

NATIONAL GEOLOGIC MAPPING REAUTHORIZATION ACT  
OF 1999

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OCTOBER 18, 1999.—Committed to the Committee of the Whole House on the State  
of the Union and ordered to be printed

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Mr. YOUNG of Alaska, from the Committee on Resources,  
submitted the following

REPORT

[To accompany H.R. 1528]

[Including cost estimate of the Congressional Budget Office]

The Committee on Resources, to whom was referred the bill (H.R. 1528) to reauthorize and amend the National Geologic Mapping Act of 1992, having considered the same, report favorably thereon without amendment and recommend that the bill do pass.

PURPOSE OF THE BILL

The purpose of H.R. 1528 is to reauthorize and amend the National Geological Mapping Act of 1992.

BACKGROUND AND NEED FOR LEGISLATION

Geologic mapping provides basic information for solving a broad range of societal problems. These include the delineation and protection of sources of safe drinking water, environmental system understanding, and foundations of ecosystems management; identification and mitigation of natural hazards, such as earthquake-prone areas, volcanic eruptions, landslides and other ground failures, and many other land-use planning requirements; and assessment of the broad potential for mineral resources such as coal, oil and natural gas, constructions materials, metals, and other natural resources. The critical areas for additional geologic mapping have been identified at the State level by State-map advisory committees. These critical areas include federal, State, and local priorities.

It is important to note that at the map scales contemplated in the National Geological Mapping Act (NGMA) program—from the less detailed 1:100,000 (1 inch = 100,000 inches) for regional map

sheets to the familiar scale of 1:24,000—the delineation of rock types and structures is generally insufficient to actually identify ore bodies, or site oil and gas wells. However, even at the 1:24,000 scale, human examination of the soils and strata is necessary to adequately identify the subtle changes that delineate the differences in geologically mappable units; thus, geologic mapping cannot be solely performed by computer generated, or remotely-sensed data or information. The identification of ore bodies and fossil fuel reservoirs, while aided by the cooperative mapping program, are left to private industry to perform at the more detailed scales usually necessary to find commercial deposits.

Only about one-fifth of the Nation is mapped at a scale adequate to meet societal needs. Reauthorization of the NGMA will allow federal, State and academic interests to continue to address these needs cooperatively. Since its establishment in 1879, the United States Geological Survey (USGS) has been charged with “classification of the public lands and examination of the geological structure, mineral resources and products of the national domain.” While generally receiving good marks for its geologic mapping efforts for over a century, the National Academy of Sciences in a 1988 report recognized that the USGS alone lacked the personnel to overcome this deficiency. Traditionally, colleges and universities as well as the various State geologic surveys have contributed to the mix of geologic maps produced, albeit not always in a coordinated manner. The NGMA provides a cooperative framework to attempt to meet the Nation’s geologic map data needs efficiently.

Funding for the program is incorporated in the USGS budget. State geological surveys and university participants receive funding from the program through a competitive proposal process that requires 50:50 matching funds from the applicant, insuring the value of each proposal is weighed against its cost in federal and State appropriated funds. Between fiscal years 1993 and 1996, approximately \$7.5 million of federal funds were matched by State monies in the peer-reviewed program for geologic map products produced by the 50 State geological surveys. In the succeeding fiscal years States cumulatively matched approximately 20 percent of the federal appropriation for this line item in the USGS budget, and academia received approximately 3 percent of the same, also subject to matching funds.

H.R. 1528 is necessary to reauthorize this program after fiscal year 2000. Additionally, the bill modifies the current federal/state funding ratio to reflect the willingness of USGS to increase the proportion of federal dollars to be made available for State matching grants for geologic mapping. This change reflects the USGS’s view that the various State legislatures are gradually increasing the funding available to their respective geological surveys since the NGMA was first enacted in 1992, a measure of the success of the program. The amendments to the NGMA were negotiated during the past year by the USGS Director and the umbrella organization representing the States known as the Association of American State Geologists and the American Geological Institute on behalf of the education component of the bill.

