

Calendar No. 315

116TH CONGRESS }
1st Session }

SENATE

{ REPORT
116-165

NATIONAL LANDSLIDE PREPAREDNESS ACT

R E P O R T

OF THE

COMMITTEE ON COMMERCE, SCIENCE, AND
TRANSPORTATION

ON

S. 529



DECEMBER 5, 2019.—Ordered to be printed

U.S. GOVERNMENT PUBLISHING OFFICE

99-010

WASHINGTON : 2019

SENATE COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION

ONE HUNDRED SIXTEENTH CONGRESS

FIRST SESSION

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NATIONAL LANDSLIDE PREPAREDNESS ACT

DECEMBER 5, 2019.—Ordered to be printed

Mr. WICKER, from the Committee on Commerce, Science, and
Transportation, submitted the following

R E P O R T

[To accompany S. 529]

[Including cost estimate of the Congressional Budget Office]

The Committee on Commerce, Science, and Transportation, to which was referred the bill (S. 529) to establish a national program to identify and reduce losses from landslide hazards, to establish a national 3D Elevation Program, and for other purposes, having considered the same, reports favorably thereon with an amendment (in the nature of a substitute) and recommends that the bill (as amended) do pass.

PURPOSE OF THE BILL

The purpose of S. 529 is to authorize a national landslide hazards reduction program within the United States Geological Survey (USGS) to identify and understand risks and reduce losses from landslide hazards, and to help improve communication and emergency preparedness. The bill also establishes a national 3-Dimensional Elevation Program (3DEP) to update and produce standard, publicly accessible 3D elevation data to assess landslide hazards, recognize geologic and environmental hazards, and to identify natural resources.

BACKGROUND AND NEEDS

Landslides are geologic hazards that exist throughout the United States. The costs of landslides are significant; the USGS estimates

that landslides account for \$2 billion to \$4 billion in damages¹ and, on average, 25–50 fatalities every year.² As expansion of urban and recreational development occurs, people are exposed to potential impacts from landslide hazards. Landslides are often triggered by other events like heavy storms, earthquakes, volcanic activities, and wildfires. In March 2014, a landslide in Washington State occurred near Oso, causing 43 deaths and the destruction of 49 homes and structures.³ The direct costs of the Oso landslide totaled more than \$80 million and highlighted the need for a national landslide hazards reduction program.

Established in the 1970s, the Landslides Hazards Program (LHP) provides scientific information to minimize loss of life and property from landslides.⁴ The LHP conducts landslide hazard assessments, conducts landslide investigations and forecasts, and provides assistance in response to landslide events. The LHP collaborates with States and other Federal agencies in these activities. Local public decisionmakers depend on the LHP for information before, during, and after landslide triggering disasters to better inform their actions. Since fiscal year 2014, the LHP has been funded at \$3.5 million annually.⁵

AUTHORIZING A NATIONAL LANDSLIDE HAZARDS REDUCTION PROGRAM

S. 529 directs the Secretary of the Interior to bolster the LHP's activities by creating a National Landslide Hazards Reduction Program to identify and understand risks and reduce losses from landslide hazards, protect communities at risk, and to help improve communication and emergency preparedness. The program would be required to map and assess landslide hazards, identify regional and local priorities through coordination with States, Indian Tribes, and local governments, and develop landslide hazard guidelines for geologists, engineers, emergency managers, and land-use and other decisionmakers.

The program would assist the efforts of State and local governments and decisionmakers to reduce landslide risks by providing planning and risk-reduction guidance and materials through a publicly available national landslide hazards database. The program also would expand early warning systems for landslide hazards and develop emergency response procedures for rapid deployment of Federal funds to areas affected by landslide events.

An interagency committee, chaired by the Secretary of the Interior, would oversee and coordinate the National Landslide Hazards Reduction Program. The committee would support the development and execution of a national strategy and plan for landslide hazards and risk reduction. An advisory committee on landslides, composed of members from States, territories, Indian Tribes, research institu-

¹ American Geosciences Institute, "How much do landslides cost the U.S. in terms of monetary losses?" (<https://www.americangeosciences.org/critical-issues/faq/how-much-do-landslides-cost-terms-monetary-losses>).

