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Report

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108TH CONGRESS 2d Session

SENATE

## UNITED STATES-MEXICO TRANSBOUNDARY AQUIFER ASSESSMENT ACT

JULY 7, 2004.—Ordered to be printed

Mr. DOMENICI, from the Committee on Energy and Natural Resources, submitted the following

# REPORT

## [To accompany S. 1957]

The Committee on Energy and Natural Resources, to which was referred the bill (S. 1957) to authorize the Secretary of the Interior to cooperate with the States on the border with Mexico and other appropriate entities in conducting a hydrogeologic characterization, mapping, and modeling program for priority transboundary aquifers, and for other purposes, having considered the same, reports favorably thereon with an amendment and recommends that the bill, as amended, do pass.

The amendment is as follows:

Strike out all after the enacting clause and insert in lieu thereof the following:

SECTION 1. SHORT TITLE.

This Act may be cited as the "United States-Mexico Transboundary Aquifer Assessment Act".

SEC. 2. PURPOSE.

The purpose of this Act is to direct the Secretary of the Interior to establish a United States-Mexico transboundary aquifer assessment program to-

(1) systematically assess priority transboundary aquifers; and (2) provide the scientific foundation necessary for State and local officials to address pressing water resource challenges in the United States-Mexico border region.

#### SEC. 3. DEFINITIONS.

In this Act:

(1) AQUIFER.—The term "aquifer" means a subsurface water-bearing geologic (2) BORDER STATE.—The term "Border State" means each of the States of Ari-

zona, California, New Mexico, and Texas.

(3) INDIAN TRIBE.—The term "Indian tribe" means an Indian tribe, band, nation, or other organized group or community-

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(A) that is recognized as eligible for the special programs and services provided by the United States to Indians because of their status as Indians; and

(B) the reservation of which includes a transboundary aquifer within the exterior boundaries of the reservation.

(4) PRIORITY TRANSBOUNDARY AQUIFER.—The term "priority transboundary aquifer" means a transboundary aquifer that has been designated for study and analysis under the program.

(5) PROGRAM.—The term "program" means the United States-Mexico transboundary aquifer assessment program established under section 4(a).

(6) RESERVATION.—The term "reservation" means land that has been set aside or that has been acknowledged as having been set aside by the United States for the use of an Indian tribe, the exterior boundaries of which are more particularly defined in a final tribal treaty, agreement, executive order, Federal statute, secretarial order, or judicial determination.

(7) SECRETARY.—The term "Secretary" means the Secretary of the Interior, acting through the Director of the United States Geological Survey.

(8) TRANSBOUNDARY AQUIFER.—The term "transboundary aquifer" means an aquifer that underlies the boundary between the United States and Mexico.

(9) TRI-REGIONAL PLANNING GROUP.—The term "Tri-Regional Planning Group" means the binational planning group comprised of-

(A) the Junta Municipal de Aqua y Saneamiento de Ciudad Juarez;
 (B) the El Paso Water Utilities Public Service Board; and

(C) the Lower Rio Grande Water Users Organization.

(10) WATER RESOURCES RESEARCH INSTITUTES.—The term "water resources re-search institutes" means the institutes within the Border States established under section 104 of the Water Resources Research Act of 1984 (42 U.S.C. 10303).

#### SEC. 4. ESTABLISHMENT OF PROGRAM.

(a) IN GENERAL.—The Secretary, in consultation and cooperation with the Border States, the water resources research institutes, Sandia National Laboratories, and other appropriate entities in the United States and Mexico, shall carry out the United States-Mexico transboundary aquifer assessment program to characterize, map, and model transboundary groundwater resources along the United States-Mexico border at a level of detail determined to be appropriate for the particular aquifer. (b) OBJECTIVES.—The objectives of the program are to-

(1) develop and implement an integrated scientific approach to assess transboundary groundwater resources, including-

(A)(i) identifying fresh and saline transboundary aquifers; and

(ii) prioritizing the transboundary aquifers for further analysis by assessing-

(I) the proximity of the transboundary aquifer to areas of high population density;

(II) the extent to which the transboundary aquifer is used;

(III) the susceptibility of the transboundary aquifer to contamination; and

(IV) any other relevant criteria;

(B) evaluating all available data and publications as part of the development of study plans for each priority transboundary aquifer;

