# Highlights of The NCAVES Project in China

In China, NCAVES was implemented by :

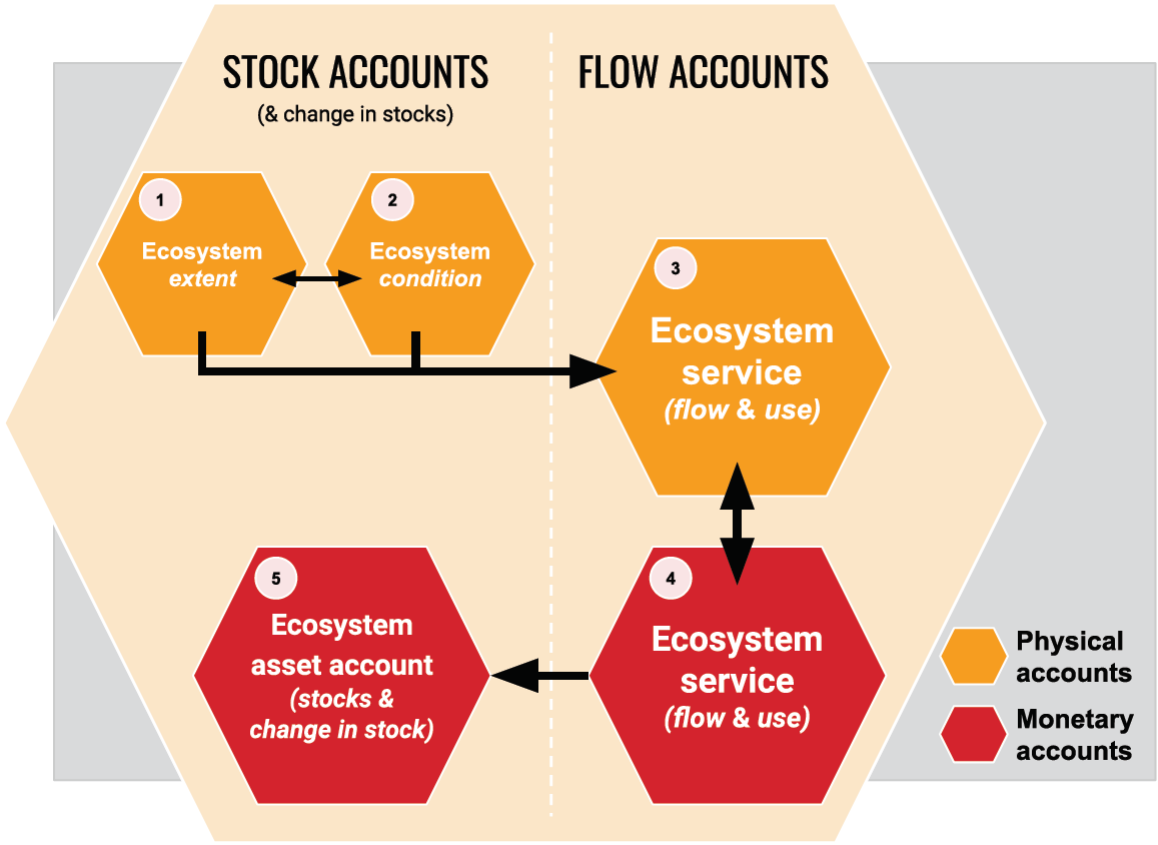
- **National Bureau of Statistics of China.**

In close collaboration with：

- Statistical Bureau of Guangxi Zhuang Autonomous Region.
- Guizhou Bureau of Statistics.
- Research Center for Eco-Environmental Sciences of the Chinese Academy of Sciences.

The NCAVES project set out to:

1. Strengthen capacity for the compilation of natural resources balance sheets.
2. Pilot ecosystem accounts for two provinces: **Guangxi** and **Guizhou.**
3. Test the framework of SEEA EEA and contribute China's best practices and experience to its revision.
4. Test the related indicators of the ecosystem including SDG and their relationship with the economy.




