**Updates of CEEIO Database Version 4**

Comparing with Version 3.2, the CEEIO database Version 4 has been revised as follows:

1. **Addition of Environmental Impacts per Unit Output:**

Environmental impacts per unit output have been added, calculated using the input-output model (Leontief model) in combination with sectoral output values and environmental accounts. This update provides data for 42 types of environmental accounts across 153 industries.

1. **Introduction of a USD-Denominated Version Using RMB Exchange Rate:**

The environmental extended input-output tables (CEEIOT) originally denominated in RMB have been converted to USD using the average exchange rate for 2020 (1 USD = 6.8974 RMB, sourced from the *2020 Statistical Bulletin of National Economic and Social Development*).

1. **Comprehensive Update of Environmental Account Data Sources with a New Summary Table:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Category** | **Description** | **Calculation Method** | **Data Sources** |
| **Energy Consumption** | 27 types of fuel energy | / | *2020 China Energy Statistical Yearbook* |
| **Atmospheric Pollutants** | 21 types (CO₂, CH₄, N₂O, NOₓ, CO, PM, SO₂, VOC, NH₃, and 12 types of hazardous trace elements (HTEs)) | Emissions from primary energy combustion + intermediate energy conversion emissions | *2020 China Industrial Statistical Yearbook*  *2020 China Environmental Statistical Yearbook* |
| **Water Pollutants** | 12 types (COD, ammonia nitrogen, total nitrogen, total phosphorus, petroleum substances, volatile phenols, total lead, total mercury, total cadmium, hexavalent chromium, total chromium, total arsenic) | Total output × emissions per unit output | *2020 China Environmental Statistical Yearbook*  *2020 China Ecological and Environmental Statistics Bulletin* |
| **Solid Waste** | 8 types (industrial solid waste, hazardous waste, agricultural plastic film, crop straw, animal manure, sludge, medical waste, household waste) | Usage × emission rate | *China Rural Statistical Yearbook*   *China Agricultural Yearbook*   *China Statistical Yearbook*   *2020 China Ecological and Environmental Statistics Bulletin* |

1. **Retention of Key Calculation Processes and Formulas in Excel Files:**

The Excel files now include critical calculation steps and formulas, ensuring data transparency and enabling users to trace the computational logic. This feature supports users in verifying results and contributes to smooth updates in subsequent versions.