² U.S. Geological Survey, Landslides Hazards Program (https://www.usgs.gov/faqs/how-many-deaths-result-landslides-each-year?qt-news_science_products=0#qt-news_science_products).

³ U.S. Geological Survey, "Five Years Later—The Oso (SR 530) Landslide in Washington" (https://www.usgs.gov/news/five-years-later-oso-sr-530-landslide-washington?qt-news_science_products=1#qt-news_science_products).

⁴ U.S. Geological Survey, Landslides Hazards Program (https://www.usgs.gov/faqs/how-many-deaths-result-landslides-each-year?qt-news_science_products=0#qt-news_science_products).

⁵ U.S. Department of the Interior, Office of Budget (<https://www.doi.gov/budget/appropriations/>).

tions, industry, and emergency management, would provide advice and recommendations to the interagency committee.

ESTABLISHING THE 3D ELEVATION PROGRAM (3DEP)

The bill also would authorize 3DEP to complement and provide data to the National Landslide Hazard Reduction Program. 3DEP would update and produce standard, publicly accessible 3D elevation data for the United States, in coordination with other Federal agencies and non-Federal entities. The products produced by 3DEP would improve understanding and assessments of landslide hazards, identify energy, mineral, and water resources, and recognize geologic and environmental hazards such as active faults and seismic areas, unstable ground subject to landslides, swelling soils, floodplains, and abandoned mine lands.

An interagency committee, chaired by the Secretary of the Interior, would oversee and coordinate the activities of 3DEP. A subcommittee of the National Geospatial Advisory Committee would advise the interagency coordinating committee and would assess the management and implementation of the activities carried out in 3DEP.

SUMMARY OF PROVISIONS

The National Landslide Preparedness Act would direct the USGS to establish a National Landslide Hazards Reduction Program to better understand and identify landslide hazards and risks, protect communities and reduce losses from landslide hazards, and improve emergency preparedness.

If enacted, the National Landslide Preparedness Act would do the following:

- Direct USGS to establish a National Landslide Hazards Reduction Program, which requires that the USGS:
 - Establish a national strategy to reduce landslide risks;
 - Create and maintain publicly accessible database on landslide hazards;
 - Create an early warning system for flash floods and debris flows;
 - Lead an interagency coordinating committee on landslide hazards; and
 - Authorize two new grant programs.

It also would do the following:

- Authorize USGS to create 3DEP, which would do the following:
 - Require the USGS to develop elevation data for the United States and produce publicly accessible elevation products;
 - Authorize USGS to make grants and enter into cooperative agreements; and
 - Direct USGS to head interagency coordinating committee for 3DEP.

This bill would authorize appropriations of \$37 million for each of fiscal years 2020–2023 to carry out the National Landslide Hazards Reduction Program; of which \$25 million be made available to the USGS, \$11 million be made available to the National Science Foundation, and \$1 million be made available to the National Oceanic and Atmospheric Administration. The bill would authorize ap-

propriations of \$20 million for each of fiscal years 2020–2023 to carry out 3DEP.

LEGISLATIVE HISTORY

S. 529, the National Landslide Preparedness Act, was introduced on February 14, 2019, by Senator Cantwell (for herself and Senators Murkowski, Gardner, Wyden, and Feinstein), and was referred to the Committee on Commerce, Science, and Transportation of the Senate. Senator Sullivan is an additional cosponsor. On April 3, 2019, the Committee met in open Executive Session and, by voice vote, ordered S. 529 to be reported favorably with an amendment in the nature of a substitute.

In the 115th Congress, a similar bill, S. 698, the National Landslide Preparedness Act, was introduced on March 22, 2017, by Senator Cantwell (for herself and Senators Feinstein, Murkowski and Murray) and was referred to the Committee on Commerce, Science, and Transportation of the Senate. Senator Wyden became an additional cosponsor. The measure was not taken up by the Committee.