## COMMITTEE ACTION

H.R. 1528 was introduced on April 22, 1999, by Congresswoman Barbara Cubin (R-CO). The bill was referred to the Committee on Resources, and within the Committee to the Subcommittee on Energy and Mineral Resources. On June 17, 1999, the Subcommittee held a hearing on H.R. 1528. The USGS Chief Geologist, Dr. Patrick Leahy, testified for the Administration in strong support for the bill, as did Dr. Larry Woodfork, West Virginia State Geologist, on behalf of the American Association of State Geologists. Dr. William Thomas, Professor of Geology at the University of Kentucky on behalf of the American Geological Institute, testified in support of the education portion of the program funded under the bill. All witnesses agreed that the NGMA is a successful example a cooperative effort between federal and State agencies, and one that produces valuable results.

On June 30, 1999, the Full Resources Committee met to consider the bill. The Subcommittee on Energy and Mineral Resources was discharged from further consideration of the bill by unanimous consent. No amendments were offered and the bill was then ordered favorably reported to the House of Representatives by voice vote.

## SECTION-BY-SECTION ANALYSIS

*Section 1. Short title*

Section 1 is the short title of the bill, the National Geologic Mapping Reauthorization Act of 1999.

*Section 2. Findings*

Section 2 amends the NGMA by adding two new findings and amending a third.

*Section 3. Definitions*

Section 3 adds three new definitions to the NGMA, "educational component," "state component," and "federal component."

*Section 4. Geologic Mapping Program*

Section 4 amends the NGMA to change the time frame for reports to Congress; adds a requirement for interdisciplinary studies that add value to geologic mapping, strikes references to "Fedmap," "Statemap," and "Edmap" and substitutes the components defined in Section 3; and limits the use of federal appropriated funds for overhead charges.

*Section 5. Advisory committee*

Section 5 amends the NGMA advisory committee to provide one year to critique and report on the five-year strategic geologic mapping plan of Section 6.

*Section 6. Geologic Mapping Program 5-year plan*

Section 6 amends the NGMA requirement for the preparation of the five-year plan and identifies what is required for inclusion within the plan.

*Section 7. National Geologic Map Database*

Section 7 amends the National Geologic Map Database by requiring the USGS to establish links to federal and State geologic map holdings.

*Section 8. Biennial report*

Section 8 adjusts the NGMA reporting requirement to Congress from annual to biennial.

*Section 9. Authorization of appropriations*

Section 9 authorizes federal appropriations for geologic mapping from \$37 million in fiscal year 2000 to \$64 million in fiscal year 2005. H.R. 1528 repeats the current authorization of appropriations for fiscal years 2000 and 2001. Historically, the Administration has not requested full funding, nor has the Congress appropriated up to the authorized level for the NGMA. For example, in fiscal year 1999, the President requested only \$20.9 million while Congress appropriated \$22.6 million, versus the authorization for \$28 million. The President's request for fiscal year 2000 is only \$21.3 million; however, because of the reformatting of the entire USGS budget to reflect changes in overhead, this equates to a figure of approximately \$26 million in fiscal year 1999 terms, which is still 15 percent less than the \$30 million authorized.

COMMITTEE OVERSIGHT FINDINGS AND RECOMMENDATIONS

Regarding clause 2(b)(1) of rule X and clause 3(c)(1) of rule XIII of the Rules of the House of Representatives, the Committee on Resources' oversight findings and recommendations are reflected in the body of this report.

FEDERAL ADVISORY COMMITTEE STATEMENT

The advisory committee authorized in the bill is already in existence.

CONSTITUTIONAL AUTHORITY STATEMENT

Article I, section 8 of the Constitution of the United States grants Congress the authority to enact this bill.

COMPLIANCE WITH HOUSE RULE XIII

*1. Cost of Legislation.*—Clause 3(d)(2) of rule XIII of the Rules of the House of Representatives requires an estimate and a comparison by the Committee of the costs which would be incurred in carrying out this bill. However, clause 3(d)(3)(B) of that rule provides that this requirement does not apply when the Committee has included in its report a timely submitted cost estimate of the bill prepared by the Director of the Congressional Budget Office under section 402 of the Congressional Budget Act of 1974.

