

# Methods of Collecting Data in Irrigated Areas and their Limitations

Syed Abdul Umar Faruque\*

*Department of Soil and Water Science, University of Florida, United States*

Inconsistent statistical data sets for irrigation areas at the national level can have a major impact on food and water security policies. Remote sensing can solve this problem, but doubts about its reliability hinder its leading role. Integrating statistical data sets and remote sensing-based methods seems desirable and more likely to be recognized by decision makers. Therefore, scientists must understand the basis and limitations of statistical data sets derived from the national level. The irrigated area data collection methods of seven Asian countries were reviewed, namely China, India, Pakistan, Bangladesh, Nepal, Indonesia, and Thailand. The factors that cause data uncertainty and the limitations of data collection methods are emphasized. In addition, an analysis of the distribution of irrigation density was carried out to understand the relationship between the spatial dispersion pattern of the irrigation area and the uncertainty in its statistical records. The survey found that the statistics of irrigation districts are mainly based on information provided by water users and farmer associations, which are self-reported or collected through interviews in surveys and censuses. The main reasons for the discrepancies are lack of resources to frequently list irrigated land, inconsistent data collection methods, unknown whereabouts of small crops, illegal and unregulated water use, and bureaucratic and political restrictions.

Analysis of the distribution of irrigation density shows that large-area scattered irrigation areas are prone to lack of complete and frequent enumeration. In addition, intensive irrigation areas may have unregistered irrigation areas, in which marginal farmers are arranged for temporary or supplementary irrigation. The statistical data collection and reporting methods of 7 irrigated regions in Asian countries were reviewed to find out their limitations and possible reasons for discrepancies. These 4,444 countries include China, India, Pakistan, Bangladesh, Nepal, Indonesia and

Thailand. In addition, the distribution of irrigation density is also analyzed to understand the relationship between the difference in the data and the spatial distribution pattern of irrigated agriculture at the national level. It was found that the statistical data sets in the irrigation area were mainly based on information obtained or collected from farmers, such as self-reports by water user associations and interviews with self-employed villagers. In addition, the self-reported information may not be verified by the authorities. Sample enumerations are widely used to collect information on irrigated areas and other agricultural statistics. In addition, experts estimate that there are generally irrigation area statistics entries in remote areas.

Important potential reasons for the discrepancies in the statistical data sets of irrigation districts are as follows: lack of resources to update records regularly; undeclared areas in intensively irrigated areas due to supplementary irrigation or temporary irrigation arrangements; 4,444 species in widely dispersed irrigated areas Invalid enumeration method; Priority is given to major crops and other irrigated crops are not considered; Illegal use of irrigation water from ditches; Unregulated groundwater extraction; Bureaucratic and political restrictions that lead to underestimation and overestimation. Given that it seems convenient to use statistical data sets and remote sensing to estimate irrigated area statistics, scientists must know the basis for the information from countries and the possible causes of the uncertainty. In order to ensure better management of agriculture and develop realistic water and food security policies, accurate information about irrigated land is inevitable. Therefore, countries should definitely address the reasons for data discrepancies by allowing necessary changes in policies, legislation, infrastructure, 409 infrastructures, and the adoption of technological advancement.

*\*Address for Correspondence: Syed Abdul Umar Faruque, Department of soil and water science, university of Florida, United States; E-mail: umarfaruque@gmail.com*

*Copyright: © 2021 Syed Abdul Umar Faruque. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.*

**Received** 18 August 2021; **Accepted** 23 August 2021; **Published** 30 August 2021

**How to cite this article:** Syed Abdul Umar Faruque. "Methods of Collecting Data in Irrigated Areas and their Limitations." *Irrigat Drainage Sys Eng* 10 (2021): 284.