



Asian Soil Partnership Consultation Workshop on Sustainable
Management and Protection of Soil Resources

Country Report
Vietnam Soil Resources

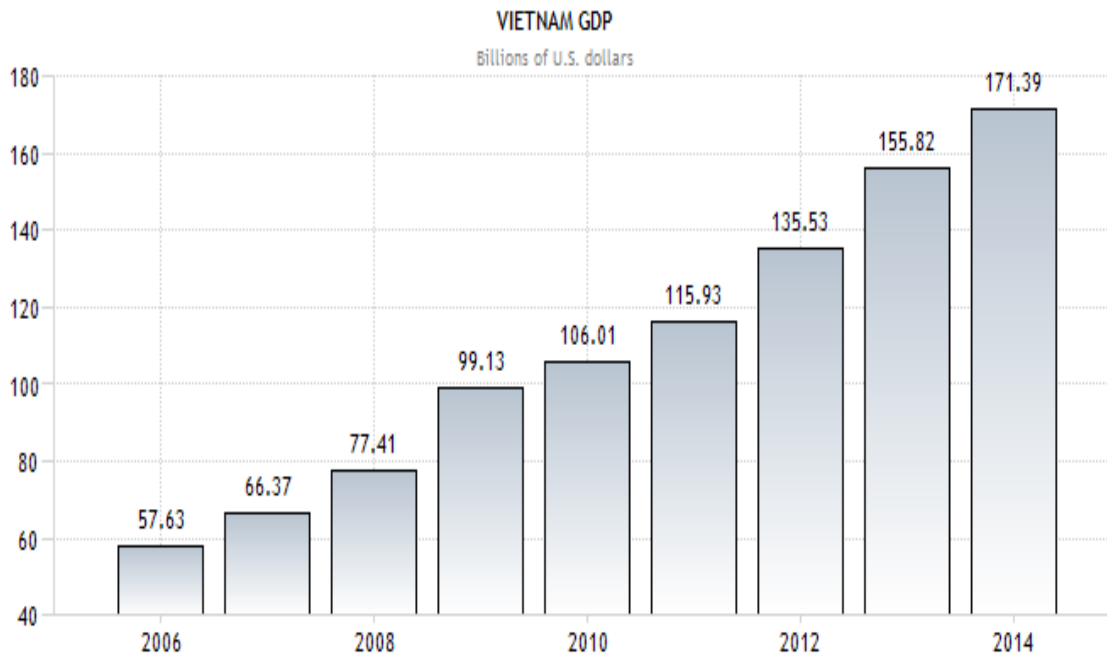
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Bangkok, 13-15 May 2015

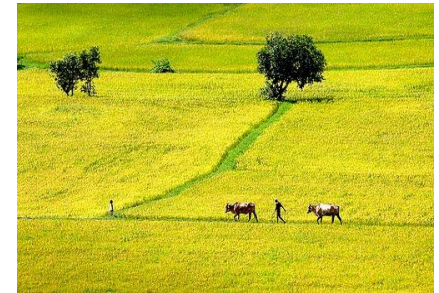
Introduction

Vietnam facts:

- Total area (main land): ~ 33 mil ha
- Population (2014): ~ 90.5 mil
- GDP:



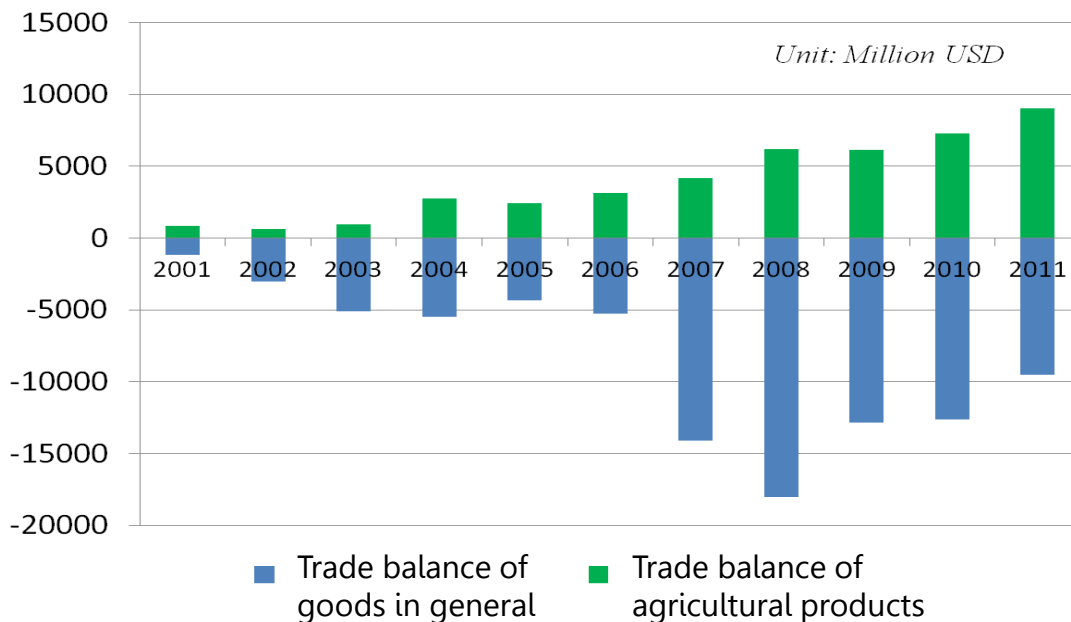
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Introduction