*2. Congressional Budget Act.*—As required by clause 3(c)(2) of rule XIII of the Rules of the House of Representatives and section 308(a) of the Congressional Budget Act of 1974, this bill does not contain any new budget authority, spending authority, credit authority, or an increase or decrease in revenues or tax expenditures.

3. *Government Reform Oversight Findings.*—Under clause 3(c)(4) of rule XIII of the Rules of the House of Representatives, the Committee has received no report of oversight findings and recommendations from the Committee on Government Reform on this bill.

4. *Congressional Budget Office Cost Estimate.*—Under clause 3(c)(3) of rule XIII of the Rules of the House of Representatives and section 403 of the Congressional Budget Act of 1974, the Committee has received the following cost estimate for this bill from the Director of the Congressional Budget Office:

U.S. CONGRESS,  
CONGRESSIONAL BUDGET OFFICE,  
*Washington, DC, July 19, 1999.*

Hon. DON YOUNG,  
*Chairman, Committee on Resources,  
House of Representatives, Washington, DC.*

DEAR MR. CHAIRMAN: The Congressional Budget Office has prepared the enclosed cost estimate for H.R. 1528, the National Geologic Mapping Reauthorization Act of 1999.

If you wish further details on this estimate, we will be pleased to provide them. The CBO staff contacts are Deborah Reis (for federal costs) and Marjorie Miller (for the state and local impact).

Sincerely,

BARRY B. ANDERSON  
(For Dan L. Crippen, Director).

Enclosure.

*H.R. 1528—National Geologic Mapping Reauthorization Act of 1999*

Summary: H.R. 1528 would authorize the appropriation of \$245 million over the 1999–2004 period and \$64 million in 2005 for geologic mapping programs at the U.S. Geological Survey. Of that total, \$58 million in funding for 1999 and 2000 is already authorized under current law. CBO estimates that implementing H.R. 1528 would result in additional outlays of \$185 million over the 2001–2004 period, assuming the appropriation of the authorized amounts. Enacting the bill would not affect direct spending or receipts; therefore, pay-as-you-go procedures would not apply.

H.R. 1528 contains no intergovernmental or private-sector mandates as defined in the Unfunded Mandates Reform Act (UMRA). State governments would incur some costs to match the federal grant funds authorized by this bill, but these costs would be voluntary.

Estimated cost to the Federal Government: Current law authorizes the appropriation of \$28 million in 1999 and \$30 million in 2000 for geologic mapping. In addition to those amounts, H.R. 1528 would authorize the appropriation of \$37 million in 2001, \$43 million in 2002, \$50 million in 2003, \$57 million in 2004, and \$64 million in 2005. To date, \$23 million has been appropriated for geologic mapping for 1999.

For the purposes of this estimate, CBO assumes that H.R. 1528 will be enacted by the end of fiscal year 1999 and that all amounts authorized by the bill will be appropriated for each fiscal year. Estimated outlays are based on historical spending rates for these

programs. The estimated budgetary impact of H.R. 1528 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—					
	1999	2000	2001	2002	2003	2004
SPENDING SUBJECT TO APPROPRIATION						
Spending on geologic mapping under current law:						
Authorization level <sup>1</sup> .....	28	30	0	0	0	0
Estimated outlays .....	28	30	2	0	0	0
Proposed changes:						
Authorization level .....	0	0	37	43	50	57
Estimated outlays .....	0	0	35	43	50	57
Spending on geologic mapping, H.R. 1528:						
Authorization level <sup>1</sup> .....	28	30	37	43	50	57
Estimated outlays .....	28	30	37	43	50	57

<sup>1</sup>The 1999 and 2000 levels are the amounts authorized under current law (Public Law 105-36); to date, \$23 million has been appropriated for 1999.

Pay-as-you-go considerations: None.

Estimated impact on State, local, and tribal governments: H.R. 1528 contains no intergovernmental mandates as defined in UMRA. As is the case under current law, this bill would require that all funds provided under the geologic mapping program for grants to states be matched by an equal amount of state funds. All state expenditures for this purpose would be voluntary. This bill would have no other significant impact on the budgets of state, local, or tribal governments.

Estimated impact on the private sector: This bill contains no new private-sector mandates as defined in UMRA.

