

# DIGITAL MAPPING TECHNIQUES 2021

The following was presented at DMT'21  
(June 7 - 10, 2021 - A Virtual Event)

The contents of this document are provisional

See Presentations and Proceedings  
from the DMT Meetings (1997-2021)

<http://ngmdb.usgs.gov/info/dmt/>

As part of the U.S. GeoFramework Initiative discussion topic, Jessica Czajkowski (Washington Geological Survey) and Mark Yacucci (Illinois State Geological Survey) held an interactive session using Mentimeter to conduct real-time polling of staff-level opinions on agency capabilities (e.g., staffing levels and skill sets, and available data sets) to participate in the NCGMP U.S. GeoFramework Initiative. Polling questions pertained to data types and formats, data management, map scale users, availability, and formats, stratigraphic correlations, GeMS, GIS, 3D modeling, copyright, and other topics. Most questions were aimed at State Geological Surveys, and several questions were asked of USGS staff. In parallel with similar Mentimeter polling of State Geologists and USGS managers during the U.S. GeoFramework Initiative Strategic Implementation Workshop a month prior, polling results reflected the high degree of variability across State Geological Surveys regarding their data availability, types, formats, and processes, their enterprise systems, and technical ability to contribute to the U.S. GeoFramework Initiative.

After the polling, brief breakout discussions identified some key issues and potential including:

1. The need for better subsurface information (e.g., water well locations). In some cases, a state can't yet create GIS compilations, but could use the funds to clean up ancillary data useful for geologic mapping.
2. Administrative issues (e.g., GIS staff funding and retention, centralized staff serving multiple agencies, software purchasing requirements) may determine a State's ability to participate.
3. More long term (i.e., more than one year) predictability in funding is essential for planning a States's participation in this Initiative. Especially for hiring plans and various science issues such as prioritization for converting legacy maps to GeMS.

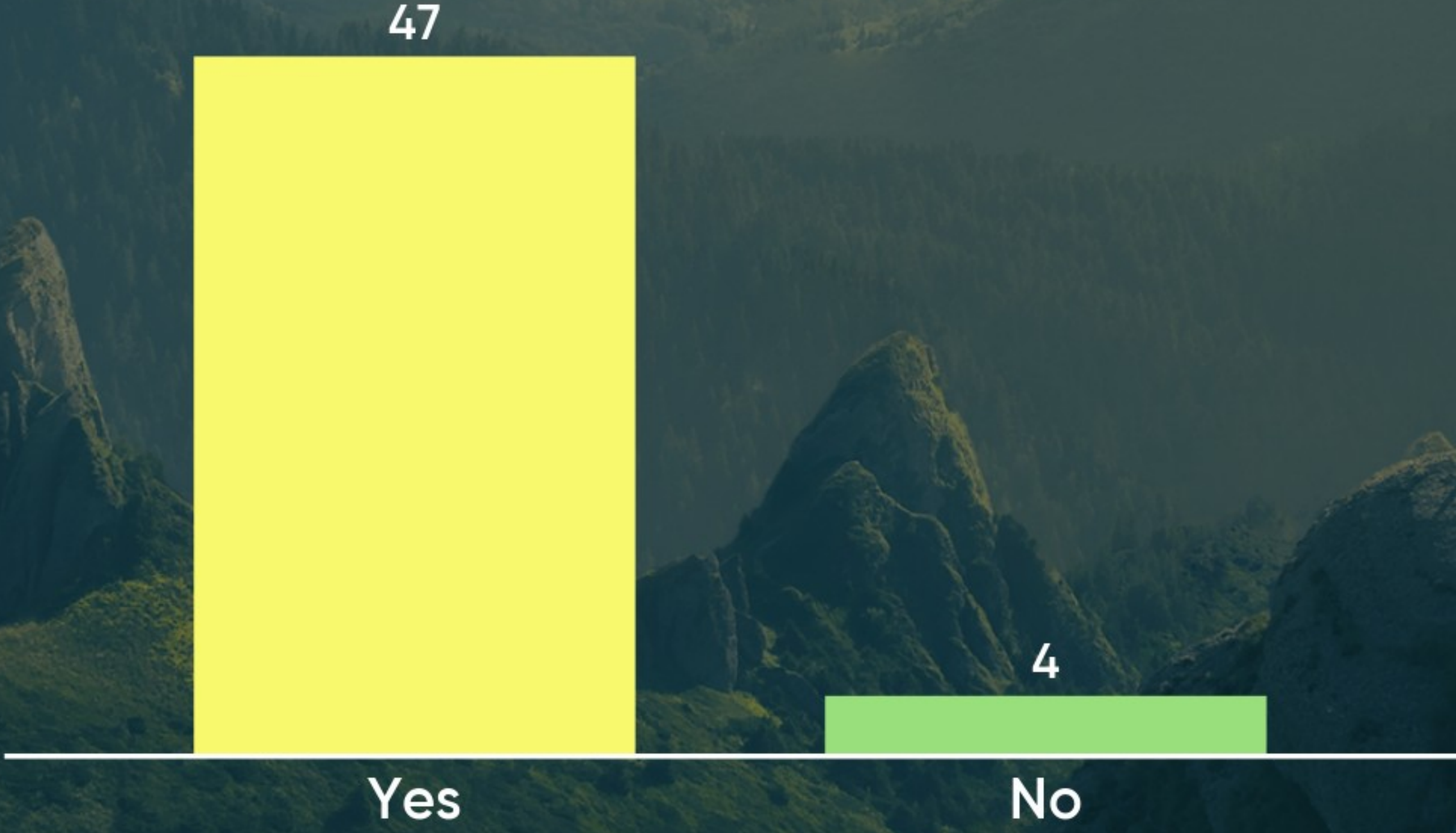


# Staff-Level Survey of Capabilities for the USGS GeoFramework Initiative

Digital Mapping Techniques, June 2021



# Is your state building, maintaining or considering ancillary databases regardless of participation in the GeoFramework Initiative?