(C) creating a new, or enhancing an existing, geographic information system database to characterize the spatial and temporal aspects of each priority transboundary aquifer; and

(D) using field studies, including support for and expansion of ongoing monitoring and metering efforts, to develop-

(i) the additional data necessary to adequately define aquifer characteristics; and

(ii) scientifically sound groundwater flow models to assist with State and local water management and administration, including modeling of relevant groundwater and surface water interactions;

(2) expand existing agreements, as appropriate, between the United States Geological Survey, the Border States, the water resources research institutes, and appropriate authorities in the United States and Mexico, to—

(A) conduct joint scientific investigations;

(B) archive and share relevant data; and

(C) carry out any other activities consistent with the program; and

(3) produce scientific products for each priority transboundary aquifer that-(A) are capable of being broadly distributed; and

(B) provide the scientific information needed by water managers and natural resource agencies on both sides of the United States-Mexico border to effectively accomplish the missions of the managers and agencies.

(c) DESIGNATION OF PRIORITY TRANSBOUNDARY AQUIFERS.—

(1) IN GENERAL.—For purposes of the program, the Secretary shall designate as priority transboundary aquifers—

(A) the Hueco Bolson and Mesilla aquifers underlying parts of Texas, New Mexico, and Mexico; and

(B) the Santa Cruz River Valley aquifers underlying Arizona and Sonora, Mexico.

(2) ADDITIONAL AQUIFERS.—The Secretary shall, using the criteria under subsection (b)(1)(A)(ii), evaluate and designate additional priority transboundary aquifers.

(d) COOPERATION WITH MEXICO.—To ensure a comprehensive assessment of transboundary aquifers, the Secretary shall, to the maximum extent practicable, work with appropriate Federal agencies and other organizations to develop partnerships with, and receive input from, relevant organizations in Mexico to carry out the program.

(e) GRANTS AND COOPERATIVE AGREEMENTS.—The Secretary may provide grants or enter into cooperative agreements and other agreements with the water resources research institutes and other Border State entities to carry out the program.

#### SEC. 5. IMPLEMENTATION OF PROGRAM.

(a) COORDINATION WITH STATES, TRIBES, AND OTHER ENTITIES.—The Secretary shall coordinate the activities carried out under the program with—

(1) the appropriate water resource agencies in the Border States;

(2) any affected Indian tribes; and

(3) any other appropriate entities that are conducting monitoring and metering activity with respect to a priority transboundary aquifer.(b) NEW ACTIVITY.—After the date of enactment of this Act, the Secretary shall

(b) NEW ACTIVITY.—After the date of enactment of this Act, the Secretary shall not initiate any new field studies or analyses under the program before consulting with, and coordinating the activity with, any Border State water resource agencies that have jurisdiction over the aquifer.

(c) STUDY PLANS; COST ESTIMATES.-

(1) IN GENERAL.—The Secretary shall work closely with appropriate Border State water resource agencies, water resources research institutes, and other relevant entities to develop a study plan, timeline, and cost estimate for each priority transboundary aquifer to be studied under the program.

(2) REQUIREMENTS.—A study plan developed under paragraph (1) shall, to the maximum extent practicable—

(A) integrate existing data collection and analyses conducted with respect to the priority transboundary aquifer;

(B) if applicable, improve and strengthen existing groundwater flow models developed for the priority transboundary aquifer; and

(C) be consistent with appropriate State guidelines and goals.

SEC. 6. EFFECT.

Nothing in this Act affects-

(1) the jurisdiction or responsibility of a Border State with respect to managing surface or groundwater resources in the Border State; or

(2) the water rights of any person or entity using water from a transboundary aquifer.

#### SEC. 7. REPORTS.

Not later than 5 years after the date of enactment of this Act, and on completion of the program in fiscal year 2014, the Secretary shall submit to the appropriate water resource agency in the Border States, an interim and final report, respectively, that describes—

(1) any activities carried out under the program;

(2) any conclusions of the Secretary relating to the status of transboundary aquifers; and

(3) the level of participation in the program of entities in Mexico.

