

Socioeconomic Impact Analysis of Not Meeting Water Shortages for the 2021 Regional Water Plans

Unreliable or insufficient water supplies would negatively impact existing businesses and industry, future economic development efforts, as well as public health and safety within Texas. To recognize the importance of water for the State, Regional Water Planning Groups (RWPG) are required by Texas Administrative Code §357.33 and §357.40 to evaluate the economic and social impacts of not meeting projected water needs (potential shortages) in their regional water plans.

At the request of the RWPGs, the Texas Water Development Board (TWDB) performed a socioeconomic impact assessment of not mitigating future water needs in the event of a single year repeat of the drought of record for each of the 16 RWPGs. Impact results are reported for each Water Use Category with identified water needs. Water use categories include irrigation, livestock, manufacturing, mining, municipal and steam electric power.

Primary impact measures include lost income, jobs, and taxes, while supplemental measures address losses of utility revenue, consumer surplus, population, and school enrollment, as well as estimates of water hauling costs and additional purchases of electrical power.

The impact assessment for the primary measures is based on an input-output modeling approach, which relies on proprietary software known as IMPLAN. Sixteen planning region-specific IMPLAN models are developed to derive estimates of income, jobs, and taxes present in each area of interest.

The preliminary IMPLAN values are then combined with TWDB water use estimates within each sector to determine the value per acre-foot of use, and the resulting estimates are combined with region-specific IMPLAN multipliers to determine regional level estimates, taking into account the indirect impacts. Final impact estimates are obtained by adjusting for the degree of water shortage (assuming that adverse impact of water needs would likely vary depending upon the severity of a shortage), and then multiplying by the acre-feet of water needs within the sector.

Impact estimates for the supplemental measures

generally involve combining sector-specific data with the acre-feet of needs. Over thirty major sources of data from State, Federal and local sources, as well as output from the sixteen IMPLAN models, were employed in developing the primary and supplemental impact measure estimates.

The resulting impact estimates vary with the degree of shortage, are planning region-specific, and reflect the variability of the various types of economic activity within each county.

Assumptions and Limitations:

- The analysis focuses on sectors with adequate water use data.
- Results are based on the static structure of the economy implicit within the 2016 IMPLAN data used.
- Impact estimates are a snapshot which might occur during a single year in drought of record conditions, and do not consider possible impacts of multi-year droughts.
- Spillover impacts on adjoining regions are not considered.
- Forwardly linked impacts within the economy are not considered.
- Possible building moratoriums, which address long term shortages, are not addressed within the analysis.
- All values are reported in 2018 dollars to be consistent with water management strategy cost estimates.

For additional information on the socioeconomic impact analysis and associated data, visit our website at: <http://www.twdb.texas.gov/waterplanning/data/analysis/index.asp>.

Features included on the website consist of the following:

- Interactive Dashboard for viewing region and county level impact results
- Socio Economic Impact Reports for the 16 Regional Water Planning Groups for the 2021 Regional Water Plans and previous water plans
- Frequently Asked Questions (FAQS)
- Summary of Socioeconomic Impact Assessment Methodology
- Contact: EDA@twdb.texas.gov