

Montreal Process Country experiences with soil and water reporting from China

13th Montreal Process Technical Advisory
Committee Meeting
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Framework

- 1. General Situation of S&W erosion in China**
- 2. Measures**
- 3. Monitoring and evaluation**
- 4. S&W in National report on SFM**
- 5. Challenges**

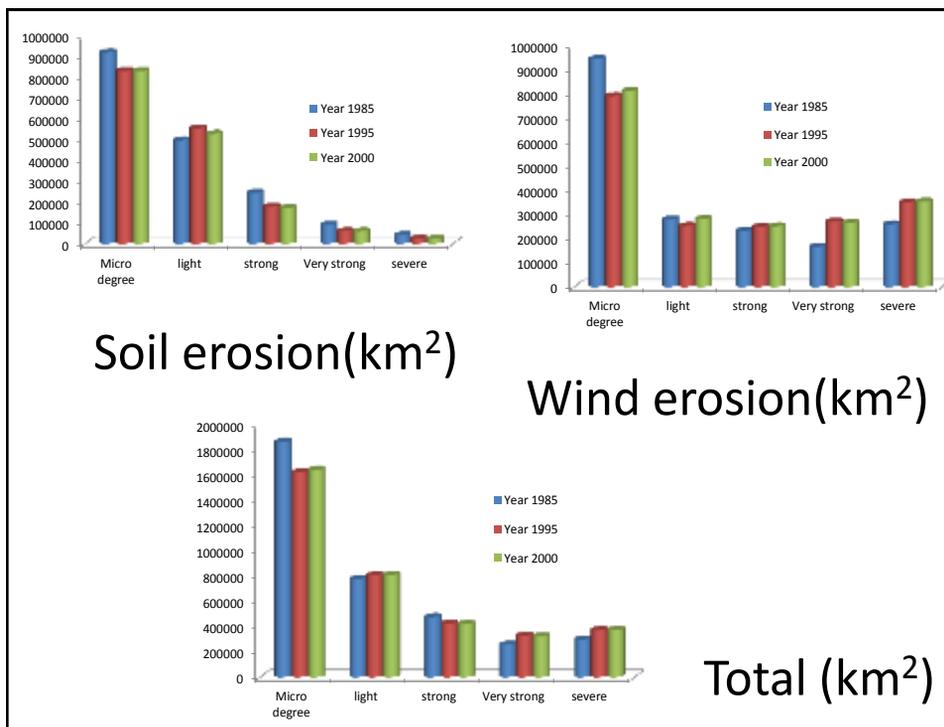


1. Status of Soil and water erosion in China

- Total area for soil and wind erosion is about 35.7million km², Which is 37.6% of the country.
- By the end of 2011, micro degree, light, strong, very strong and severe was 45.9% 、 22.7 % 、 11.8 % 、 9.1 % and 10.5 % respectively.

Status of Soil and water erosion in China

| Type | year | Total area | Micro degree | light | strong | Very strong | severe |
|---------------|------|------------|--------------|--------|--------|-------------|--------|
| Water erosion | 1985 | 1794169 | 919122 | 497811 | 244615 | 91402 | 41217 |
| | 1995 | 1648815 | 830551 | 554911 | 178306 | 59940 | 25104 |
| | 2000 | 1612190 | 829541 | 527712 | 172018 | 59413 | 23503 |
| Wind erosion | 1985 | 1876099 | 941091 | 278748 | 231677 | 166227 | 258353 |
| | 1995 | 1906741 | 788256 | 251199 | 247991 | 270139 | 349155 |
| | 2000 | 1957022 | 808888 | 280903 | 250274 | 264790 | 352164 |
| Total | 1985 | 3670268 | 1860216 | 776560 | 476292 | 257630 | 299570 |
| | 1995 | 3555557 | 1618808 | 806111 | 426297 | 330079 | 374260 |
| | 2000 | 3569212 | 1638430 | 808616 | 422293 | 324203 | 375667 |



2. Measures

1) National Program related with S&W

- ① **Natural Forest Protection Program**
 - 13 provinces, timber reduced from 12 million to 11M m³ (NEC), which dropped by 2.24% in 2011
- ② **The Land Conversion Program**
 - 3 M ha of cropland were converted to forest by the end of 2011
- ③ **Sandification Control Program for Areas in the Vicinity of Beijing and Tianjin**
- ④ **Key Shelterbelt Development Program**
 - ① the Three-north
 - ② the Yangtze River
- ⑤ **5. W&S Control program**

2. Measures

- National planning on S&W Control under cross-sectoral cooperation
 - short term objective(2000-2010)
 - medium term objective(2010-2030)
 - Long term objective(2030-2050)
- At practical/technical level, the Integrated Management of small watersheds is now a common approach in China
- and some common principals and different measures can be found in the SFM projects at all levels.