# Does your state collect and manage borehole and(or) water well information?



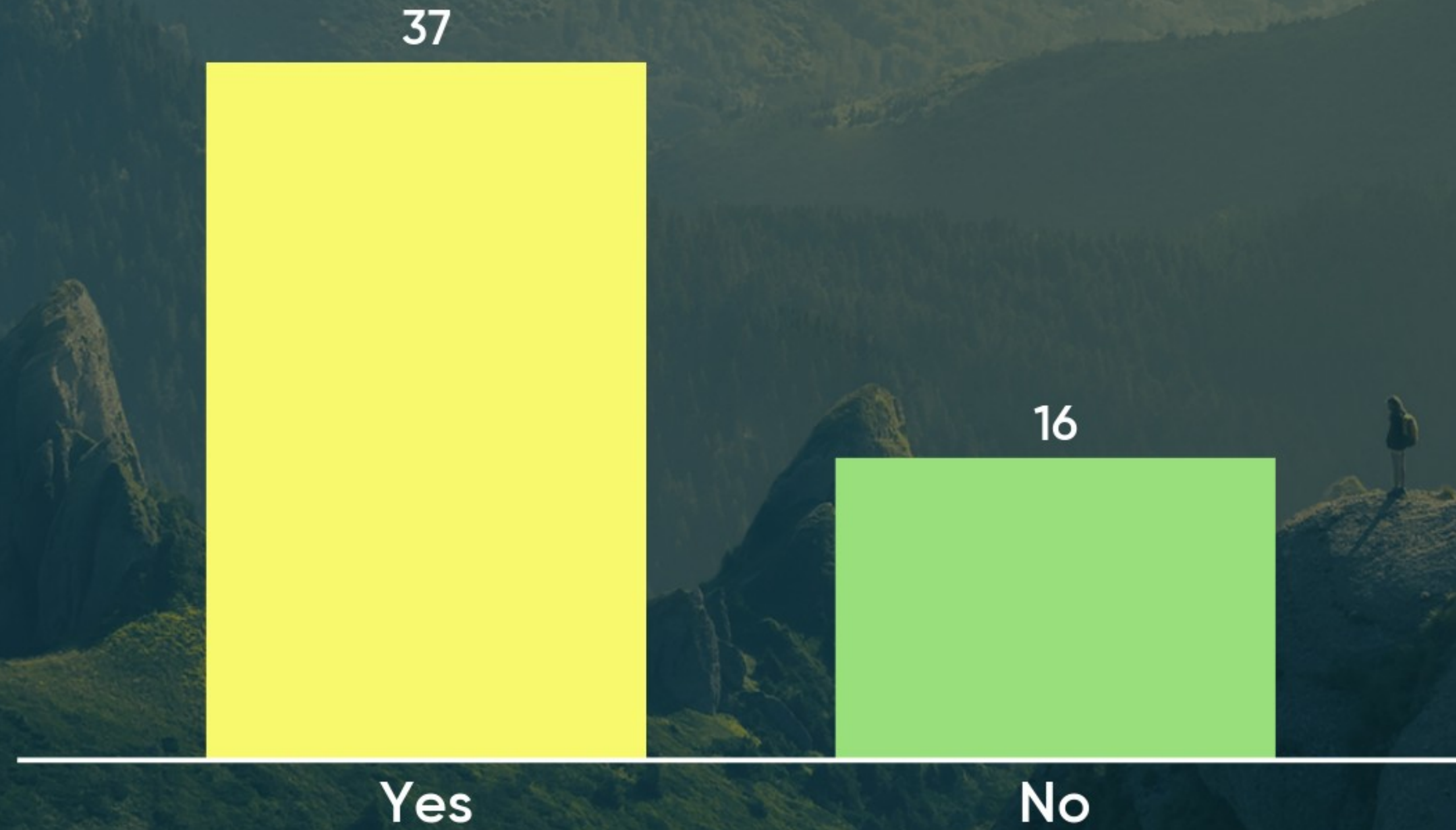


# Does your state collect and manage oil and gas well information?



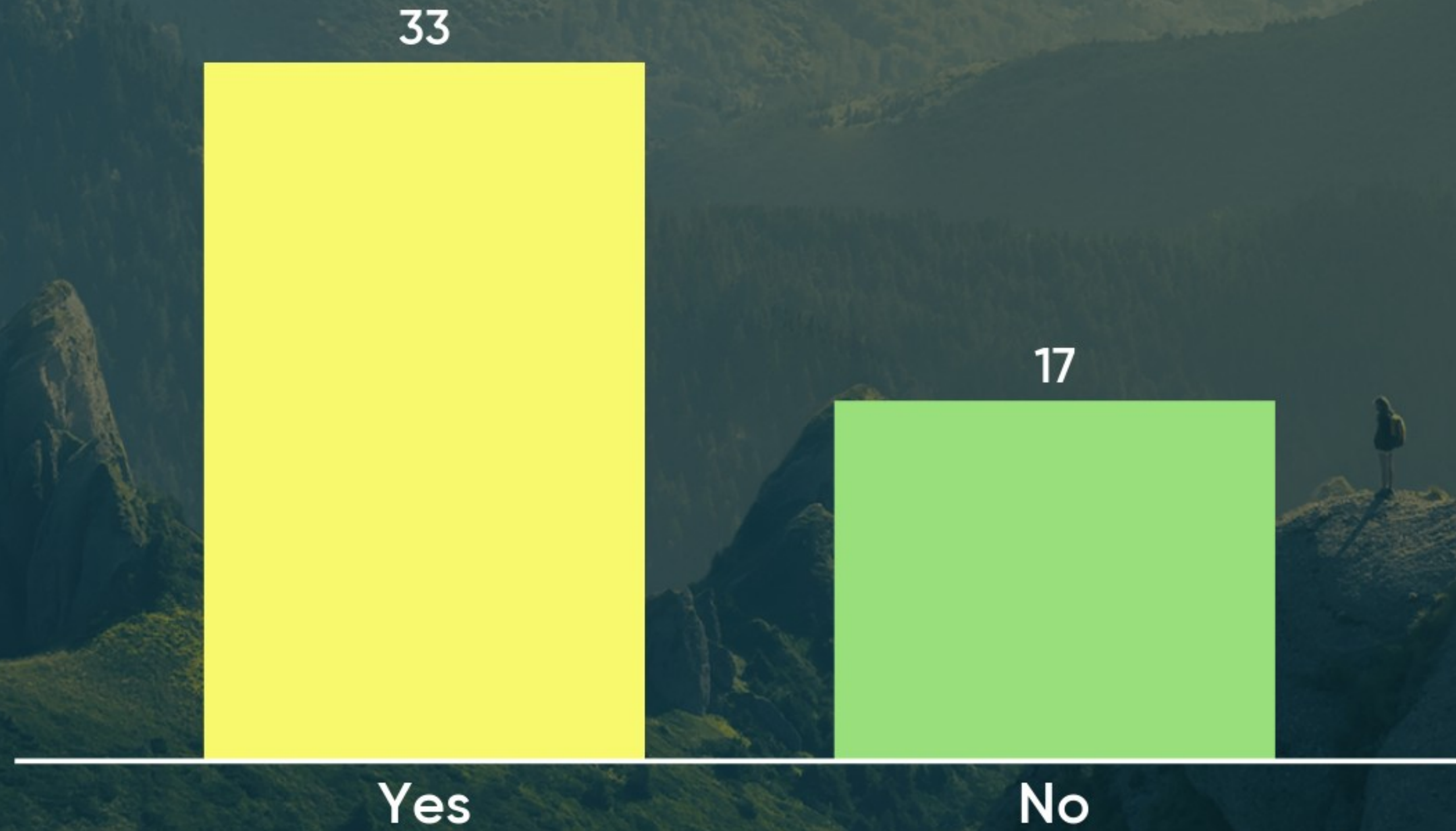