Previous CBO estimate: On May 24, 1999, CBO transmitted a cost estimate for S. 607, the National Geologic Mapping Reauthorization Act of 1999, as ordered reported by the Senate Committee on Energy and Natural Resources on May 19, 1999. The two bills are identical, as are the two cost estimates.

Estimate prepared by: Federal costs: Deborah Reis; Impact on State, local, and tribal governments: Marjorie Miller.

Estimate approved by: Robert A. Sunshine, Deputy Assistant Director for Budget Analysis.

#### COMPLIANCE WITH PUBLIC LAW 104-4

This bill contains no unfunded mandates.

#### CHANGES IN EXISTING LAW MADE BY THE BILL, AS REPORTED

In compliance with clause 3(e) of rule XIII of the Rules of the House of Representatives, changes in existing law made by the bill, as reported, are shown as follows (existing law proposed to be omitted is enclosed in black brackets, new matter is printed in *italic*, existing law in which no change is proposed is shown in roman):

#### NATIONAL GEOLOGIC MAPPING ACT OF 1992

\* \* \* \* \*

#### SEC. 2. FINDINGS AND PURPOSE.

(a) FINDINGS.—The Congress finds and declares that—

(1) \* \* \*

\* \* \* \* \*

(7) geologic maps have proven indispensable in the search for needed fossil-fuel and mineral resources; [and]

(8) *geologic map information is required for the sustainable and balanced development of natural resources of all types, including energy, minerals, land, water, and biological resources;*

(9) *advances in digital technology and geographical information system science have made geologic map databases increasingly important as decision support tools for land and resource management; and*

[(8)] (10) a comprehensive nationwide program of geologic mapping of surficial and bedrock deposits is required in order to systematically build the Nation's geologic-map data base at a pace that responds to increasing demand.

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### SEC. 3. DEFINITIONS.

In this Act:

(1) \* \* \*

\* \* \* \* \*

(4) *EDUCATION COMPONENT.*—The term “education component” means the education component of the geologic mapping program described in section 6(d)(3).

(5) *FEDERAL COMPONENT.*—The term “Federal component” means the Federal component of the geologic mapping program described in section 6(d)(1).

[(4)] (6) *GEOLOGIC MAPPING PROGRAM.*—The term “geologic mapping program” means the National Cooperative Geologic Mapping Program established by section 4(a).

[(5)] (7) *SECRETARY.*—The term “Secretary” means the Secretary of the Interior.

[(6)] (8) *STATE.*—The term “State” includes the District of Columbia, the Commonwealth of Puerto Rico, the Commonwealth of the Northern Mariana Islands, American Samoa, Guam, and the Virgin Islands.

(9) *STATE COMPONENT.*—The term “State component” means the State component of the geologic mapping program described in section 6(d)(2).

[(7)] (10) *SURVEY.*—The term “Survey” means the United States Geological Survey.

### SEC. 4. GEOLOGIC MAPPING PROGRAM.

(a) \* \* \*

(b) *RESPONSIBILITIES OF THE SURVEY.*—

(1) *LEAD AGENCY.*—The Survey shall be the lead Federal agency responsible for planning, developing [priorities] *national priorities and standards for*, coordinating, and managing the geologic mapping program. In carrying out this paragraph, the Secretary, acting through the Director, shall—

(A) [develop a geologic mapping program implementation plan] *develop a 5-year strategic plan for the geologic mapping program* in accordance with section 6, which plan shall be submitted to the Committee on Resources of the

House of Representatives and the Committee on Energy and Natural Resources of the Senate **【within 300 days after the date of enactment of the National Geologic Mapping Reauthorization Act of 1997】** *not later than 1 year after the date of enactment of the National Geologic Mapping Reauthorization Act of 1999*;

(B) appoint, with the advice and consultation of the Association, the advisory committee **【within 90 days after the date of enactment of the National Geologic Mapping Reauthorization Act of 1997】** *not later than 1 year after the date of enactment of the National Geologic Mapping Reauthorization Act of 1999* in accordance with section 5; and

(C) **【within 210 days after the date of enactment of the National Geologic Mapping Reauthorization Act of 1997】** *not later than 3 years after the date of enactment of the National Geologic Mapping Reauthorization Act of 1999, and biennially thereafter*, submit a report to the Committee on Energy and Natural Resources of the United States Senate and to the Committee on Resources of the House of Representatives identifying—

(i) how the Survey and the Association **【will coordinate】** *are coordinating* the development and implementation of the geologic mapping program;

(ii) how the Survey and the Association **【will】** establish goals, mapping priorities, and target dates for implementation of the geologic mapping program; and

(iii) how long-term staffing plans for the various components of the geologic mapping program **【will lead to】** *affect* successful implementation of the geologic mapping program.

