vide grants to, or enter into any contract, cooperative agreement, interagency agreement, or other transaction with, an appropriate entity to carry out any demonstration, research, or methodology development project that the Secretary determines to be necessary to assist in the implementation of the strategy developed by the panel under subsection (a)(2).

(2) Requirements

(A) Maximum amount of Federal share

The Federal share of the cost of any demonstration, research, or methodology development project that is the subject of any grant, contract, cooperative agreement, interagency agreement, or other transaction entered into between the Secretary and an appropriate entity under paragraph (1) shall not exceed $1,000,000.

(B) Report

An appropriate entity that receives funds from a grant, contract, cooperative agreement, interagency agreement, or other transaction entered into between the Secretary and the appropriate entity under paragraph (1) shall submit to the Secretary a report describing the results of the demonstration, research, or methodology development project conducted by the appropriate entity.

(f) Authorization of appropriations

(1) In general

There is authorized to be appropriated to carry out subsections (a) through (d) $2,000,000 for each of fiscal years 2009 through 2011, to remain available until expended.

(2) Demonstration, research, and methodology development projects

There is authorized to be appropriated to carry out subsection (e) $10,000,000 for the period of fiscal years 2009 through 2013, to remain available until expended.

(Pub. L. 111–11, title IX, § 9506, Mar. 30, 2009, 123 Stat. 1338.)

§ 10367. Water data enhancement by United States Geological Survey

(a) National streamflow information program

(1) In general

The Secretary, in consultation with the Advisory Committee and the Panel and consistent with this section, shall proceed with implementation of the national streamflow information program, as reviewed by the National Research Council in 2004.

(2) Requirements

In conducting the national streamflow information program, the Secretary shall—

(A) measure streamflow and related environmental variables in nationally significant watersheds—

(i) in a reliable and continuous manner; and

(ii) to develop a comprehensive source of information on which public and private decisions relating to the management of water resources may be based;

(B) provide for a better understanding of hydrologic extremes (including floods and droughts) through the conduct of intensive data collection activities during and following hydrologic extremes;

(C) establish a base network that provides resources that are necessary for—

(i) the monitoring of long-term changes in streamflow; and

(ii) the conduct of assessments to determine the extent to which each long-term change monitored under clause (i) is related to global climate change;

(D) integrate the national streamflow information program with data collection activities of Federal agencies and appropriate State water resource agencies (including the National Integrated Drought Information System)—

(i) to enhance the comprehensive understanding of water availability;

(ii) to improve flood-hazard assessments;

(iii) to identify any data gap with respect to water resources; and

(iv) to improve hydrologic forecasting; and

(E) incorporate principles of adaptive management in the conduct of periodic reviews of information collected under the national streamflow information program to assess whether the objectives of the national streamflow information program are being adequately addressed.

(3) Improved methodologies

The Secretary shall—

(A) improve methodologies relating to the analysis and delivery of data; and

(B) investigate, develop, and implement new methodologies and technologies to estimate or measure streamflow in a more cost-efficient manner.

(4) Network enhancement

(A) In general

Not later than 10 years after March 30, 2009, in accordance with subparagraph (B), the Secretary shall—

(i) increase the number of streamgages funded by the national streamflow information program to a quantity of not less than 4,700 sites; and

(ii) ensure all streamgages are flood-hardened and equipped with water-quality sensors and modernized telemetry.

(B) Requirements of sites

Each site described in subparagraph (A) shall conform with the National Streamflow Information Program plan as reviewed by the National Research Council.

(5) Federal share

The Federal share of the national streamgaging network established pursuant to this subsection shall be 100 percent of the cost of carrying out the national streamgaging network.

(6) Authorization of appropriations

(A) In general

Except as provided in subparagraph (B), there are authorized to be appropriated such

sums as are necessary to operate the national streamflow information program for the period of fiscal years 2009 through 2023, to remain available until expended.

(B) Network enhancement funding

There is authorized to be appropriated to carry out the network enhancements described in paragraph (4) $10,000,000 for each of fiscal years 2009 through 2019, to remain available until expended.

(b) National groundwater resources monitoring

(1) In general

The Secretary shall develop a systematic groundwater monitoring program for each major aquifer system located in the United States.

(2) Program elements

In developing the monitoring program described in paragraph (1), the Secretary shall—

(A) establish appropriate criteria for monitoring wells to ensure the acquisition of long-term, high-quality data sets, including, to the maximum extent possible, the inclusion of real-time instrumentation and reporting;

(B) in coordination with the Advisory Committee and State and local water resource agencies—

(i) assess the current scope of groundwater monitoring based on the access availability and capability of each monitoring well in existence as of March 30, 2009; and

(ii) develop and carry out a monitoring plan that maximizes coverage for each major aquifer system that is located in the United States; and

(C) prior to initiating any specific monitoring activities within a State after March 30, 2009, consult and coordinate with the applicable State water resource agency with jurisdiction over the aquifer that is the subject of the monitoring activities, and comply with all applicable laws (including regulations) of the State.

(3) Program objectives

In carrying out the monitoring program described in paragraph (1), the Secretary shall—

(A) provide data that is necessary for the improvement of understanding with respect to surface water and groundwater interactions;

(B) by expanding the network of monitoring wells to reach each climate division, support the groundwater climate response network to improve the understanding of the effects of global climate change on groundwater recharge and availability; and

(C) support the objectives of the assessment program.

(4) Improved methodologies

The Secretary shall—

(A) improve methodologies relating to the analysis and delivery of data; and

(B) investigate, develop, and implement new methodologies and technologies to estimate or measure groundwater recharge, discharge, and storage in a more cost-efficient manner.