Vietnam agriculture-facts:

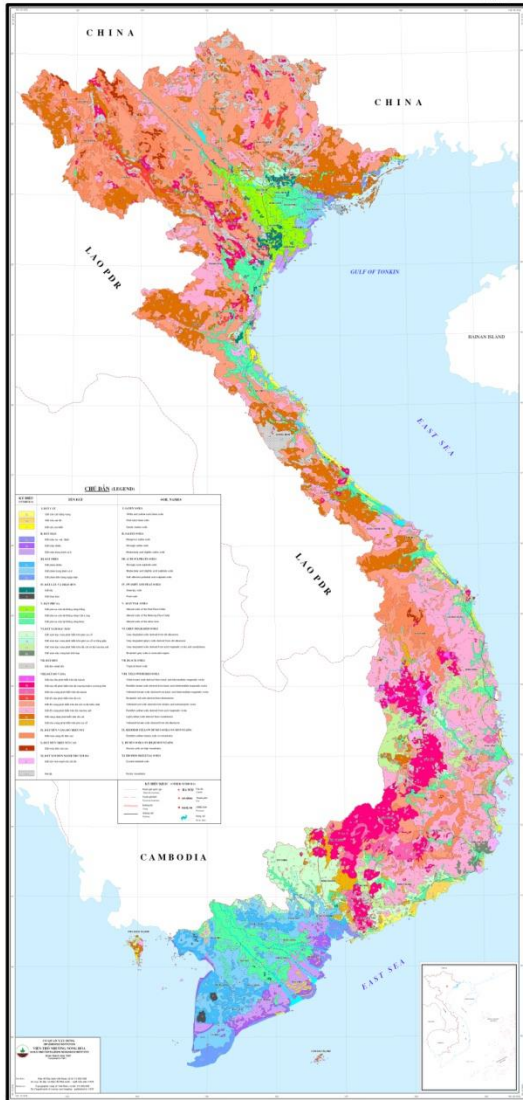
- Agriculture-based economy, though agriculture share in GDP is only 22%
- More than 70% of population engaged in agriculture
- Dominant area under food crops
- Agriculture is a very open sector/the big share of key products are for export



Trade balance 2001-2011;
Estimated from data of GSO &
MARD (cited by IPSARD, 2013)