\* \* \* \* \*

**【(d) PROGRAM COMPONENTS.—**The geologic mapping program shall include the following components:

**【(1) FEDERAL COMPONENT.—**A Federal geologic mapping component, whose objective shall be determining the geologic framework of areas determined to be vital to the economic, social, or scientific welfare of the Nation. Mapping priorities shall be based on—

**【(A) national requirements for geologic-map information in areas of multiple-issue need or areas of compelling single-issue need; and**

**【(B) national requirements for geologic-map information in areas where mapping is required to solve critical earth-science problems.**

**【(2) SUPPORT COMPONENT.—**A geologic mapping support component, whose objective shall be providing interdisciplinary support for the Federal Geologic Mapping Component. Representative categories of interdisciplinary support shall include—

**【(A) establishment of a national geologic-map data base, established pursuant to section 7;**

**【(B) studies that lead to the implementation of cost-effective digital methods for the acquisition, compilation,**

analysis, cartographic production, and dissemination of geologic-map information;

【(C) paleontologic investigations that provide information critical to understanding the age and depositional environment of fossil-bearing geologic-map units, which investigations shall be contributed to a national paleontologic data base;

【(D) geochronologic and isotopic investigations that—

【(i) provide radiometric age dates for geologic-map units; and

【(ii) fingerprint the geothermometry, geobarometry, and alteration history of geologic-map units, which investigations shall be contributed to a national geochronologic data base;

【(E) geophysical investigations that assist in delineating and mapping the physical characteristics and three-dimensional distribution of geologic materials and geologic structures, which investigations shall be contributed to a national geophysical-map data base; and

【(F) geochemical investigations and analytical operations that characterize the major- and minor-element composition of geologic-map units, and that lead to the recognition of stable and anomalous geochemical signatures for geologic terrains, which investigations shall be contributed to a national geochemical-map data base.

【(3) STATE COMPONENT.—A State geologic mapping component, whose objective shall be determining the geologic framework of areas that the State geological surveys determine to be vital to the economic, social, or scientific welfare of individual States. Mapping priorities shall be determined by multirepresentational State panels and shall be integrated with national priorities. Federal funding for the State component shall be matched on a one-to-one basis with non-Federal funds.

【(4) EDUCATION COMPONENT.—A geologic mapping education component—

【(A) the objectives of which shall be—

【(i) to develop the academic programs that teach earth-science students the fundamental principles of geologic mapping and field analysis; and

【(ii) to provide for broad education in geologic mapping and field analysis through support of field studies;

【(B) investigations under which shall be integrated with the other mapping components of the geologic mapping program and shall respond to priorities identified for those components; and

【(C) Federal funding for which shall be matched by non-Federal sources on a 1-to-1 basis.】

(d) PROGRAM COMPONENTS.—

(1) FEDERAL COMPONENT.—

(A) IN GENERAL.—*The geologic mapping program shall include a Federal geologic mapping component, the objective of which shall be to determine the geologic framework*

of areas determined to be vital to the economic, social, environmental, or scientific welfare of the United States.

(B) *MAPPING PRIORITIES.*—For the Federal component, mapping priorities—

(i) shall be described in the 5-year plan under section 6; and

(ii) shall be based on—

(I) national requirements for geologic map information in areas of multiple-issue need or areas of compelling single-issue need; and

(II) national requirements for geologic map information in areas where mapping is required to solve critical earth science problems.

(C) *INTERDISCIPLINARY STUDIES.*—

(i) *IN GENERAL.*—The Federal component shall include interdisciplinary studies that add value to geologic mapping.