#### SEC. 8. AUTHORIZATION OF APPROPRIATIONS.

(a) IN GENERAL.—There are authorized to be appropriated to carry out this Act \$50,000,000 for the period of fiscal years 2005 through 2014.
(b) DISTRIBUTION OF FUNDS.—Of the amounts made available under subsection

(b) DISTRIBUTION OF FUNDS.—Of the amounts made available under subsection (a), 50 percent shall be made available to the water resources research institutes to provide funding to appropriate entities in the Border States (including Sandia National Laboratories, State agencies, universities, the Tri-Regional Planning Group, and other relevant organizations) and Mexico to conduct activities under the program, including the binational collection and exchange of scientific data.

## PURPOSE OF THE MEASURE

The purpose of S. 1957 is to authorize the Secretary of the Interior to cooperate with the States on the border with Mexico and other appropriate entities in conducting a hydrogeologic characterization, mapping, and modeling program for priority transboundary aquifers, and for other purposes.

#### BACKGROUND AND NEED

The United States and Mexico share a 2,000 mile-long border that crosses multiple groundwater basins. Piecemeal assessments of aquifers have been performed by the U.S. Geological Survey and other entities over the last 50 years. However, assessments to date have included relatively little information on the Mexican side of the border, have not been integrated across multiple basins around large municipal areas, and have not included the surface watergroundwater interactions. Additionally, data collection and numerical analysis techniques and technology have greatly improved in recent years, resulting in a good opportunity to develop scientific tools of significant value to State and local water resource managers. Accordingly, S. 1957 is intended to address the lack of binational consensus regarding the source and availability of future water supplies along the border by establishing a scientific program to assess priority transboundary aquifers comprehensively. This assessment should help State and local water planning efforts and avoid transboundary conflicts, particularly in rapidly expanding municipal areas along the border where demands on groundwater quality, a matter of increasing importance given that a lack of adequate wastewater treatment infrastructure is responsible for ongoing groundwater contamination.

#### LEGISLATIVE HISTORY

S. 1957 was introduced by Senator Bingaman on November 25, 2003 and referred to the Committee on Energy and Natural Resources. The Subcommittee on Water and Power held a hearing on S. 1957 on May 19, 2004. The Committee on Energy and Natural Resources ordered S. 1957, as amended, favorably reported on June 16, 2004.

## COMMITTEE RECOMMENDATION

The Senate Committee on Energy and Natural Resources, in an open business meeting on June 16, 2004, by unanimous voice vote of a quorum present, recommends that the Senate pass S. 1957, if amended as described herein.

### COMMITTEE AMENDMENT

During the consideration of S. 1957, the Committee adopted an amendment in the nature of a substitute. The substitute amendment addresses concerns raised during the Subcommittee hearing and in written submissions.

The first change deletes all findings as listed in section 2(a). The second change adds section 4(b)(1)(A)(ii)(IV) which allows the Sec-

retary to promulgate new scientific criteria for the assessment of transboundary groundwater resources. The third change provides for increased State involvement in the designation and study of priority aquifers. The final change designates the Santa Cruz River Valley aquifers underlying Arizona and Sonora, Mexico as priority transboundary aquifers.

#### SECTION-BY-SECTION ANALYSIS

Section 1 provides the short title, the "United States-Mexico Transboundary Aquifer Assessment Act."

Section 2 sets forth the purposes of the Act.

Section 3 defines the terms used in the Act.

Section 4 subsection (a) directs the Secretary to carry out the United States-Mexico transboundary aquifer assessment program to characterize, map, and model transboundary groundwater resources along the United States-Mexico border.

Subsection (b) provides that the objectives of the program are to develop and implement an integrated scientific approach to assess transboundary groundwater resources.

Subsection (c) designates the Hueco Bolson and Mesilla aquifers, the Santa Cruz River Valley aquifers as priority transboundary aquifers and directs the Secretary to designate additional priority transboundary aquifers using the criteria under subsection (b)(1)(A)(ii).

Subsection (d) directs the Secretary to work with appropriate Federal agencies and other organizations to develop partnerships with, and receive input from relevant organizations in Mexico to carry out the program.

Subsection (e) provides that the Secretary may provide grants or enter into cooperative agreements and other agreements with the water resources institutes and other Border State entities to carry out the program.

Section 5 subsection (a) directs the Secretary to coordinate the activities carried out under the program with the appropriate water resource agencies in the Border States, any affected Indian tribe, and any other appropriate entities that are conducting monitoring and metering activity of a priority transboundary aquifer.