# Does your state collect and manage coal resource information?



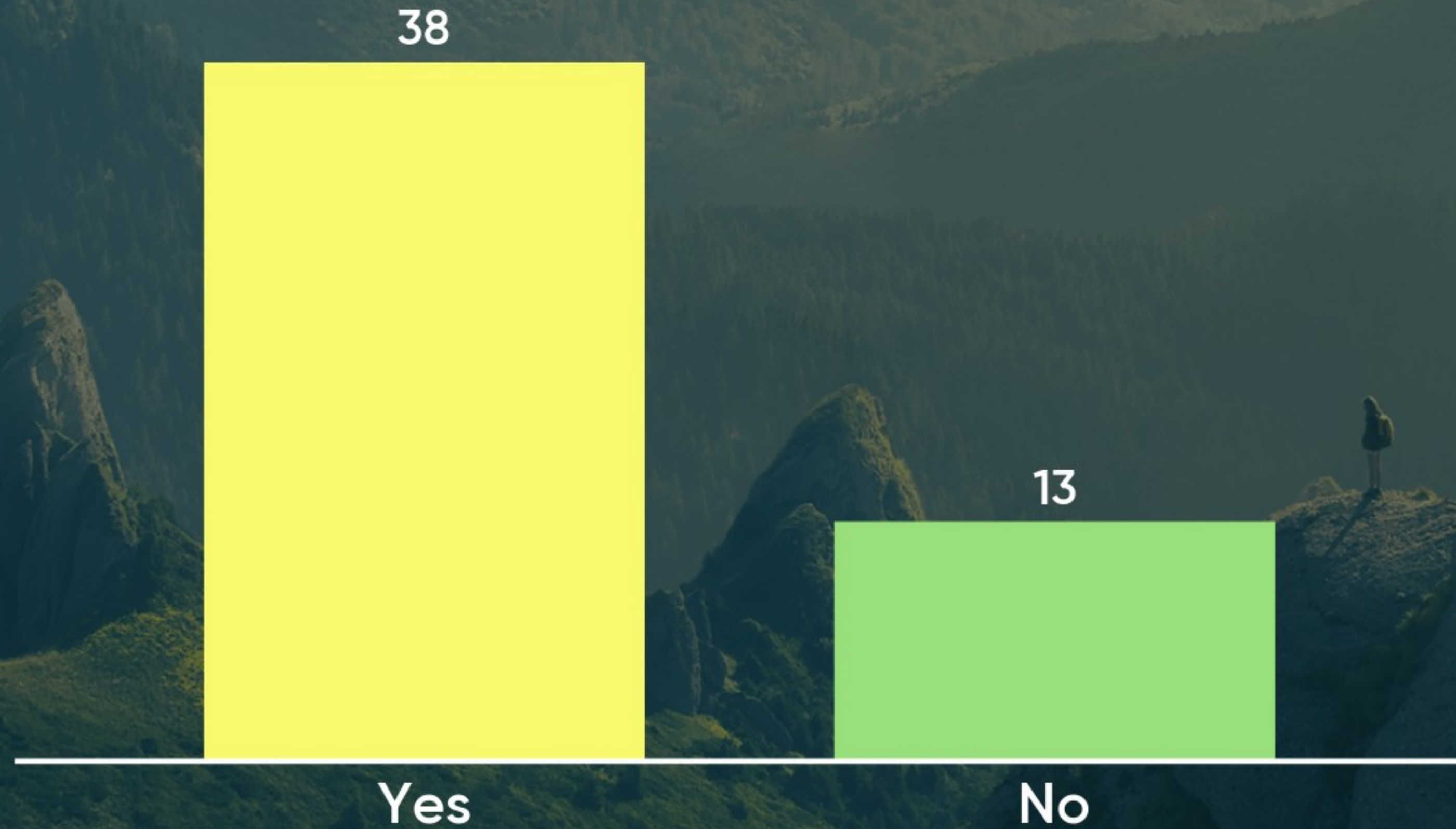


# Does your state collect and manage paleontologic information?



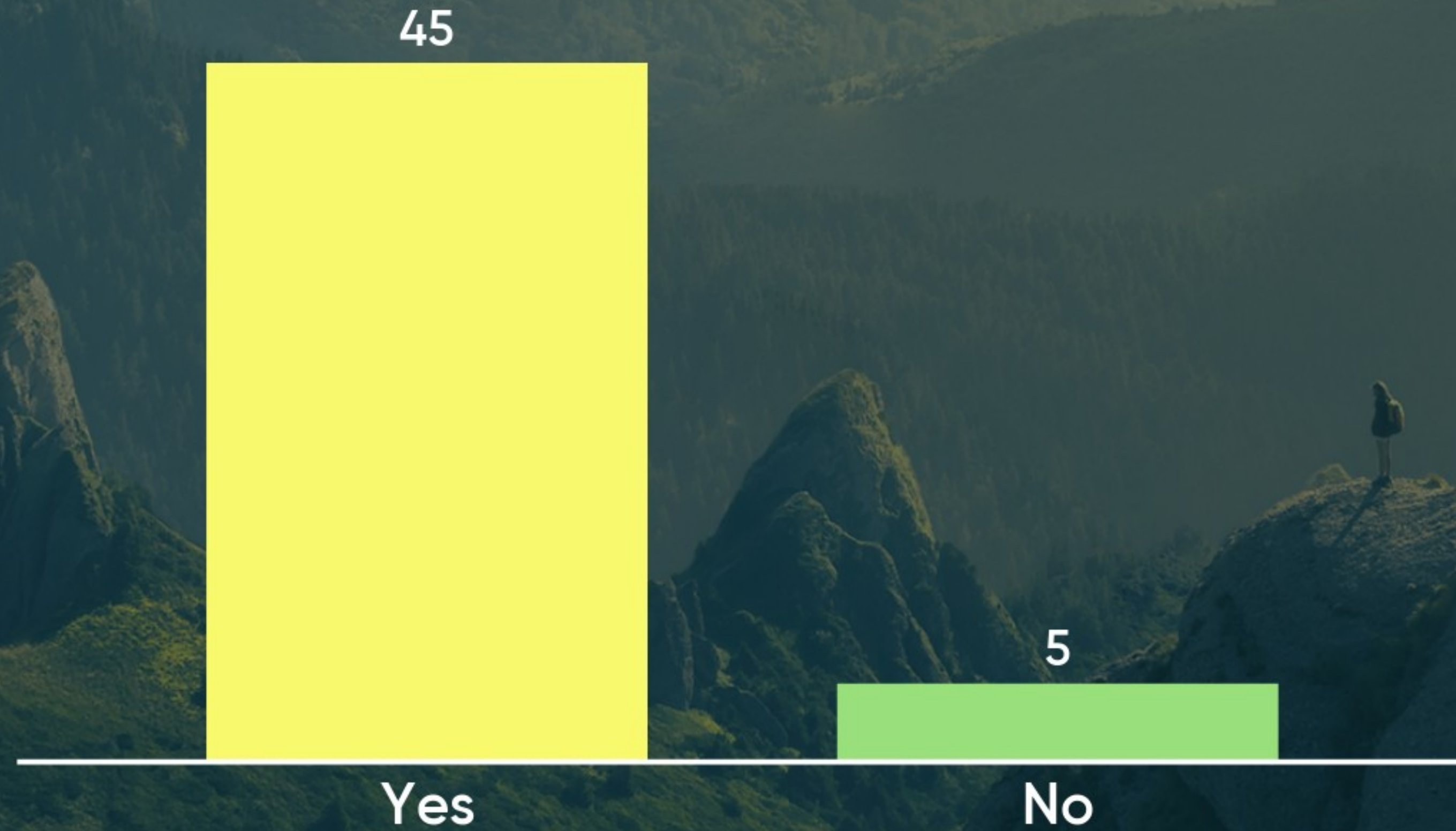