ESTIMATED COSTS

In accordance with paragraph 11(a) of rule XXVI of the Standing Rules of the Senate and section 403 of the Congressional Budget Act of 1974, the Committee provides the following cost estimate, prepared by the Congressional Budget Office:

At a Glance			
S. 529, National Landslide Preparedness Act			
As ordered reported by the Senate Committee on Commerce, Science, and Transportation on April 3, 2019			
By Fiscal Year, Millions of Dollars	2019	2019-2024	2019-2029
Direct Spending (Outlays)	0	0	0
Revenues	0	0	0
Deficit Effect	0	0	0
Spending Subject to Appropriation (Outlays)	0	223	228
Pay-as-you-go procedures apply?	No	Mandate Effects	
Increases on-budget deficits in any of the four consecutive 10-year periods beginning in 2030?	No	Contains intergovernmental mandate?	No
		Contains private-sector mandate?	No

The bill would

- Authorize the appropriation of \$37 million annually over the 2020–2023 period for the National Landslide Hazards Program
 - Authorize the appropriation of \$20 million annually over the 2020–2023 period for the 3D Elevation Program
- Estimated budgetary effects would primarily stem from
- Spending of amounts specifically authorized to be appropriated

Bill summary: S. 529 would direct the United States Geological Survey (USGS) to implement two programs focused on mapping the territory of the United States. Under the bill, the National Land-

slide Hazards Reduction Program (NLHRP) would develop a national strategy to reduce landslide risks, create and maintain a publicly accessible database on landslide hazards, expand the current early warning system for flash floods and debris flow following wildfires, and lead an interagency coordinating committee on landslide hazards. The bill also would authorize two grant programs under the NLHRP.

Under the 3D Elevation Program, USGS would be required to develop elevation data for the United States and to produce publicly accessible data products. In implementing the program, the USGS would be authorized to make grants and enter into cooperative agreements. The bill would direct the USGS to head an interagency coordinating committee for the program.

Estimated Federal cost: The estimated budgetary effect of S. 529 is shown in Table 1. The costs of the legislation fall within budget function 300 (natural resources and environment).

TABLE 1.—ESTIMATED INCREASES IN SPENDING SUBJECT TO APPROPRIATION UNDER S. 529

	By fiscal year, millions of dollars—						
	2019	2020	2021	2022	2023	2024	2019–2024
National Landslide Hazards Reduction Program:							
Authorization	0	37	37	37	37	0	148
Estimated Outlays	0	26	35	37	37	11	146
3D Elevation Program:							
Authorization	0	20	20	20	20	0	80
Estimated Outlays	0	8	17	20	20	12	77
Total Changes:							
Authorization	0	57	57	57	57	0	228
Estimated Outlays	0	34	52	57	57	23	223

Basis of estimate: For this estimate, CBO assumes that S. 529 will be enacted during fiscal year 2019 and that the authorized amounts will be appropriated for each fiscal year beginning in 2020. Estimated outlays follow historical patterns for similar programs.

S. 529 would authorize the appropriation of \$57 million a year for a total of \$228 million over the 2020–2023 period. Assuming appropriation of those amounts, CBO estimates that the bill would cost \$223 million over the 2020–2024 period and \$5 million after 2024.

National Landslide Hazards Reduction Program: S. 529 would authorize the appropriation of \$37 million annually from 2020 to 2023 for the USGS to implement the NLHRP. CBO estimates that implementing the program as authorized would cost \$146 million over the 2020–2024 period. Currently the USGS operates a similar program that meets some of the requirements of S. 529. In 2019, the USGS allocated about \$4 million to that program.

3D Elevation Program: The bill would authorize the appropriation of \$20 million annually from 2020 to 2023 for the USGS to implement the 3D Elevation Program. CBO estimates that implementing the program would cost \$77 million over the 2020–2024 period. Currently the USGS operates a similar program that meets some of the requirements outlined under S. 529. In 2019, the USGS allocated about \$38 million to that program.

Pay-As-You-Go considerations: None.

Increase in long-term deficits: None.