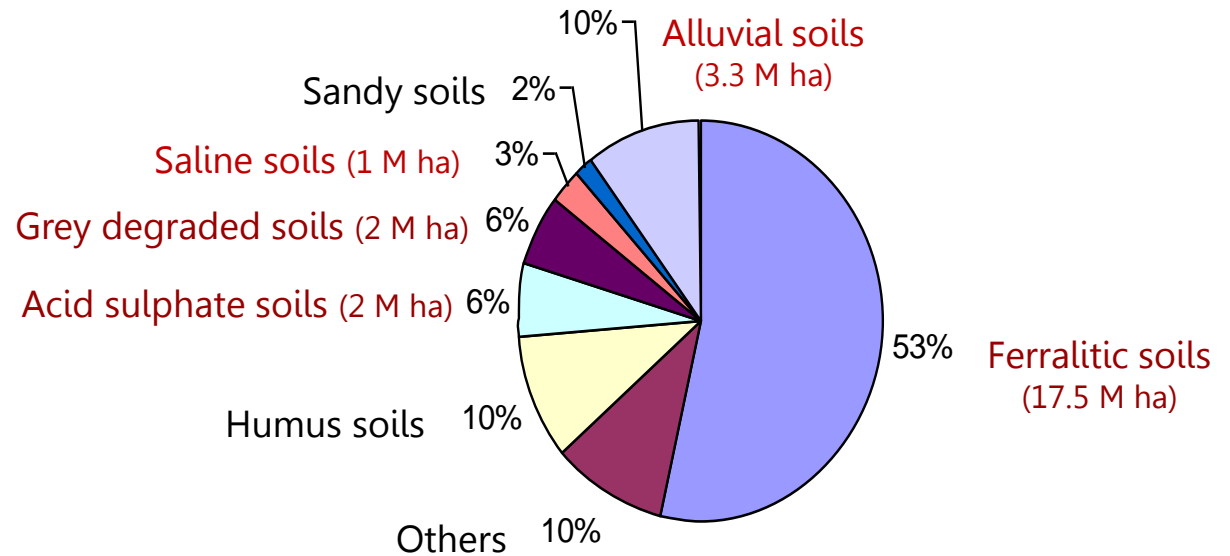
Status of Soil Resources

BẢN ĐỒ ĐẤT VIỆT NAM
SOIL MAP OF VIET NAM
Tỷ lệ (Scale) 1 : 1000000

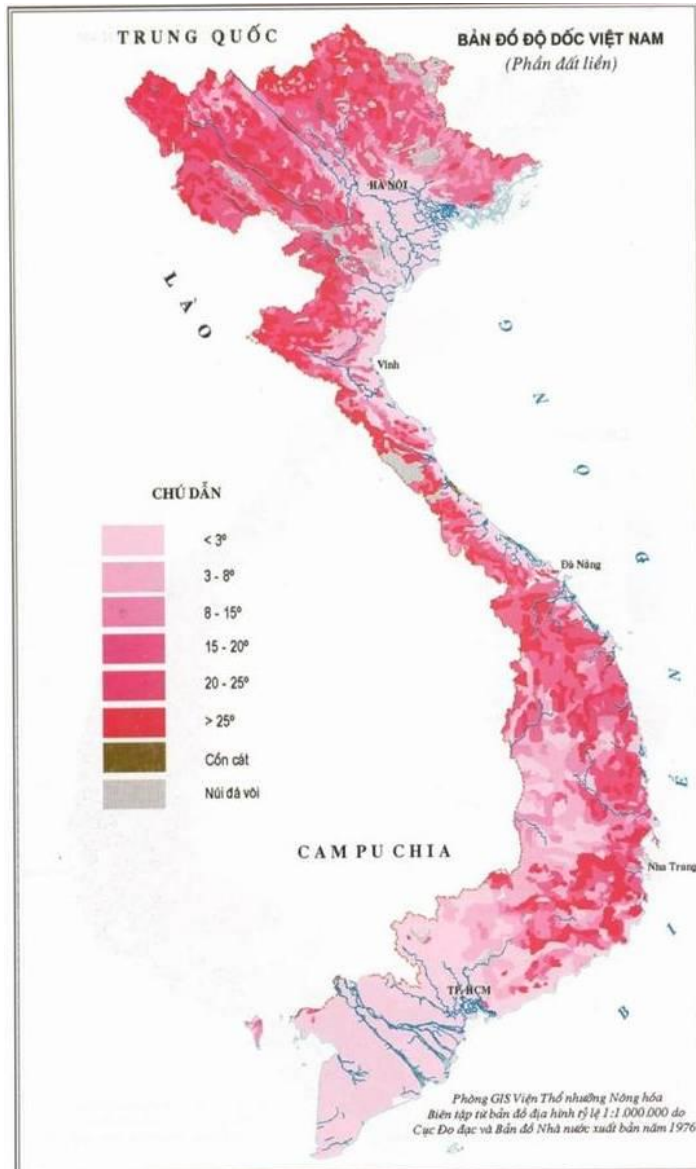


- The soil map of Vietnam at scale 1/1,000,000 issued in 1976 by Ministry of Agriculture
- The soil map included 13 Major Soil Groups with 31 Soil Units