# Does your state collect and manage geochronologic information?



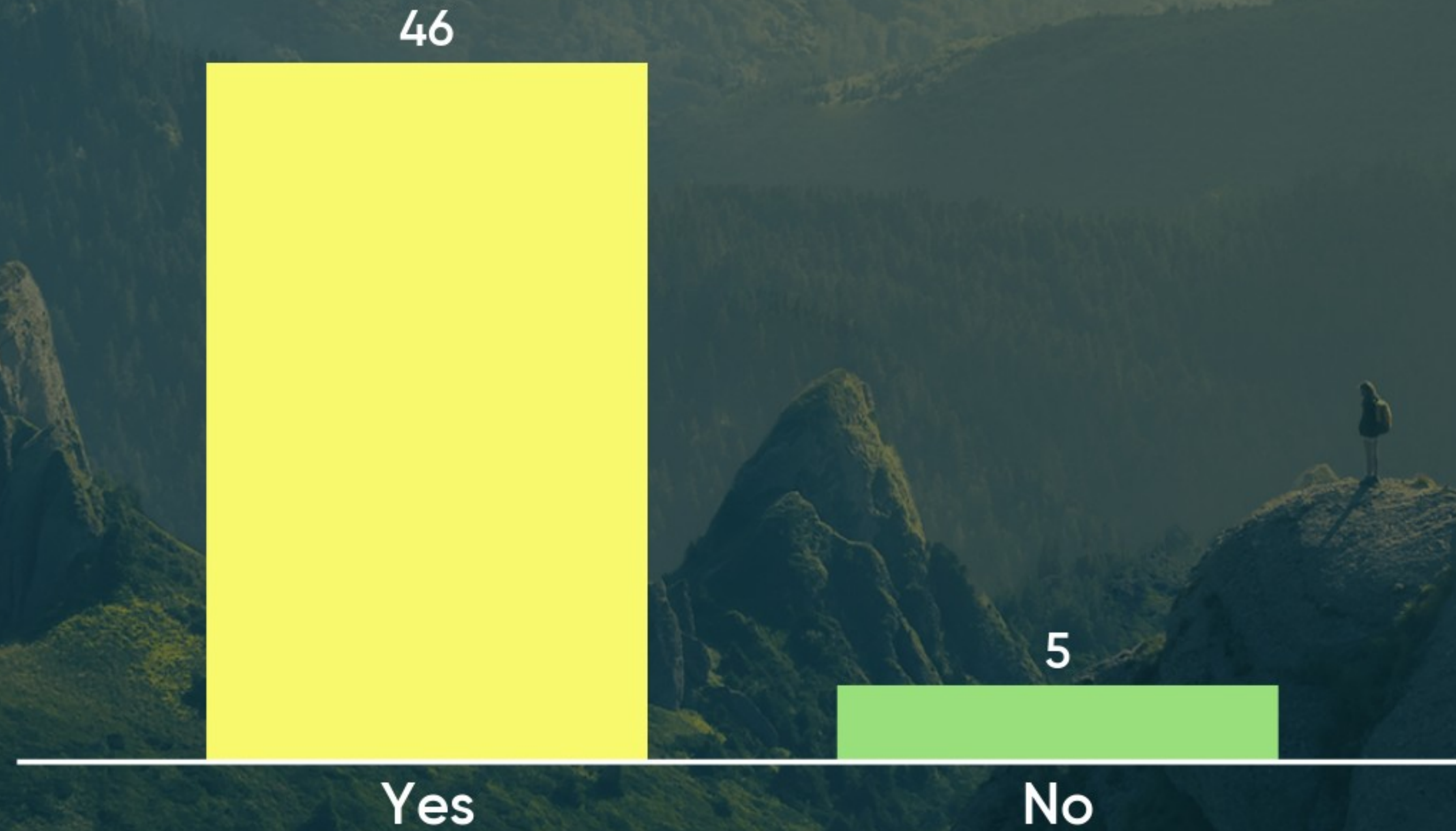


# Does your state collect and manage geochemical information?





# Does your state collect and manage geophysical information?