(ii) *REPRESENTATIVE CATEGORIES.*—Interdisciplinary studies under clause (i) may include—

(I) establishment of a national geologic map database under section 7;

(II) studies that lead to the implementation of cost-effective digital methods for the acquisition, compilation, analysis, cartographic production, and dissemination of geologic map information;

(III) paleontologic, geochronologic, and isotopic investigations that provide information critical to understanding the age and history of geologic map units;

(IV) geophysical investigations that assist in delineating and mapping the physical characteristics and 3-dimensional distribution of geologic materials and geologic structures; and

(V) geochemical investigations and analytical operations that characterize the composition of geologic map units.

(iii) *USE OF RESULTS.*—The results of investigations under clause (ii) shall be contributed to national databases.

(2) *STATE COMPONENT.*—

(A) *IN GENERAL.*—The geologic mapping program shall include a State geologic mapping component, the objective of which shall be to establish the geologic framework of areas determined to be vital to the economic, social, environmental, or scientific welfare of individual States.

(B) *MAPPING PRIORITIES.*—For the State component, mapping priorities—

(i) shall be determined by State panels representing a broad range of users of geologic maps; and

(ii) shall be based on—

(I) State requirements for geologic map information in areas of multiple-issue need or areas of compelling single-issue need; and

(II) *State requirements for geologic map information in areas where mapping is required to solve critical earth science problems.*

(C) *INTEGRATION OF FEDERAL AND STATE PRIORITIES.—A national panel including representatives of the Survey shall integrate the State mapping priorities under this paragraph with the Federal mapping priorities under paragraph (1).*

(D) *USE OF FUNDS.—The Survey and recipients of grants under the State component shall not use more than 15.25 percent of the Federal funds made available under the State component for any fiscal year to pay indirect, servicing, or program management charges.*

(E) *FEDERAL SHARE.—The Federal share of the cost of activities under the State component for any fiscal year shall not exceed 50 percent.*

(3) *EDUCATION COMPONENT.—*

(A) *IN GENERAL.—The geologic mapping program shall include a geologic mapping education component for the training of geologic mappers, the objectives of which shall be—*

(i) *to provide for broad education in geologic mapping and field analysis through support of field studies; and*

(ii) *to develop academic programs that teach students of earth science the fundamental principles of geologic mapping and field analysis.*

(B) *INVESTIGATIONS.—The education component may include the conduct of investigations, which—*

(i) *shall be integrated with the Federal component and the State component; and*

(ii) *shall respond to mapping priorities identified for the Federal component and the State Component.*

(C) *USE OF FUNDS.—The Survey and recipients of grants under the education component shall not use more than 15.25 percent of the Federal funds made available under the education component for any fiscal year to pay indirect, servicing, or program management charges.*

(D) *FEDERAL SHARE.—The Federal share of the cost of activities under the education component for any fiscal year shall not exceed 50 percent.*

**SEC. 5. ADVISORY COMMITTEE.**

(a) **ESTABLISHMENT.—**

(1) \* \* \*

\* \* \* \* \*

(3) **APPOINTED MEMBERS.—**Not later than [90 days after the date of enactment of the National Geologic Mapping Reauthorization Act of 1997] 1 year after the date of enactment of the National Geologic Mapping Reauthorization Act of 1999, in consultation with the Association, the Secretary shall appoint to the advisory committee two representatives from the Survey (including the Chief Geologist, as Chairman), two representa-

tives from the State geological surveys, one representative from academia, and one representative from the private sector.  
 (b) DUTIES.—The advisory committee shall—

(1) review and **critique the draft implementation plan** *update the 5-year plan* prepared by the Director pursuant to section 6;

(2) review the scientific progress of the geologic mapping program; and

(3) submit an annual report to the Secretary that evaluates the progress of the Federal, State, and university mapping activities and evaluates the progress made toward fulfilling the purposes of **this Act** *sections 4 through 7*.