3. Monitoring and Evaluation

- At National Level by Ministry of Water Resource, with a national M &E Center
 - Remote Sensing
 - More than 1000 monitoring Stations ,more than 30 years
 - National Standards
 - Other special M&E by other ministries/agencies at different level
- And evaluation on S&W is the first/necessary step for all land use programs in China, by the Law of S&W

Soil erosion intensity classification (SL190-96)

| items | [t/(km ² ·a)] Soil erosion modulus | | | (mm/a) Soil loss thickness | | |
|--------------|--|----------------------|----------------|-------------------------------|----------------------|----------------|
| | Northwest Yellow soil | Northeast Black soil | South Red soil | Northwest Yellow soil | Northeast Black soil | South Red soil |
| Micro degree | <1000 | <200 | <500 | <0.74 | <0.15 | <0.37 |
| Light | 1000-2500 | 200-2500 | 500-2500 | 0.74-1.9 | 0.15-1.9 | 0.37-1.9 |
| Moderate | 2500-5000 | | | 1.9-3.7 | | |
| Strong | 5000-8000 | | | 3.7-5.9 | | |
| Very strong | 8000-15000 | | | 5.9-11.1 | | |
| severe | >15000 | | | >11.1 | | |

Classification of the acidity of precipitation (Acid rain)

| pH | Acidity |
|------------|----------------------|
| < 4.00 | High acid |
| 4.00--4.49 | Relatively high acid |
| 4.50--5.59 | weak acid |
| 5.60--7.0 | Neutral |
| >7.0 | Alkaline |

Contents of the Annual Report

- Status of soil and water erosion
- The prevention and control of soil erosion
- Water and soil conservation project
- Progress and experiences



Distribution of Soil and Water erosion in China



4. Consideration on S&W in the National Report of SFM

- General situation at National level
- Evaluation on Key National Programs
- Case studies



Soil and water C&I (national level)

- **Conservation and maintenance of soil and water resources**
- 6.1 Area and percent of forest land with significant soil erosion
- 6.2 Area and per cent of cultivated land on slopes of more than 25 degrees which has been converted to forest
- 6.3 Area and per cent of forest land managed primarily for protective functions.
- 6.4 Per cent and kilometers of streams in forested catchments in which stream flow and timing have significantly deviated from the historic ranges of variation
- 6.5 Percent of water bodies in forest areas with significant variance of biological diversity and the physio-chemical properties from the historic range of variability
- 6.6 Controlled area and control percentage of area with soil and water losses
- 6.7 Area and per cent of forest of human origin (plantation) which has serious degradation of site index
- 6.8 Area and per cent of land on slopes on which maintenance and conservation of soil and water resources have been taken into account in silviculture according to regulations of the government
- 6.9 Intensity, area and per cent of protection of forest ground vegetation
- 6.10 Area and per cent of forest land experiencing an accumulation of persistent toxic substances

Each indicator

- **Issues**
- **Data**
- **Methods**
- **Interpretation**

6.1 Area and percent of forest land with significant soil erosion



6.6 Controlled area and control percentage of area with soil and water losses

Key regions for soil and water conservation



Water controlled by forest ecosystem



Soil and water conservation by regions/forests



表1-3 吴起县土地利用动态变化统计表

单位: km²

| 土地利用类型 | 耕地 | | 草地 | | 林地 | | 水域 | | 城乡居民点和工矿用地 | | 合计 |
|--------|--------|-------|---------|-------|--------|-------|-------|------|------------|------|---------|
| | 面积 | % | 面积 | % | 面积 | % | 面积 | % | 面积 | % | |
| 2000年 | 866.22 | 22.90 | 2684.60 | 70.97 | 222.26 | 5.87 | 6.24 | 0.16 | 3.57 | 0.09 | 3783.10 |
| 2009年 | 479.78 | 12.68 | 2016.00 | 53.29 | 1248.4 | 33.03 | 17.98 | 0.48 | 19.94 | 0.53 | 3783.10 |

表1-4 吴起县水土流失动态变化统计表

单位: km²

| 年度 | 土地面积 | 不同侵蚀强度分级面积 | | | | |
|------------------|---------|------------|---------|---------|---------|---------|
| | | 轻度 | 中度 | 强烈 | 极强烈 | 剧烈 |
| 2000年 | 3783.10 | 0.76 | 448.68 | 983.98 | 1314.63 | 870.49 |
| 2009年 | 3783.10 | 236.44 | 1775.41 | 1071.75 | 494.07 | 39.72 |
| 变化 (2009年-2000年) | | 235.69 | 1326.73 | 87.77 | -820.55 | -830.77 |



Dynamics of soil erosion in Minjiang River---the upper reaches of Yangtze and the core of Shelterbelt program from 1989

| Degree (km ²) | 1986 | 2000 | 2010 |
|---------------------------|---------|---------|---------|
| Slight | 3541.84 | 2726.4 | 2354.12 |
| Low level | 210.45 | 104.1 | 103.25 |
| Medium level | 65.07 | 32.44 | 34.37 |
| High level | 1.97 | 1.08 | 1.03 |
| Ultra high level | 0.42 | 0.25 | 0.23 |
| Acute | 0.42 | 0.17 | 0.15 |
| Total | 3820 | 2864.43 | 2490.15 |



Challenges

- Policy
- Economic development/livelihood
- Cross-sectoral cooperation
- Public participation
- Monitoring and Data sharing



Thanks for your attention