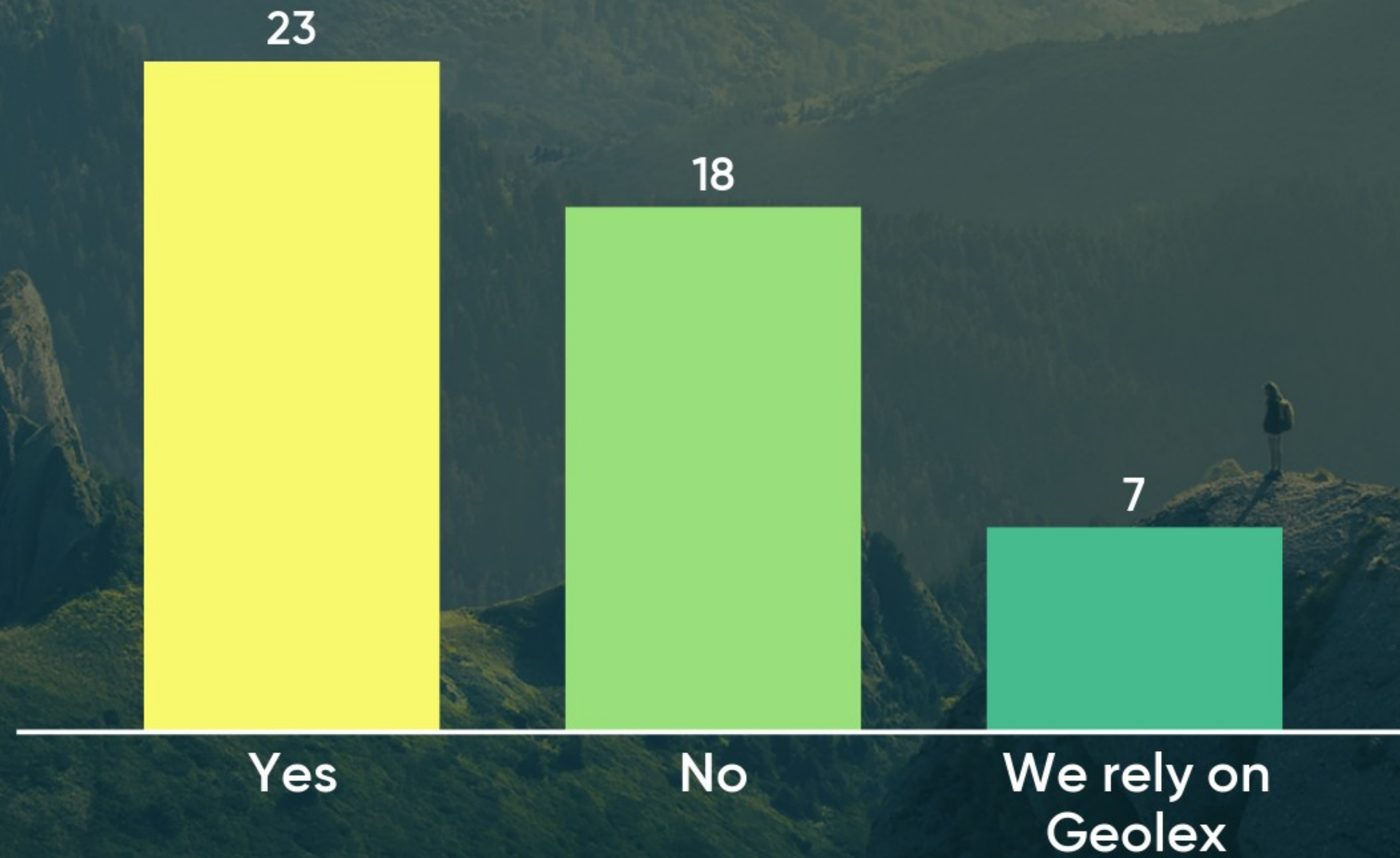


# How are your ancillary data managed?





# Does your survey have an up-to-date, in-house statewide stratigraphic chart?



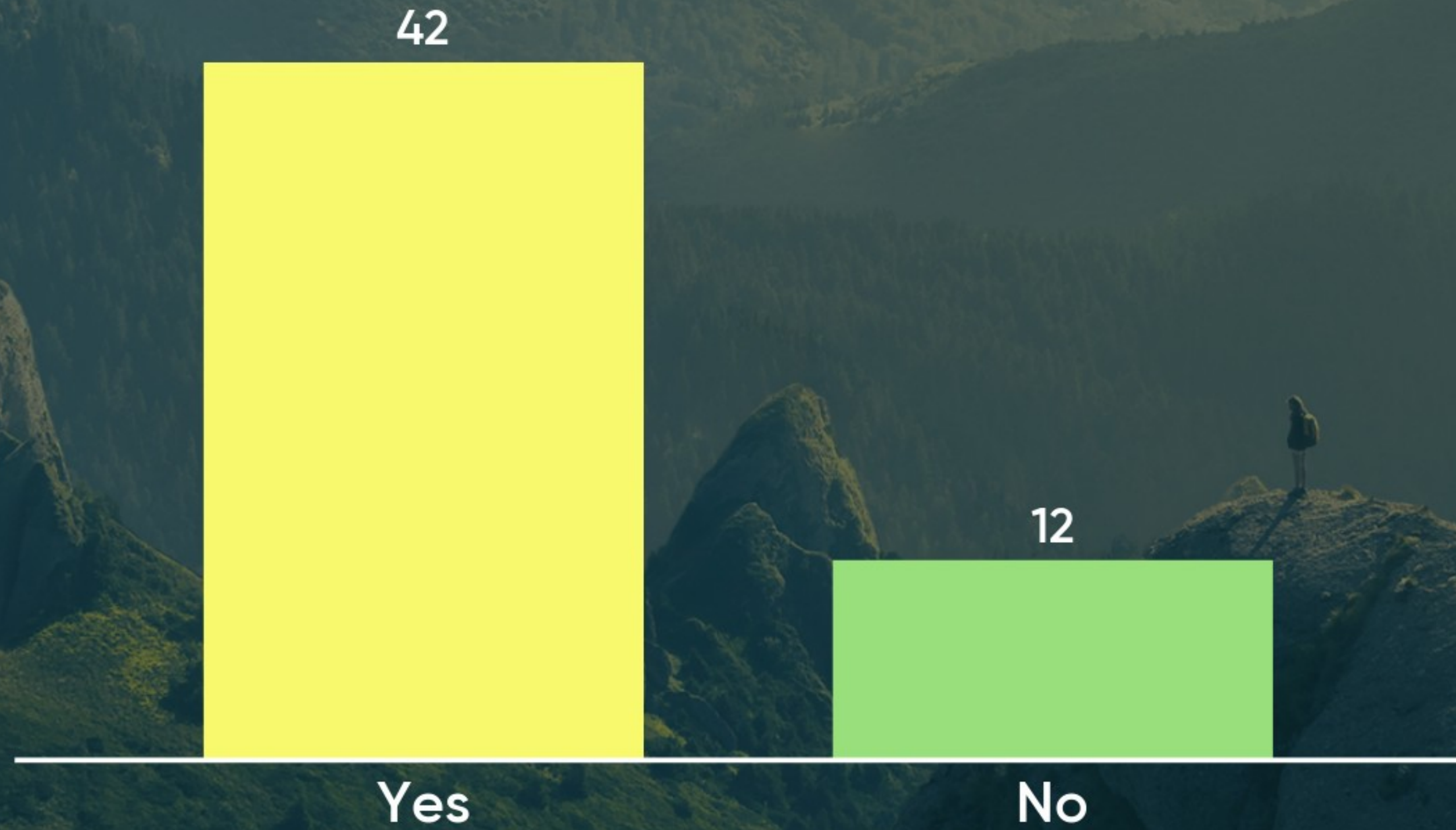