**SEC. 6. GEOLOGIC MAPPING PROGRAM IMPLEMENTATION PLAN.**

**The Secretary, acting through the Director, shall, with the advice and review of the advisory committee, prepare an implementation plan for the geologic mapping program. The plan shall identify the overall management structure and operation of the geologic mapping program and shall provide for—**

**(1) the role of the Survey in its capacity as overall management lead, including the responsibility for developing the national cooperative geologic mapping program that meets Federal needs while simultaneously fostering State needs;**

**(2) the responsibilities accruing to the State geological surveys, with particular emphasis on mechanisms that incorporate their needs, missions, capabilities, and requirements into the nationwide geologic mapping program;**

**(3) mechanisms for identifying short- and long-term priorities for each component of the geologic mapping program, including—**

**(A) for the Federal geologic mapping component, a priority-setting mechanism that responds both to (i) Federal mission requirements for geologic-map information, and (ii) critical scientific problems that require geologic-map control for their resolution;**

**(B) for the geologic mapping support component, a strong interdisciplinary research program plan in isotopic and paleontologic geochronology, geophysical mapping, and process studies to provide data to and interpret results from geologic mapping;**

**(C) for the State geologic mapping component, a priority-setting mechanism that responds to—**

**(i) specific intrastate needs for geologic-map information; and**

**(ii) interstate needs shared by adjacent entities that have common requirements; and**

**(D) for the geologic mapping education component, a priority-setting mechanism that responds to requirements for geologic-map information that are driven by Federal and State mission requirements;**

**(4) a mechanism for adopting scientific and technical mapping standards for preparing and publishing general-purpose and special-purpose geologic maps to—**

**(A) ensure uniformity of cartographic and scientific conventions; and**

- [(B) provide a basis for judgment as to the comparability and quality of map products; and
- [(5) a mechanism for monitoring the inventory of published and current mapping investigations nationwide in order to facilitate planning and information exchange and to avoid redundancy.]

**SEC. 6. GEOLOGIC MAPPING PROGRAM 5-YEAR PLAN.**

(a) *IN GENERAL.*—The Secretary, acting through the Director, shall, with the advice and review of the advisory committee, prepare a 5-year plan for the geologic mapping program.

(b) *REQUIREMENTS.*—The 5-year plan shall identify—

- (1) overall priorities for the geologic mapping program; and
- (2) implementation of the overall management structure and operation of the geologic mapping program, including—

(A) the role of the Survey in the capacity of overall management lead, including the responsibility for developing the national geologic mapping program that meets Federal needs while fostering State needs;

(B) the responsibilities of the State geological surveys, with emphasis on mechanisms that incorporate the needs, missions, capabilities, and requirements of the State geological surveys, into the nationwide geologic mapping program;

(C) mechanisms for identifying short- and long-term priorities for each component of the geologic mapping program, including—

(i) for the Federal component, a priority-setting mechanism that responds to—

(I) Federal mission requirements for geologic map information;

(II) critical scientific problems that require geologic maps for their resolution; and

(III) shared Federal and State needs for geologic maps, in which joint Federal-State geologic mapping projects are in the national interest;

(ii) for the State component, a priority-setting mechanism that responds to—

(I) specific intrastate needs for geologic map information; and

(II) interstate needs shared by adjacent States that have common requirements; and

(iii) for the education component, a priority-setting mechanism that responds to requirements for geologic map information that are dictated by Federal and State mission requirements;

(D) a mechanism for adopting scientific and technical mapping standards for preparing and publishing general- and special-purpose geologic maps to—

(i) ensure uniformity of cartographic and scientific conventions; and

(ii) provide a basis for assessing the comparability and quality of map products; and

(E) a mechanism for monitoring the inventory of published and current mapping investigations nationwide to

*facilitate planning and information exchange and to avoid redundancy.*

**[SEC. 7. NATIONAL GEOLOGIC-MAP DATA BASE.**

**[(a) ESTABLISHMENT.—**The Survey shall establish a national geologic-map data base. Such data base shall be a national archive that includes all maps developed pursuant to this Act, the data bases developed pursuant to the investigations under sections (4)(d)(2) (C), (D), (E), and (F), and other maps and data as the Survey deems appropriate.**]**

**SEC. 7. NATIONAL GEOLOGIC MAP DATABASE.**

*(a) ESTABLISHMENT.—*

*(1) IN GENERAL.—The Survey shall establish a national geologic map database.*

*(2) FUNCTION.—The database shall serve as a national catalog and archive, distributed through links to Federal and State geologic map holdings, that includes—*