Subsection (b) prohibits the Secretary from initiating new field studies or analyses until consulting with and coordinating the activity with any water resource agencies that have jurisdiction over the aquifer.

Subsection (c) directs the Secretary to work with appropriate entities to develop a study plan, timeline, and cost estimate for each priority transboundary aquifer to be studied under the program. Study plans shall take into consideration existing data and be consistent with State guidelines and goals.

Section 6 states that this Act has no effect on the jurisdiction of a Border State with respect to managing surface or groundwater resources in the Border State, nor does the Act affect the water rights of any person or entity. Section 7 directs the Secretary to submit a report to the appro-

Section 7 directs the Secretary to submit a report to the appropriate water resource agency in the Border States that describes activities carried out under the program, conclusions of the Secretary on the status of transboundary aquifers, and the level of participation of the Mexican partners. Section 8 subsection (a) authorizes \$50 million to be appropriated for the Act for fiscal years 2005 through 2014.

Subsection (b) requires that 50 percent of the funds made available for the Act shall be distributed to the appropriate local entities in the Border States and Mexico.

### COST AND BUDGETARY CONSIDERATIONS

The following estimate of costs of this measure has been provided by the Congressional Budget Office:

## U.S. CONGRESS, CONGRESSIONAL BUDGET OFFICE, Washington, DC, June 22, 2004.

Hon. PETE V. DOMENICI,

Chairman, Committee on Energy and Natural Resources, U.S. Senate, Washington, DC.

DEAR MR. CHAIRMAN: The Congressional Budget Office has prepared the enclosed cost estimate for S. 1957, the United States-Mexico Transboundary Aquifer Assessment Act.

If you wish further details on this estimate, we will be pleased to provide them. The CBO staff contact is Deborah Reis.

Sincerely,

ELIZABETH ROBINSON (For Douglas Holtz-Eakin, Director).

Enclsoure.

## S. 1957—United States-Mexico Transboundary Aquifer Assessment Act

Summary: S. 1957 would establish a program within the Department of the Interior to study and assess aquifers (i.e., groundwater reserves) that are located under the boundaries of Mexico and the bordering states of Arizona, California, New Mexico, and Texas. The U.S. Geological Survey (USGS) would coordinate the program and would provide grants and technical assistance to government agencies and other organizations in Mexico and the four states for projects that address groundwater issues. The bill would authorize the appropriation of \$50 million over the 2005–2014 period for federal projects, technical assistance, and grants.

Assuming appropriation of authorized amounts, CBO estimates that implementing S. 1957 would cost \$2 million in fiscal year 2005 and \$21 million over the 2005–2009 period. We estimate that an additional \$29 million would be spent after 2009, including \$25 million appropriated between 2010 and 2014. Enacting the bill would not affect direct spending or revenues.

S. 1957 contains no intergovernmental or private-sector mandates as defined in the Unfunded Mandates Reform Act (UMRA) and would impose no costs on state, local, or tribal governments. Agencies in the four border states could receive grant funds if they choose to participate in this program.

Estimated cost to the Federal Government: The estimated budgetary impact of S. 1957 is shown in the following table. The costs of this legislation fall within budget function 300 (natural resources and environment).

	By fiscal year, in millions of dollars—				
	2005	2006	2007	2008	2009
CHANGES IN SPENDING SUE	BJECT TO AP	PROPRIATION			
Authorization Level	5	5	5	5	5
Estimated Outlays	2	4	5	5	5

Basis of estimate: For this estimate, CBO assumes that S. 1957 will be enacted near the end of fiscal year 2004 and that the \$50 million authorized to be appropriated for the proposed aquifer program will be appropriated evenly over the next 10 years. As provided in the legislation, one-half of each year's appropriation would be awarded to laboratories, governmental agencies, universities, and other entities in Mexico or the four border states. The remaining half would be used by the USGS to carry out the federal component of the program that would include program coordination, data integration, and technical assistance.

Intergovernmental and private-sector impact: S. 1957 contains no intergovernmental or private-sector mandates as defined in UMRA and would impose no costs on state, local, or tribal governments. Agencies in the four border states could receive grant funds if they choose to participate in this program.