# Does your survey have a statewide geologic names lexicon?



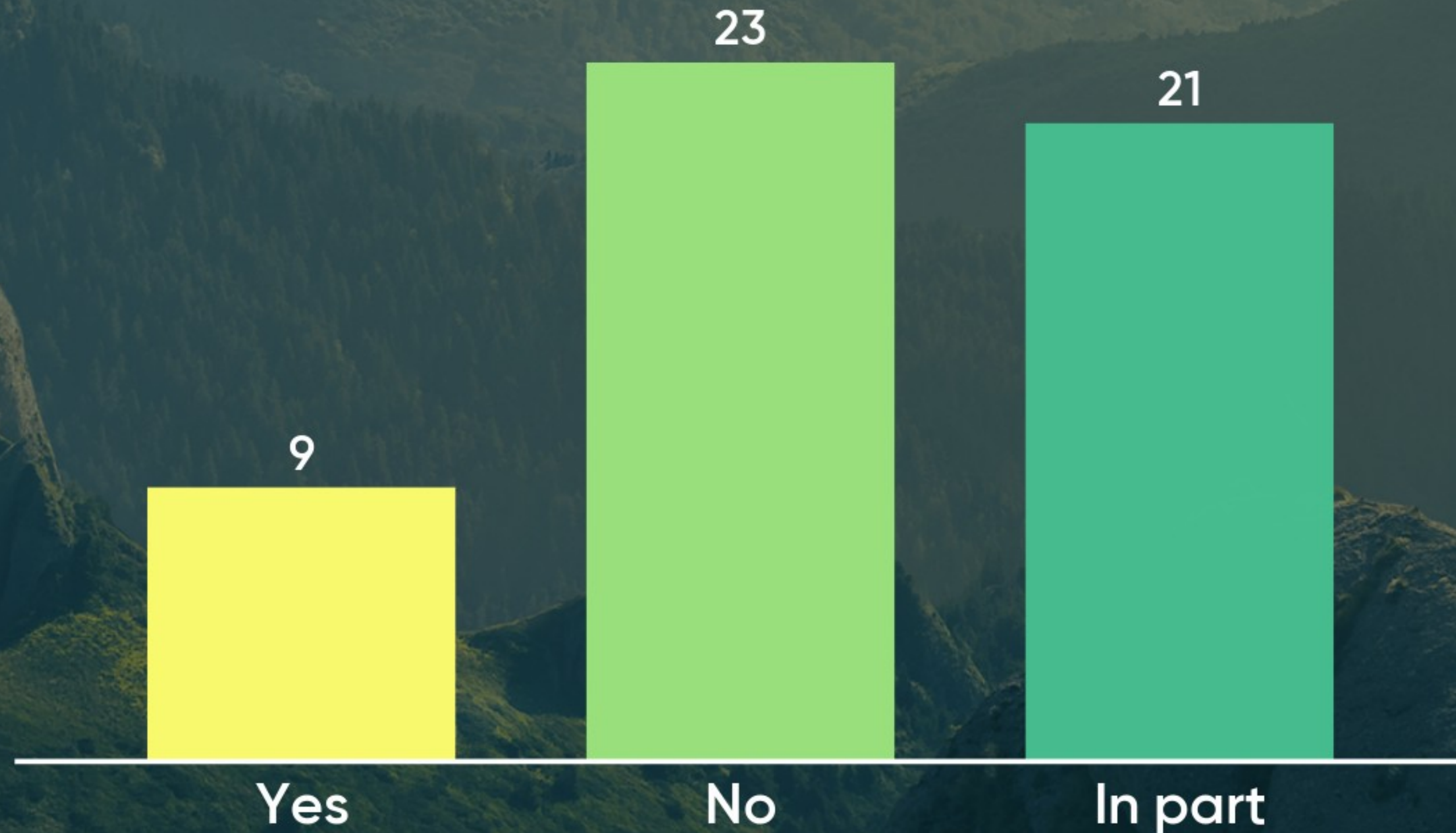


# Is your survey currently able to create GeMS (Level 2 or 3) files?



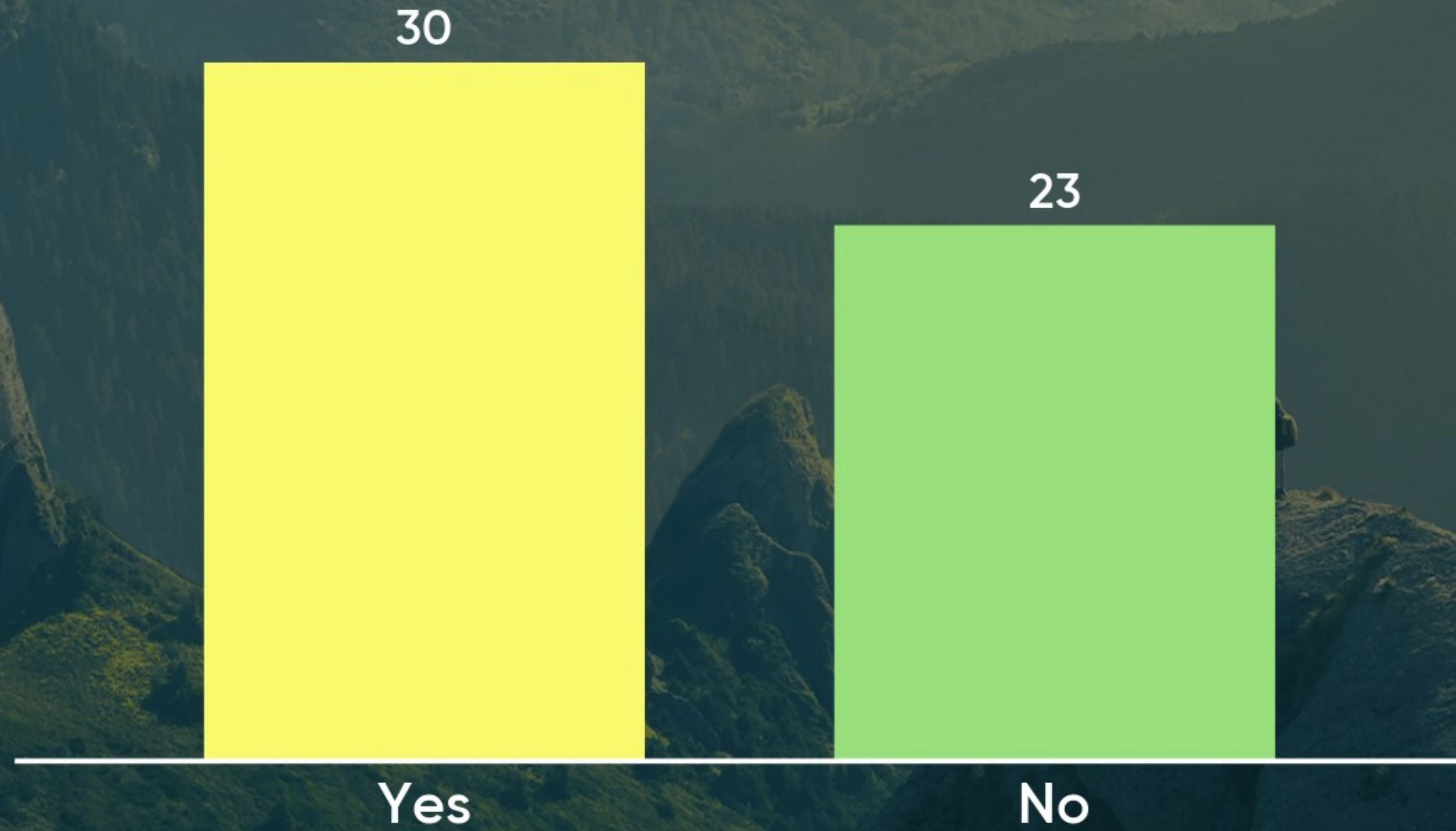