*(A) all maps developed under the Federal component and the education component;*

*(B) the databases developed in connection with investigations under subclauses (III), (IV), and (V) of section 4(d)(1)(C)(ii); and*

*(C) other maps and data that the Survey and the Association consider appropriate.*

\* \* \* \* \*

**[SEC. 8. ANNUAL REPORT.**

**[The Secretary shall, within 90 days after the end of each fiscal year, submit an annual report to the Committee on Resources of the House of Representatives and the Committee on Energy and Natural Resources of the Senate describing the status of the nationwide geologic mapping program and describing and evaluating the progress achieved during the preceding fiscal year in developing the national geologic-map data base. Each report shall include any recommendations for legislative or other action as the Secretary deems necessary and appropriate to fulfill the purposes of this Act.**

**[SEC. 9. AUTHORIZATION OF APPROPRIATIONS.**

**[(a) IN GENERAL.—**There are authorized to be appropriated to carry out the national cooperative geologic mapping program under this Act—

**[(1) \$26,000,000 for fiscal year 1998;**

**[(2) \$28,000,000 for fiscal year 1999; and**

**[(3) \$30,000,000 for fiscal year 2000.**

**[(b) ALLOCATION OF APPROPRIATED FUNDS.—**

**[(1) IN GENERAL.—**Of the amount of funds that are appropriated under subsection (a) for any fiscal year up to the amount that is equal to the amount appropriated to carry out the national cooperative geologic mapping program for fiscal year 1996—

**[(A) not less than 20 percent shall be allocated to State mapping activities; and**

**[(B) not less than 2 percent shall be allocated to educational mapping activities.**

[(2) INCREASED APPROPRIATIONS.—Of the amount of funds that are appropriated under subsection (a) for any fiscal year up to the amount that exceeds the amount appropriated to carry out the national cooperative geologic mapping program for fiscal year 1996—

[(A) for fiscal year 1998—

[(i) 75 percent shall be allocated for Federal mapping and support mapping activities;

[(ii) 23 percent shall be allocated for State mapping activities; and

[(iii) 2 percent shall be allocated for educational mapping activities;

[(B) for fiscal year 1999—

[(i) 74 percent shall be allocated for Federal mapping and support mapping activities;

[(ii) 24 percent shall be allocated for State mapping activities; and

[(iii) 2 percent shall be allocated for educational mapping activities; and

[(C) for fiscal year 2000—

[(i) 73 percent shall be allocated for Federal mapping and support mapping activities;

[(ii) 25 percent shall be allocated for State mapping activities; and

[(iii) 2 percent shall be allocated for educational mapping activities.]

**SEC. 8. BIENNIAL REPORT.**

*Not later 3 years after the date of enactment of the National Geologic Mapping Reauthorization Act of 1999 and biennially thereafter, the Secretary shall submit to the Committee on Resources of the House of Representatives and the Committee on Energy and Natural Resources of the Senate a report that—*

*(1) describes the status of the national geologic mapping program;*

*(2) describes and evaluates the progress achieved during the preceding 2 years in developing the national geologic map database; and*

*(3) includes any recommendations that the Secretary may have for legislative or other action to achieve the purposes of sections 4 through 7.*

**SEC. 9. AUTHORIZATION OF APPROPRIATIONS.**

*(a) IN GENERAL.—There are authorized to be appropriated to carry out this Act—*

*(1) \$28,000,000 for fiscal year 1999;*

*(2) \$30,000,000 for fiscal year 2000;*

*(3) \$37,000,000 for fiscal year 2001;*

*(4) \$43,000,000 for fiscal year 2002;*

*(5) \$50,000,000 for fiscal year 2003;*

*(6) \$57,000,000 for fiscal year 2004; and*

*(7) \$64,000,000 for fiscal year 2005.*

*(b) ALLOCATION OF APPROPRIATIONS.—Of any amounts appropriated for any fiscal year in excess of the amount appropriated for fiscal year 2000—*

- (1) 48 percent shall be available for the State component; and*
- (2) 2 percent shall be available for the education component.*

