level 2) .



Results

- “Plowing” and “Fertilizing calcium sulfate” are verified for effectiveness of salt removal.
- Mungbean yield in 2013 was 10 ton from 55 hector field in saline level 2 affected by cyclone.
- Questionnaire survey to 128 farmers was implemented in salinity area (Morrelganj, Batiaghata), and GYM could grasp current situation.



Plowing



Fertilizing calcium sulfate



Irrigation salt removal

Addressing climate change issue

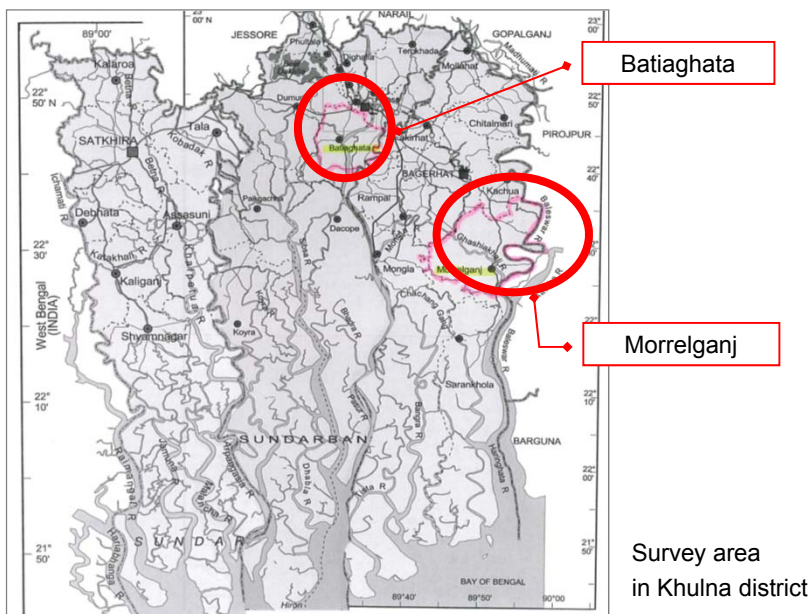
Feasibility study of mass cultivation of mung bean in saline area

Survey in 2013/14

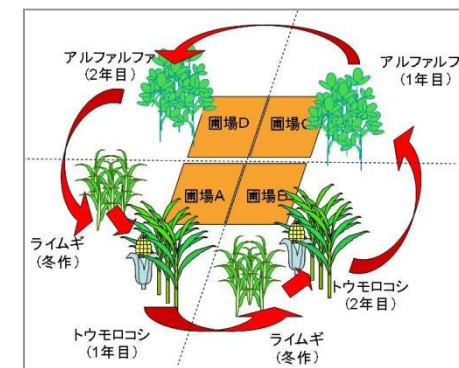
- Building the operation system of salt removal effect in mass cultivation
- Mungbean sowing area will be 250 ha in saline field (level 2)
- Development of saline tolerant variety*1
- Effective measures for replant failure by rotational cropping and verification of increasing the amount of rice harvest
- Establishment of the laboratory technology in local university

Efficient expected

- By verifying the effect of rotational cropping*2 in mung bean cultivation (lead to improvement of soil due to fixed nitrogen ability and increasing yield), there is possibility to spread the method to other areas which have same problem as replant failure due to the climate change and continuation of cultivating single crop.
- Development of saline tolerant variety will contribute to expand the capability of cultivating in saline field. By using saline tolerant variety, experiment will be implemented in saline field (level 3).



*1 Khulna test field for the development of saline tolerant variety



*2 Rotational cropping (Image)