33 M hectares



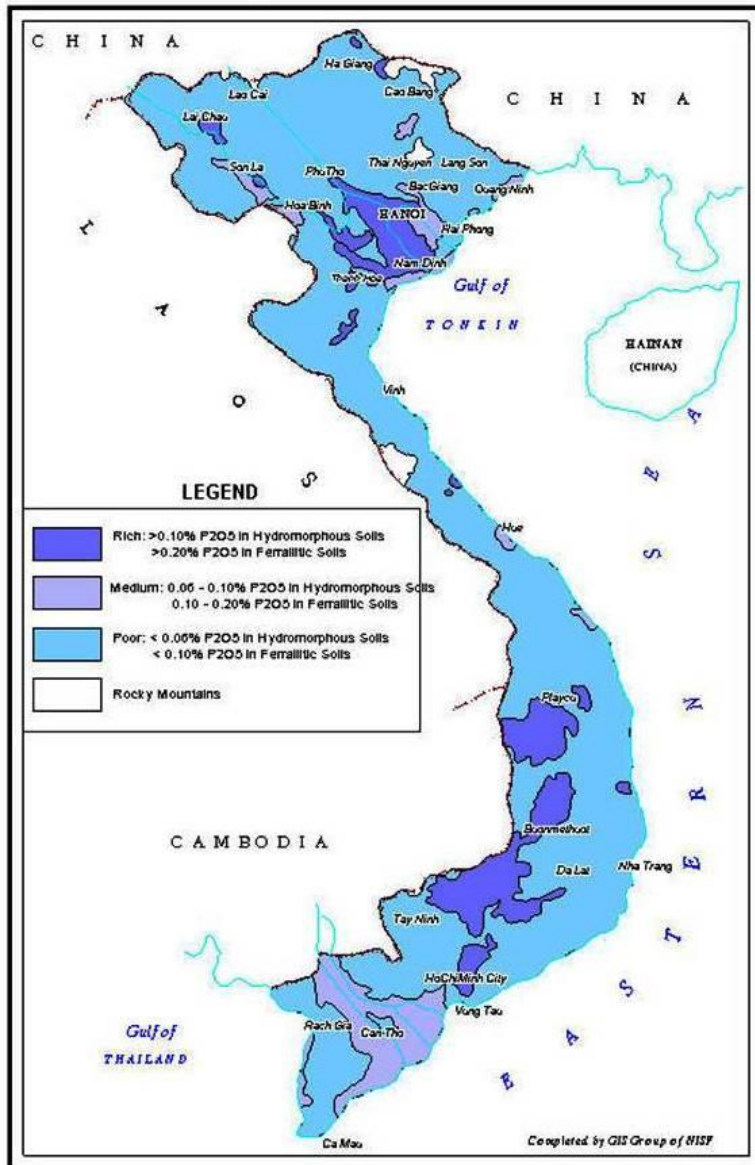
Status of Soil Resources



75% area is slopping
land; 50% which slope
more than 20°

Status of Soil Resources

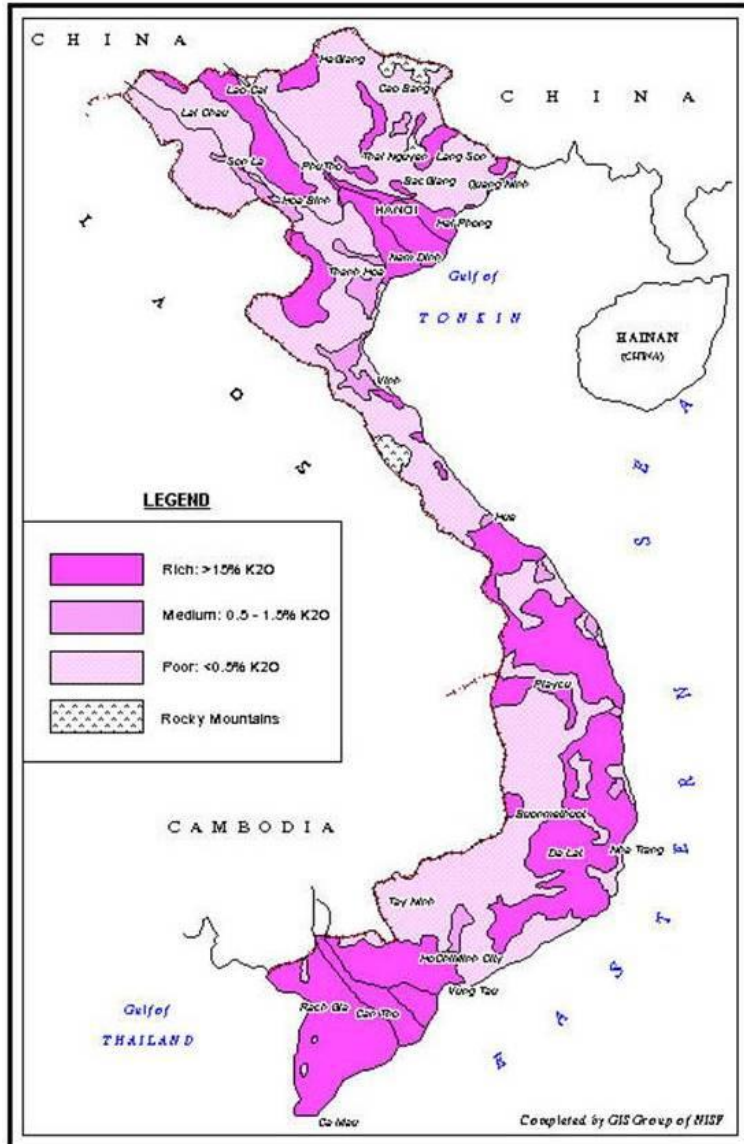
TOTAL PHOSPHORUS IN SOILS OF VIET NAM