Estimate prepared by: Federal Costs: Deborah Reis; Impact on State, Local, and Tribal Governments: Marjorie Miller; and Impact on the Private Sector: Crystal Taylor.

Estimate approved by: Peter H. Fontaine, Deputy Assistant Director for Budget Analysis.

## REGULATORY IMPACT EVALUATION

In compliance with paragraph 11(b) of rule XXVI of the Standing Rules of the Senate, the Committee makes the following evaluation of the regulatory impact which would be incurred in carrying out S. 1957. The bill is not a regulatory measure in the sense of imposing Government-established standards or significant responsibilities on private individuals and businesses.

No personal information would be collected in administering the program. Therefore, there would be no impact on personal privacy. Little, if any, additional paperwork would result from the enact-

Little, if any, additional paperwork would result from the enac ment of S. 1957.

### EXECUTIVE COMMUNICATIONS

On June 16, 2004, the Committee on Energy and Natural Resources requested legislative reports from the Department of the Interior and the Office of Management and Budget setting forth executive views on S. 1957. These reports had not been received at the time the report on S. 1957 was filed. When the reports become available, the Chairman will request that they be printed in the Congressional Record for the advice of the Senate. The testimony provided by the Department of the Interior at the Subcommittee hearing follows:

STATEMENT OF CHARLES G. GROAT, DIRECTOR, U.S. GEOLOGICAL SURVEY, U.S. DEPARTMENT OF THE INTERIOR

Madam Chairman and Members of the Subcommittee, thank you for the opportunity to participate in this hearing to discuss the important role of water in the U.S.-Mexico Border Region and to provide the Administration's views on S. 1957, the "United States-Mexico Transboundary Aquifer Assessment Act." The Administration supports the provisions of S. 1957, "The United States-Mexico Transboundary Aquifer Assessment Act", however, we note that we currently are undertaking some work in the areas covered by the bill and that no new authorities are needed. The program authorized in this bill would need to compete among the Survey's other priorities for funding.

#### BACKGROUND

The international border region of the United States and Mexico (border region) has, during the past decade, experienced significant economic expansion accompanied by rapid population growth and urban development. The removal of international trade barriers quickly transformed the region's several small to mid-size cities into some of the fastest growing population centers in both countries. As a result, the people residing on both sides of the border now face numerous complex social, political, economic, infrastructure, public health, natural resource, and environmental-quality challenges. Along the entire length of the mostly arid international border region, perhaps the greatest challenge is how to effectively address the need for safe, sustainable supplies of good quality water for public, industrial, and agricultural uses, while maintaining a delicate balance with the needs of a very fragile natural-resource system.

The limited surface-water supplies along the border have been allocated for several decades under international treaties and domestic laws. However, allocation of ground water in the border region is poorly regulated because little is known about its availability, sustainability, and quality; about how ground water interacts with surfacewater bodies; and about the susceptibility of ground water to contamination. Ground water also is an important source of life-sustaining base flow to many streams and essential for maintaining critical aquatic habitats.

Ground-water pumping has lowered the water table, depleted aquifers, and reduced the base flow of many streams thus decreasing the quantity of water available to support critical riparian habitats. Excessive ground-water pumping in some major urban centers, such as in the El Paso/Juarez metropolitan region, has caused land subsidence that has damaged homes and essential urban infrastructure. In addition to the effects of ground- and surfacewater depletion, degradation of water quality has reduced habitat suitability for the region's diverse biota. The problems associated with limited water quantity and competing uses of water also have resulted in impaired and degraded water quality and serious issues related to human health on both sides of the border. Water quantity and quality will most likely be the determining and limiting factors that ultimately control future economic development, population growth, and human health along the United States-Mexico border.

#### S. 1957

S. 1957 directs the Secretary of the Interior to establish a United States-Mexico Transboundary Aquifer Assessment Program to systematically assess priority transboundary aquifers and provide the scientific foundation necessary for State and local officials to address pressing water resource challenges in the border region. The bill further directs the Secretary of the Interior to implement this program in cooperation with the Border states as well as with other appropriate entities, including affected Indian tribes.