Mandates: None.

Estimate prepared by: Federal Costs: Robert Reese; Mandates: Jon Sperl.

Estimate reviewed by: Kim P. Cawley, Chief, Natural and Physical Resources Cost Estimates Unit; H. Samuel Papenfuss, Deputy Assistant Director for Budget Analysis.

REGULATORY IMPACT STATEMENT

In accordance with paragraph 11(b) of rule XXVI of the Standing Rules of the Senate, the Committee provides the following evaluation of the regulatory impact of the legislation, as reported:

NUMBER OF PERSONS COVERED

S. 529, as reported, would not subject individuals to new regulations.

ECONOMIC IMPACT

S. 529, as reported, is not expected to have a negative economic impact.

PRIVACY

The reported bill would have no impact on the personal privacy of individuals.

PAPERWORK

The National Landslide Hazards Reduction Program would require the Secretary, in coordination with the Committee, not later than 1 year after the date of enactment of this Act and every 5 years thereafter, to publish a national strategy for landslide hazard risk reduction and response in the United States. The bill also would require a biennial report be submitted to Congress through calendar year 2030, which would include a description of the goals and accomplishments of the Committee in carrying out the national strategy, results of activities carried out by the Committee, and implementation of any recommendations of the Advisory Committee.

3DEP would require the subcommittee to submit a report, not later than 1 year after the date of enactment of this Act and every 2 years thereafter, to the Secretary and the 3D Elevation Federal Interagency Coordinating Committee, the findings from and recommendations based on assessments carried out in 3DEP.

CONGRESSIONALLY DIRECTED SPENDING

In compliance with paragraph 4(b) of rule XLIV of the Standing Rules of the Senate, the Committee provides that no provisions contained in the bill, as reported, meet the definition of congressionally directed spending items under the rule.

SECTION-BY-SECTION ANALYSIS

Section 1. Short title.

This section would provide that the bill may be cited as the “National Landslide Preparedness Act”.

Section 2. Definitions.

This section includes definitions of the terms “3D,” “3D elevation data,” “3D elevation program,” “IfSAR,” “Indian tribe,” “lahar,” “LiDAR,” “Secretary,” “State office,” and “territory.”

Section 3. National Landslide Hazards Reduction Program.

This section would direct the Secretary of the Interior to establish the National Landslide Hazards Reduction Program within the USGS Natural Hazards Program. It would allow the Secretary to coordinate with an Interagency Committee on Landslide Hazards, USGS, and other Federal agencies to improve landslide hazard preparedness and response, establish working groups with State and local governments, territories, and Indian Tribes to identify regional priorities, and develop and implement guidelines for landslide hazards to be used by geologists, engineers, emergency management, and other decisionmakers. The program also would publish a national strategy for landslide risk reduction and response and develop and maintain a publicly accessible national hazard and risk database. The program would strengthen community preparedness by disseminating planning and risk materials, expanding early warning systems, and establishing procedures for rapid emergency response and deployment of Federal resources to affected communities.

This section also would provide competitive grants to State, local, and Tribal governments to research and collect data on landslide hazards. It would require the National Science Foundation to ensure that competitive landslide research grants advance the goals and priorities of the national strategy.

Section 4. Ground subsidence.

This section would allow the Secretary to support identification, mapping, research, and monitoring of subsidence and groundwater resource accounting.

Section 5. 3D Elevation Program.

This section would direct the Secretary to establish a 3DEP and the 3D Elevation Federal Interagency Coordinating Committee and would authorize appropriations for 3DEP. 3DEP would provide standard, publicly accessible 3D elevation data coverage and data products for the United States, as well as promote collection, dissemination, and use of the data across Federal, State, local, and Tribal governments, communities, institutes of higher education, and the private sector. Finally, this section would allow USGS to make grants and enter into cooperative agreements to facilitate the improvement of nationwide coverage of 3D elevation data.

CHANGES IN EXISTING LAW

In compliance with paragraph 12 of rule XXVI of the Standing Rules of the Senate, the Committee states that the bill as reported would make no change to existing law.