70% soil is poor in Phosphorus (< 0.06 P₂O₅ in Hydromorphous soils; and < 0.10% P₂O₅ in Ferralitic soils)

Status of Soil Resources

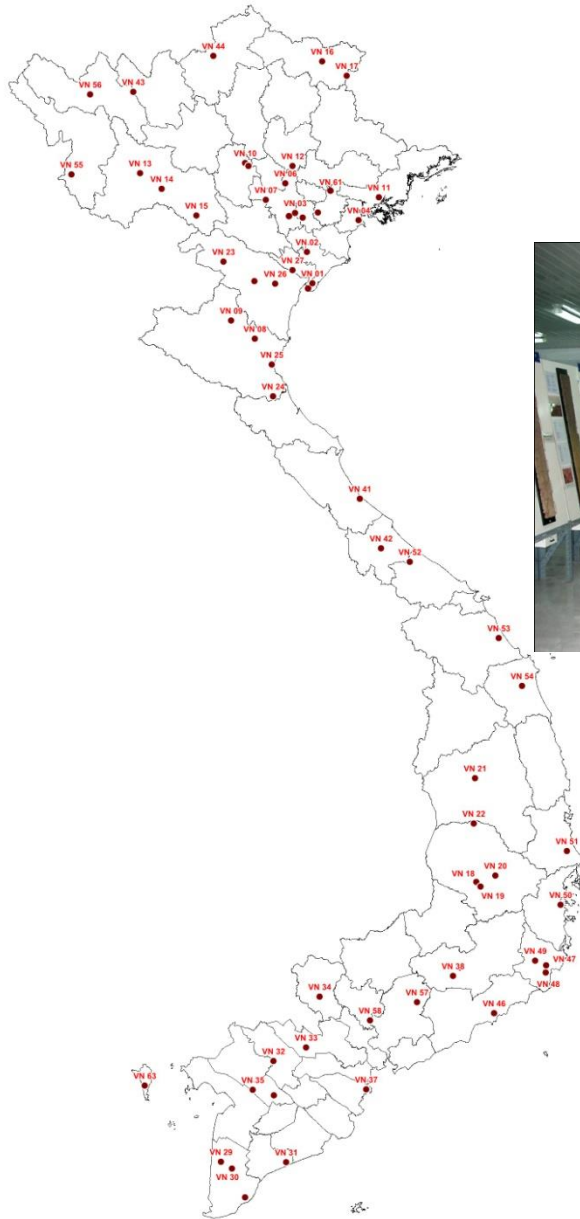
TOTAL POTASSIUM IN SOILS OF VIET NAM



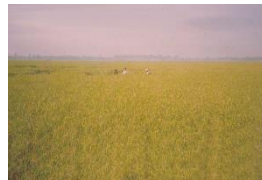
60% soil is poor in Potassium (< 0.5% K₂O)