(5) Federal share

The Federal share of the monitoring program described in paragraph (1) may be 100 percent of the cost of carrying out the monitoring program.

(6) Priority

In selecting monitoring activities consistent with the monitoring program described in paragraph (1), the Secretary shall give priority to those activities for which a State or local governmental entity agrees to provide for a substantial share of the cost of establishing or operating a monitoring well or other measuring device to carry out a monitoring activity.

(7) Authorization of appropriations

There are authorized to be appropriated such sums as are necessary to carry out this subsection for the period of fiscal years 2009 through 2023, to remain available until expended.

(c) Brackish groundwater assessment

(1) Study

The Secretary, in consultation with State and local water resource agencies, shall conduct a study of available data and other relevant information—

(A) to identify significant brackish groundwater resources located in the United States; and

(B) to consolidate any available data relating to each groundwater resource identified under subparagraph (A).

(2) Report

Not later than 2 years after March 30, 2009, the Secretary shall submit to the appropriate committees of Congress a report that includes—

(A) a description of each—

(i) significant brackish aquifer that is located in the United States (including 1 or more maps of each significant brackish aquifer that is located in the United States);

(ii) data gap that is required to be addressed to fully characterize each brackish aquifer described in clause (i); and

(iii) current use of brackish groundwater that is supplied by each brackish aquifer described in clause (i); and

(B) a summary of the information available as of March 30, 2009, with respect to each brackish aquifer described in subparagraph (A)(i) (including the known level of total dissolved solids in each brackish aquifer).

(3) Authorization of appropriations

There is authorized to be appropriated to carry out this subsection $3,000,000 for the period of fiscal years 2009 through 2011, to remain available until expended.

(d) Improved water estimation, measurement, and monitoring technologies

(1) Authority of Secretary

The Secretary may provide grants on a nonreimbursable basis to appropriate entities

with expertise in water resource data acquisition and reporting, including Federal agencies, the Water Resources Research Institutes and other academic institutions, and private entities, to—

(A) investigate, develop, and implement new methodologies and technologies to estimate or measure water resources data in a cost-efficient manner; and

(B) improve methodologies relating to the analysis and delivery of data.

(2) Priority

In providing grants to appropriate entities under paragraph (1), the Secretary shall give priority to appropriate entities that propose the development of new methods and technologies for—

(A) predicting and measuring streamflows;

(B) estimating changes in the storage of groundwater;

(C) improving data standards and methods of analysis (including the validation of data entered into geographic information system databases);

(D) measuring precipitation and potential evapotranspiration; and

(E) water withdrawals, return flows, and consumptive use.

(3) Partnerships

In recognition of the value of collaboration to foster innovation and enhance research and development efforts, the Secretary shall encourage partnerships, including public-private partnerships, between and among Federal agencies, academic institutions, and private entities to promote the objectives described in paragraph (1).

(4) Authorization of appropriations

There is authorized to be appropriated to carry out this subsection $5,000,000 for each of fiscal years 2009 through 2019.

(Pub. L. 111–11, title IX, § 9507, Mar. 30, 2009, 123 Stat. 1339.)

§ 10368. National water availability and use assessment program

(a) Establishment

The Secretary, in coordination with the Advisory Committee and State and local water resource agencies, shall establish a national assessment program to be known as the ''national water availability and use assessment program''—

(1) to provide a more accurate assessment of the status of the water resources of the United States;

(2) to assist in the determination of the quantity of water that is available for beneficial uses;

(3) to assist in the determination of the quality of the water resources of the United States;

(4) to identify long-term trends in water availability;

(5) to use each long-term trend described in paragraph (4) to provide a more accurate assessment of the change in the availability of water in the United States; and

(6) to develop the basis for an improved ability to forecast the availability of water for future economic, energy production, and environmental uses.

(b) Program elements

(1) Water use

In carrying out the assessment program, the Secretary shall conduct any appropriate activity to carry out an ongoing assessment of water use in hydrologic accounting units and major aquifer systems located in the United States, including—

(A) the maintenance of a comprehensive national water use inventory to enhance the level of understanding with respect to the effects of spatial and temporal patterns of water use on the availability and sustainable use of water resources;

(B) the incorporation of water use science principles, with an emphasis on applied research and statistical estimation techniques in the assessment of water use;

(C) the integration of any dataset maintained by any other Federal or State agency into the dataset maintained by the Secretary; and

(D) a focus on the scientific integration of any data relating to water use, water flow, or water quality to generate relevant information relating to the impact of human activity on water and ecological resources.

(2) Water availability

In carrying out the assessment program, the Secretary shall conduct an ongoing assessment of water availability by—

(A) developing and evaluating nationally consistent indicators that reflect each status and trend relating to the availability of water resources in the United States, including—

(i) surface water indicators, such as streamflow and surface water storage measures (including lakes, reservoirs, perennial snowfields, and glaciers);

(ii) groundwater indicators, including groundwater level measurements and changes in groundwater levels due to—

(I) natural recharge;

(II) withdrawals;

(III) saltwater intrusion;

(IV) mine dewatering;

(V) land drainage;

(VI) artificial recharge; and

(VII) other relevant factors, as determined by the Secretary; and

(iii) impaired surface water and groundwater supplies that are known, accessible, and used to meet ongoing water demands;

(B) maintaining a national database of water availability data that—

(i) is comprised of maps, reports, and other forms of interpreted data;

(ii) provides electronic access to the archived data of the national database; and

(iii) provides for real-time data collection; and

(C) developing and applying predictive modeling tools that integrate groundwater, surface water, and ecological systems.