# Does your survey plan to use GeMS for non-USGS deliverables?



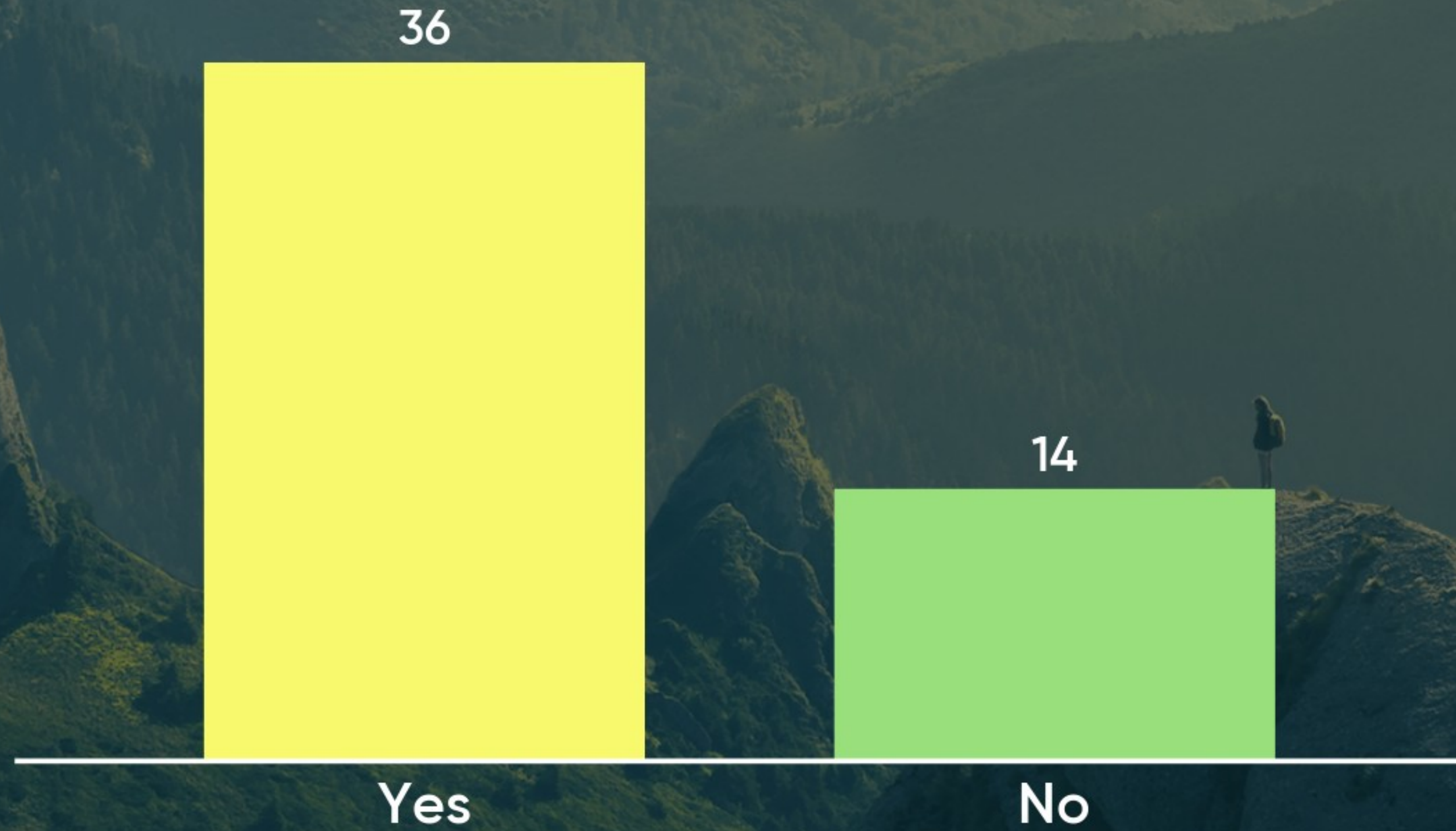


# Does your state have the resources to convert high-priority paper maps to GeMS?



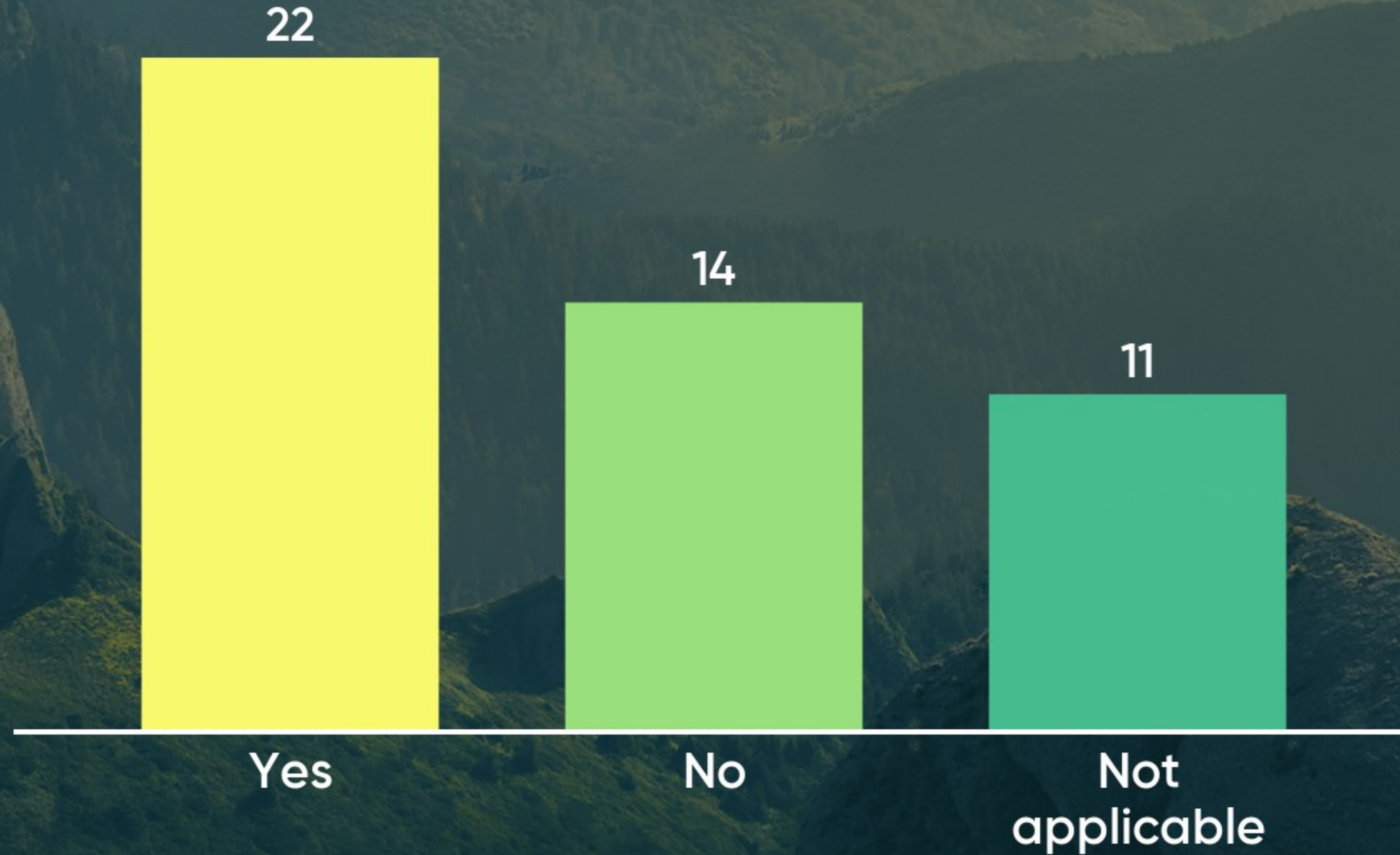