*The SEEA EA framework showing the relationship between extent and condition accounts and supply and use accounts*

# Main achievements of the NCAVES in China

- **Firstly,** a preliminary research on the valuations methods for  main natural resources assets has been completed.
- **Secondly,** under the framework of SEEA, Guangxi and Guizhou separately compiled its ecosystem pilot accounts, covering the extent, condition and services of ecosystem. Besides, Guangxi completed scenario-based analysis of ecological compensation standards for the Xijiang river basin.
- **Thirdly,** the relationships between economy and SDG and ecosystem related indicators has been tested in Guangxi.
- **Fourthly,** the NCAVES project has contributed towards alignment between the SEEA and GEP with the result that GEP is now included in the SEEA EA framework, and is proposed as one of the headline indicators for the post-2020 Global Biodioversity Framework (GBF)

# 1 ECOSYSTEM ACCOUNTS FOR GUANGXI

## 1.1 Ecosystem

- Extent accounts
- Ecosystem condition account

## 1.2 Ecosystem Services Accounts

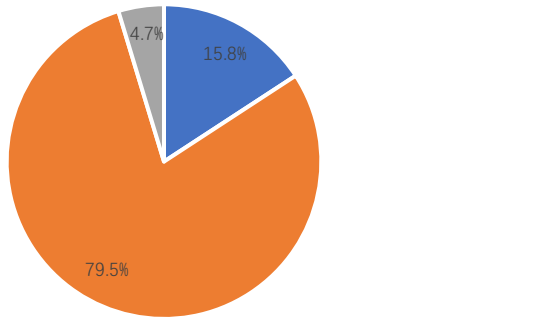
## （Flow Accounts）

- Classification framework
- Physical flow accounts
- Monetary flow accounts

*Table 15: Physical flow accounts of regulating services (Unit: ton)*

| Service types | | Year | Ecosystem Types | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Farmland | Forest | Grassland | Wetland | Marine | Urban | Summation |
| Global climate regulation services | Carbon sequestration | 2016 | 5,247,125 | 15,956,884 | 103,148 | 107,100 | 1,951 | 51,197 | 21,467,405 |
| | | 2017 | 5,241,195 | 16,042,383 | 102,371 | 106,269 | 1,884 | 50,438 | 21,544,540 |
| Air purification services | Absorbing sulphur dioxide | 2016 | 2190,59 | 139,036 | 55,772 | | | 1,862 | 415,729 |
| | | 2017 | 218,802 | 139,171 | 55,352 | | | 1,834 | 415,159 |
| | Absorbing fluoride | 2016 | 2,264 | 3,259 | 13,340 | | | 124 | 18,987 |
| | | 2017 | 2,262 | 3,250 | 1,330 | | | 122 | 6,964 |
| | Absorbing nitrogen oxides | 2016 | 161,987 | 8,243 | 41,309 | | | 121 | 211,660 |
| | | 2017 | 161,796 | 8,256 | 40,997 | | | 119 | 211,168 |
| | Dust retention | 2016 | 403,652 | $24.96\times10^6$ | 132,181 | | | 237,443 | 773,276 |
| | | 2017 | 403,180 | $24.93\times10^6$ | 131,303 | | | 233,920 | 768,403 |
| Water purification services | Inorganic nitrogen purification | 2016 | | | | | 8220 | | 8,220 |
| | | 2017 | | | | | 7084 | | 7,084 |
| | Active phosphate purification | 2016 | | | | | 514 | | 514 |
| | | 2017 | | | | | 443 | | 443 |
| | Chemical oxygen demand (COD) treatment | 2016 | | | | | 337,593 | | 337,593 |
| | | 2017 | | | | | 521,915 | | 521,915 |
| | Petroleum disposal | 2016 | | | | | 956 | | 956 |
| | | 2017 | | | | | 1,146 | | 1,146 |
| Water flow regulation services | Conserving water resources | 2016 | | $368.65\times10^8$ | $27.53\times10^8$ | | | $0.99\times10^8$ | $397.17\times10^8$ |
| | | 2017 | | $404.79\times10^8$ | $29.84\times10^8$ | | | $1.17\times10^8$ | $435.80\times10^8$ |
| Mitigation services | Farmland protection | 2016 | | $1521.3\times10^4$ | | | | | $1521.3\times10^4$ |
| | | 2017 | | $1453.8\times10^4$ | | | | | $1453.8\times10^4$ |
| | Flood mitigation | 2016 | | | | $124.78\times10^8$ | | | $124.78\times10^8$ |
| | | 2017 | | | | $125.21\times10^8$ | | | $125.21\times10^8$ |
| Soil and sediment retention services | Soil retention | 2016 | $1.44\times10^8$ | $4.09\times10^8$ | $0.37\times10^8$ | | | $0.01\times10^8$ | $5.91\times10^8$ |
| | | 2017 | $1.44\times10^8$ | $4.14\times10^8$ | $0.37\times10^8$ | | | $0.01\times10^8$ | $5.96\times10^8$ |