Status of Soil Resources

Soil Reference and Information Centre of Vietnam



63 soil profiles



SOIL PROFILE INFORMATION

Profile Symbol: VN 01
Location: Brigade No 9, Rang Dong Farm, Nghia Hung District, Nam Dinh Province
Longitude: 20° 00' 00" N **Latitude:** 106° 06' 00" E
Elevation: 1 m (ASL)
Slope Degree: Flat plain
Vegetation: Summer rice (CR 203), just harvested
Present Land use: One rice crop
Soil name: - Vietnamese: *Allevial coastal salt affected soils*
 - FAO-UNESCO: *Salic FLUVISOLS*
 - USDA (Soil Taxonomy): *USTIFLUVENTS*
Date of Sampling: 20-10-1992
Surveyors: Dang Tho Loc, Nguyen Van Ty

SOIL PROFILE MORPHOLOGY

Soil Horizon Designation	Soil Depth, cm	Profile Description
Ap	0 - 20	Dark reddish brown (5YR 3/4 moist; 5YR 6/4 dry); silty loam; moist; porous; slightly firm; many rice roots; many black root motiles; gradual smooth boundary.
AB	20 - 60	Dark reddish brown (5YR 3/4 moist; 5YR 6/4 dry); many yellow concretions (7.5YR 4/6 moist; 7.5YR 6/6 dry); silty clay; moist; some small black roots; gradual smooth boundary.
Bw1	60 - 85	Dark reddish brown (5YR 3/3 moist; 5YR 6/3 dry); few yellow concretions (7.5YR 4/6 moist; 7.5YR 6/6 dry); loam; moist; few small fine sand grain; gradual smooth boundary.
Bw2	85 - 125	Dark reddish brown (5YR 3/2 moist; 7.5YR 5/3 dry); loamy sand; moist; fine at the upper part; coarser at the lower part; gradual smooth boundary.
Cw	105 - 125	Brownish black (7.5YR 3/2 moist; 7.5YR 5/3 dry); sand; mixed of few dark brown clay; wet, some shells.

Note: EC (at 25°C) of water in the profile: 12.85 dS/m.

NATIONAL INSTITUTE FOR SOILS AND FERTILIZERS

Profile: VN 01

CHEMICAL PROPERTIES

Nos	Soil horizon thickness, cm	Total, %				Available, mg/100g		Acidity, cmol(+)/kg		pH	EC, dS/m	
		OC	N	P ₂ O ₅	K ₂ O	P ₂ O ₅	K ₂ O	Exchange	Potential			
1	0 - 20	1.14	0.11	0.09	2.47	8.15	8.47	0.04	1.02	7.25	5.90	1.0
2	20 - 60	0.85	0.10	0.09	2.47	8.00	4.23	0.04	0.85	7.45	5.90	1.0
3	60 - 85	0.43	0.06	0.07	2.41	7.63	2.82	0.04	0.50	7.65	6.30	1.3
4	85 - 105	0.62	0.07	0.07	1.99	6.15	2.82	Trace	0.38	7.97	6.45	1.3
5	105 - 125	0.21	0.04	0.07	1.31	6.10	2.82	Trace	0.27	8.20	6.85	1.1

Main Issues and Soil Threats

1. Population pressure: 90.5 mil. (2014)
(Ranking 14th in population and 65th in natural area).
2. Limited in agricultural land area (World average 1.20 ha; Vietnam 0.104 ha/capita).
3. Draught; water quality.
4. **Agricultural soil quality:**
 - 75% slopping/infertile soil; 50% low in N, 87% in P, 80% in K, 72% in Ca, 48% in Mg;
 - Soil desertification/ degradation/ pollution and salt water intrusion.



Ongoing Activities

1. Agricultural Restructuring Program: i) production growth increase by 20%, ensuring food security at national and household levels; ii) poverty reduced by 20% and iii) GHG emission reduced by 20%.
 - Changing 200,000 ha from rice cultivation to cash crops and grazing;
 - Keeping 3.8 M ha for rice cultivation.
2. Soil degradation inventory in whole country;
3. Limited nutrients in soil for rice production in RRD and MRD;
4. Land evaluation for provincial, regional and national levels;
5. Saline and acid sulphate soil in RRD and MRD;
6. Upgrading the National Soil Information Center;
7. Soil analyze capacity building;
8. **National Soil Science Conference.**



National Priorities for Sustainable Soil Management

1. Conservation farming:

- On slopping land: control soil erosion, soil degradation... by intercropping, crop rotation...
- On flat areas: soil degradation; soil pollution, salt affected... by using crop residues (biochar, composting), balanced fertilizer application...

2. Soil quality management/land and soil resources inventory:

- Soil fertility database for rice cultivation.
- Soil degradation database.



2015

International
Year of Soils

Thanks for your attention!