The proposed, collaborative scientific investigations and research efforts would address critical water supply, environmental, and natural-resource issues in the border region, and contribute to an improved understanding of the relations between the border region's many water, naturalresource, biological, and human-health related issues. We agree that a multi-discipline, binational, scientific approach is needed to address these complex, interrelated transboundary issues. Additionally, these studies would develop and document the tools, scientific methodologies, and procedures for collecting and integrating hydrologic, geologic, biologic, and other spatial data into a binational geographic information system for analysis and modeling applications.

S. 1957 objectives include expanding existing agreements between the USGS, Border states, State Water Resources Research Institutes, and appropriate authorities in the United States and Mexico to conduct joint investigations; document, manage, and share data; and carry out the necessary binational work efforts. Such collaboration would produce timely, widely accepted scientific products and understanding of each priority binational aquifer that is needed by water and natural-resource managers to effectively accomplish their missions.

The role identified for the Department of the Interior in this bill is consistent with the USGS leadership role in monitoring, interpretation, research, and assessment of the health and status of the water and biological resources of the Nation. As the Nation's largest water, earth, and biological science, and civilian mapping agency, the USGS provides the largest single non-regulatory hydrologic investigative and research capability in the Nation.

This proposed scientific collaboration by Federal, State, Tribal, and academic institutions touches on many of the interdisciplinary core competencies of the USGS. At its heart, the proposed collaboration would effectively capitalize on the collective scientific capability and resources of the partnering institutions. The integration of this relevant science would address the most pressing and complex natural resource and environmental problems in these very fragile landscapes and complex ecosystems.

The USGS has been active in a number of relevant programs and investigations in the arid southwest and hence has a working knowledge of proven methods and innovative technologies for effectively characterizing, monitoring, and mapping the border region's ground-water resources. We believe we have the authority to implement the activities called for in the bill and would continue to provide resources to address the goals of S. 1957, provided these activities successfully compete against other USGS priorities. In FY 2004, roughly \$500,000 will be spent on such on-theground activities by USGS. The President's FY 2005 Budget sustains this funding level. USGS scientists working from offices in each of the four Border states activity participate in these programs and investigations, and are called upon by the States and border communities to provide essential technical insight and understanding for solving critical water supply and natural-resource problems. Our scientists serve on a large number of relevant committees, task forces, and advisory groups in the border region. Regional coordination and communication of USGS programs and activities along the international border is further enhanced internally through our Border Strategy Team as well as within the Department of the Interior as a result of our active participation on the U.S.-Mexico Field Coordination Committee.

Talking with our partners in the Border states and communities, in the other Interior Bureaus, and other Federal agencies, as well as with scientists and government officials in Mexico, it is widely acknowledged that the lack of a standardized, binational database on the availability, use, and quality of the transboundary ground-water resources is perhaps the most significant impediment in addressing the Border region's numerous complex water-supply and natural-resource challenges. The lack of basic inventory and monitoring information pertaining to border water resources and water-dependent environments prevents a comprehensive understanding of watershed and regional processes and issues, and hinders the ability of science to provide the essential predictive capability to characterize or describe potential cause and effect relations associated with alternative land and water use and management actions.

The program and investigations called for in this bill would support the development and maintenance of such a standardized, binational hydrologic database and associated data analysis tools. Early into the program, it would be essential that binational consensus be reached on common investigative approaches, common field data collection protocols, laboratory methodologies, and data management, documentation, and reporting systems. Once these technical issues are resolved, it would be much easier to streamline the treaty requirements related to the review and public release of impartial, transboundary investigations having limited scope. Obtaining this consensus for the entire Border region would greatly enhance transboundary scientific collaboration in the future.

## SUMMARY

The proposed investigations and pertinent research efforts authorized by S. 1957 would address critical water, environmental, and health issues in the Border region and contribute to a more comprehensive understanding of the relations between the region's many water, natural-resource, biological, and health related issues. It is important that a binational, multi-discipline scientific approach be taken to address these interrelated issues. Additionally, these binational studies would develop and document the tools, methodologies, and procedures to collect and integrate hydrologic, biologic, and other spatial data into a geographic information system for analysis and modeling applications.

Thank you, Mr. Chairman, for the opportunity to present this testimony. I will be pleased to answer questions you and other Members of the Subcommittee might have.

## CHANGES IN EXISTING LAW

In compliance with paragraph 12 of rule XXVI of the Standing Rules of the Senate, the Committee notes that no changes in existing law are made by the bill S. 1957, as ordered reported.