*Total value of ecosystem services in 2017*



# 2 ECOSYSTEM ACCOUNTS FOR GUIZHOU

## 2.1 Ecosystem Extent Accounts

## 2.2 Ecosystem Condition Accounts

## 2.3 Ecosystem Services Accounts

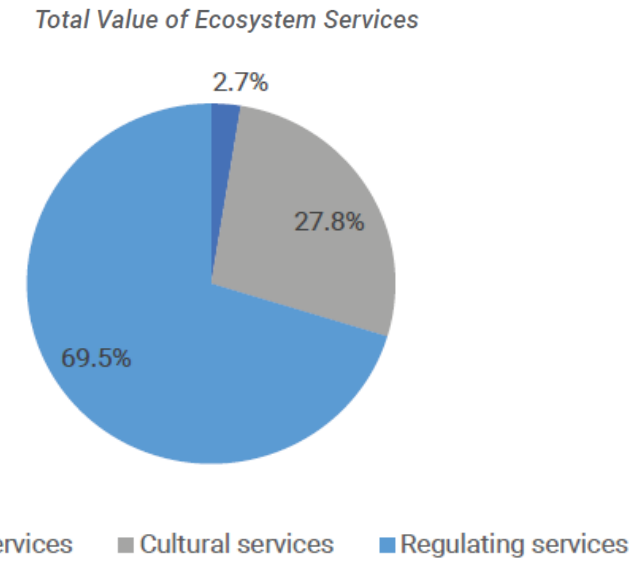



*Table 23: Scores for Ecosystem Condition Account (2018)*

| Area | Physical condition | | Environmental condition | | Biological condition | | Human Interference | | Total score | Grade | Condition |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Proportion | | | | | | | Proportion of | | | |

*Table 25: Definitions of Ecosystem Services*

| Name of Services | Definition of Services |
|---|---|
| **Soil and sediment retention services** | The ecosystem reduces the erosion energy of rainwater and soil loss through its structure and process. |
| **Carbon sequestration** | Plants convert carbon dioxide into carbohydrates through photosynthesis and fix it in plants or soil in the form of organic carbon, which can effectively slow down the rising concentration of carbon dioxide in the atmosphere, regulate oxygen content in the atmosphere, and reduce greenhouse gas emissions. |
| **Water flow regulation services** | The ecosystem intercepts stagnant precipitation and enhances soil infiltration through its structure and process to effectively conserve soil water, replenish groundwater and regulate the river flow. |
| **Flood control services** | The wetland ecosystem can reduce flood peak by storing flood peak water to reduce the environmental effect generated by flood threat. |
| **Air filtration service** | The ecosystem absorbs, filters and decomposes pollutants in the atmosphere, such as SO2, NOx and dust, so as to effectively purify the air and improve the atmospheric environment. |
| **Water purification services** | An ecological effect that the pollutants entering the water environment can be adsorbed, transformed and absorbed by plankton through a series of physical and biochemical processes, thus achieving the water purification. |
| **Local climate regulation** | The ecosystem reduces atmospheric temperature and increases humidity through transpiration of vegetation and evaporation of water. |
| **Biological control services** | The ecosystem reduces the population quantity of phytophagous insects by increasing the diversity of species and increasing the number of their natural enemies to achieve pests and disease control. |

# 3 The Xijiang River Eco-Compensation Scheme

## ➢ Scenarios conditions :

- ✓ Business-As-Usual (BAU): of land-cover changes was assumed to continue over 2015-2035.
- ✓ Ecological Protection Priority (ECOL): focuses on the protection and restoration of forests, grassland and wetlands.
- ✓ Economic Development Priority (ECON): focuses on economic development, with the expansion of built-up land at the expense of forest, grassland and wetlands.

## ➢ Rseults（projected under six scenarios）

- ✓ **RCP4.5：the highest provision of regulating services**
- ✓ **Total ecological compensation expected to be obtained by the upstream regions in 2015 should be between 48.5 ~693.5 billion CNY**

***Figure 2:*** *Location of the Xijiang River in Southern China*

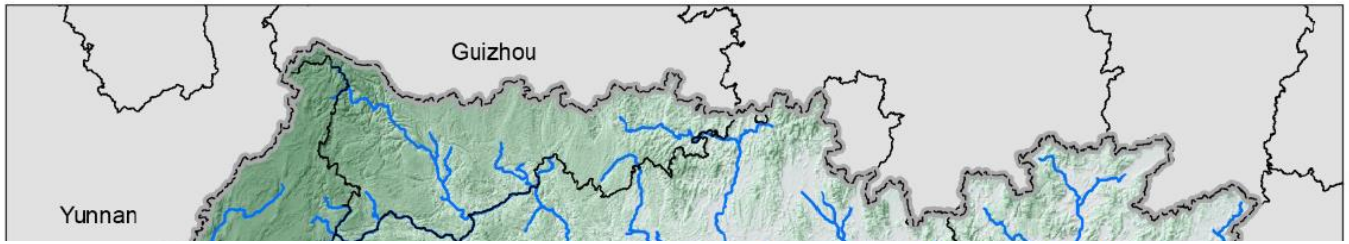
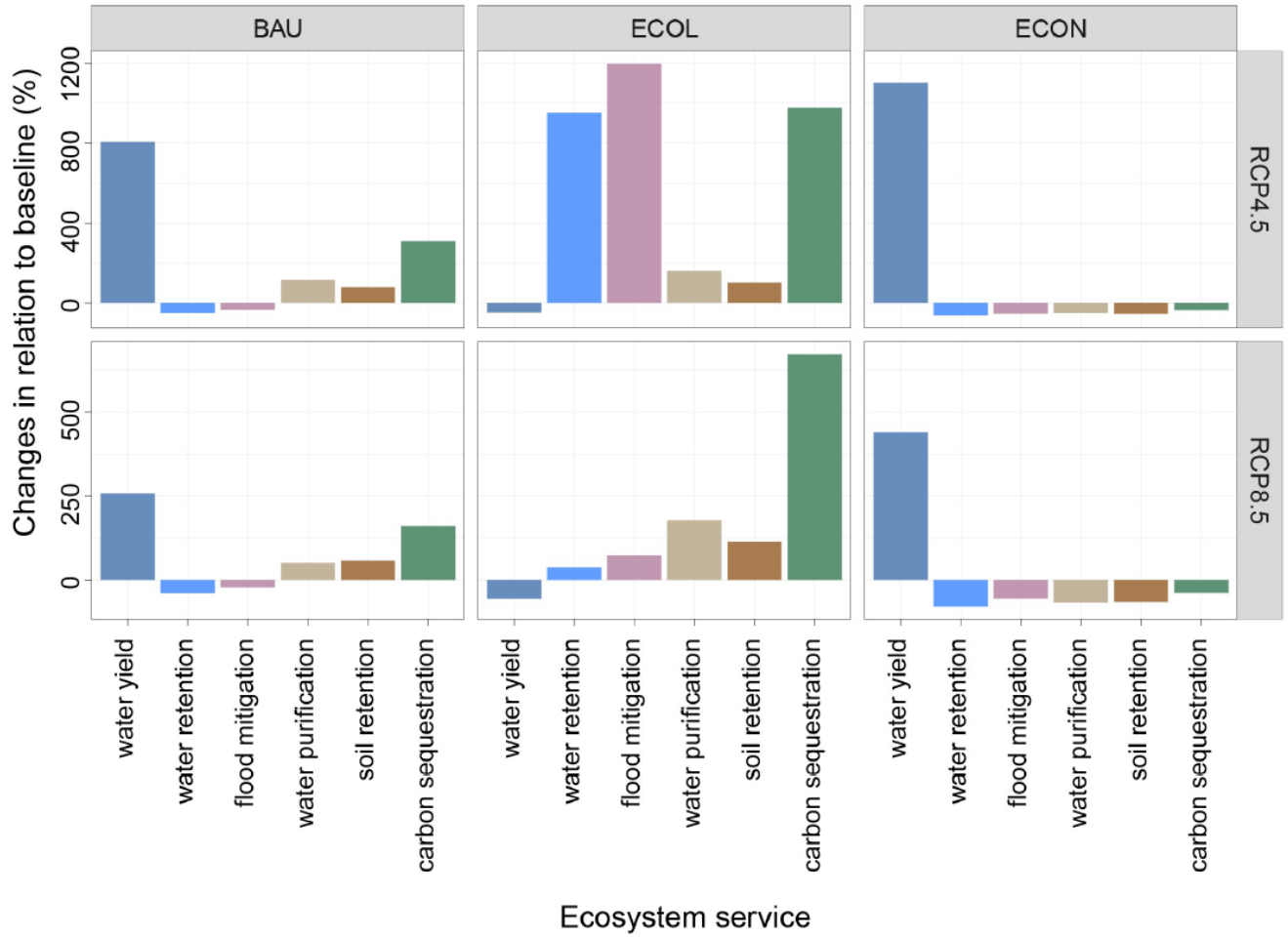



***Figure 3:*** *Changes in the biophysical supply of ecosystem services for Xijiang under different climate and land cover scenarios in 2035 in relation to the baseline*



# 4 Next steps

1. ➢NBS is organizing to translate and publish (authorized by UN) the SEEA-EA.
2. ➢NBS will investigate the compilation of national ecosystem accounts, especially formulating the unified accounting system for the valuation of GEP.
3. ➢NBS will also investigate the concepts for natural resource liabilities, to work out the valuation methods for main natural resources so as to compile NRBS in monetary terms.