# Does your state have the resources to convert high-priority GIS files to GeMS?



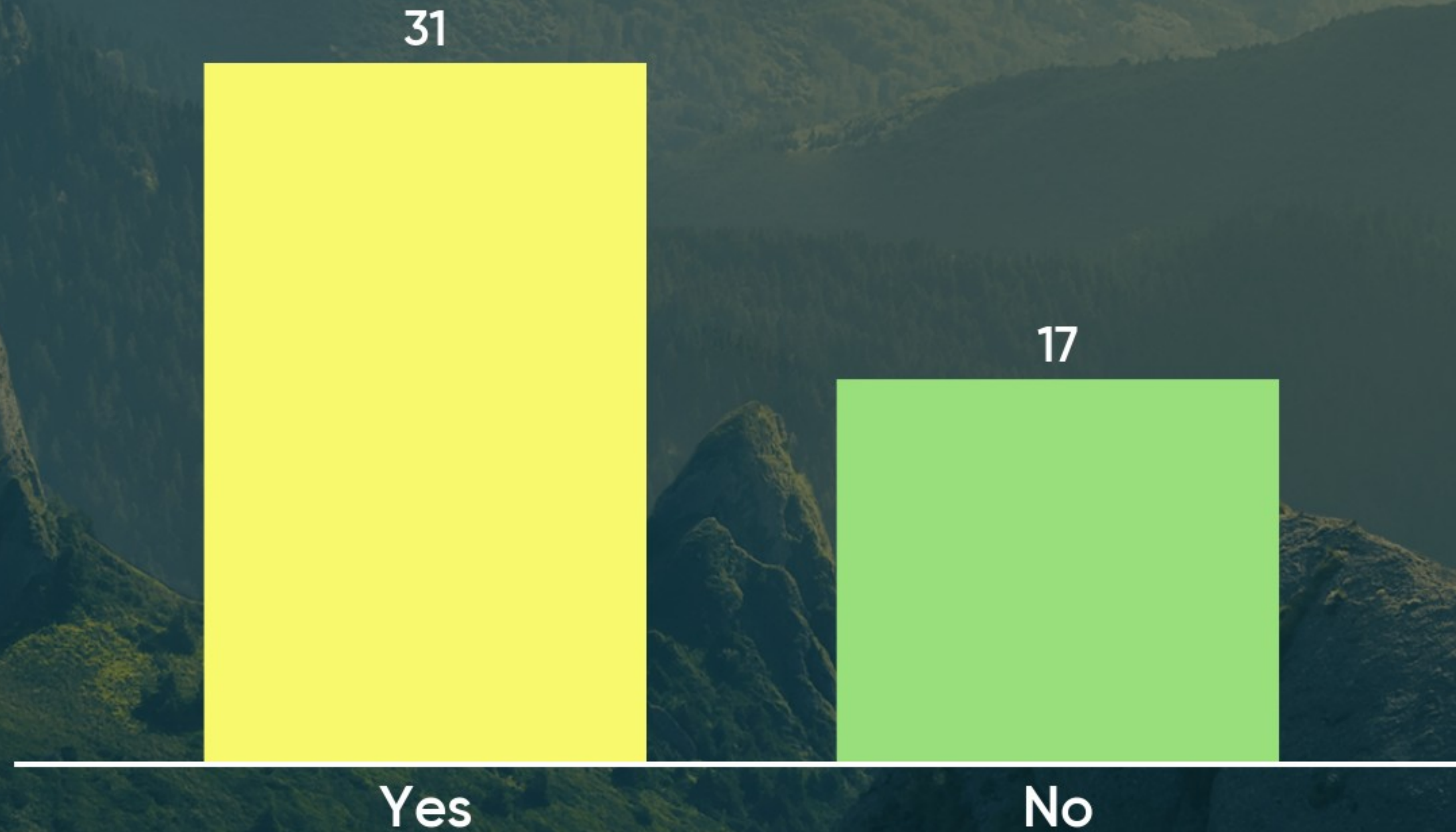


# Does your state have the resources to export geologic map data from your corporate system to GeMS?



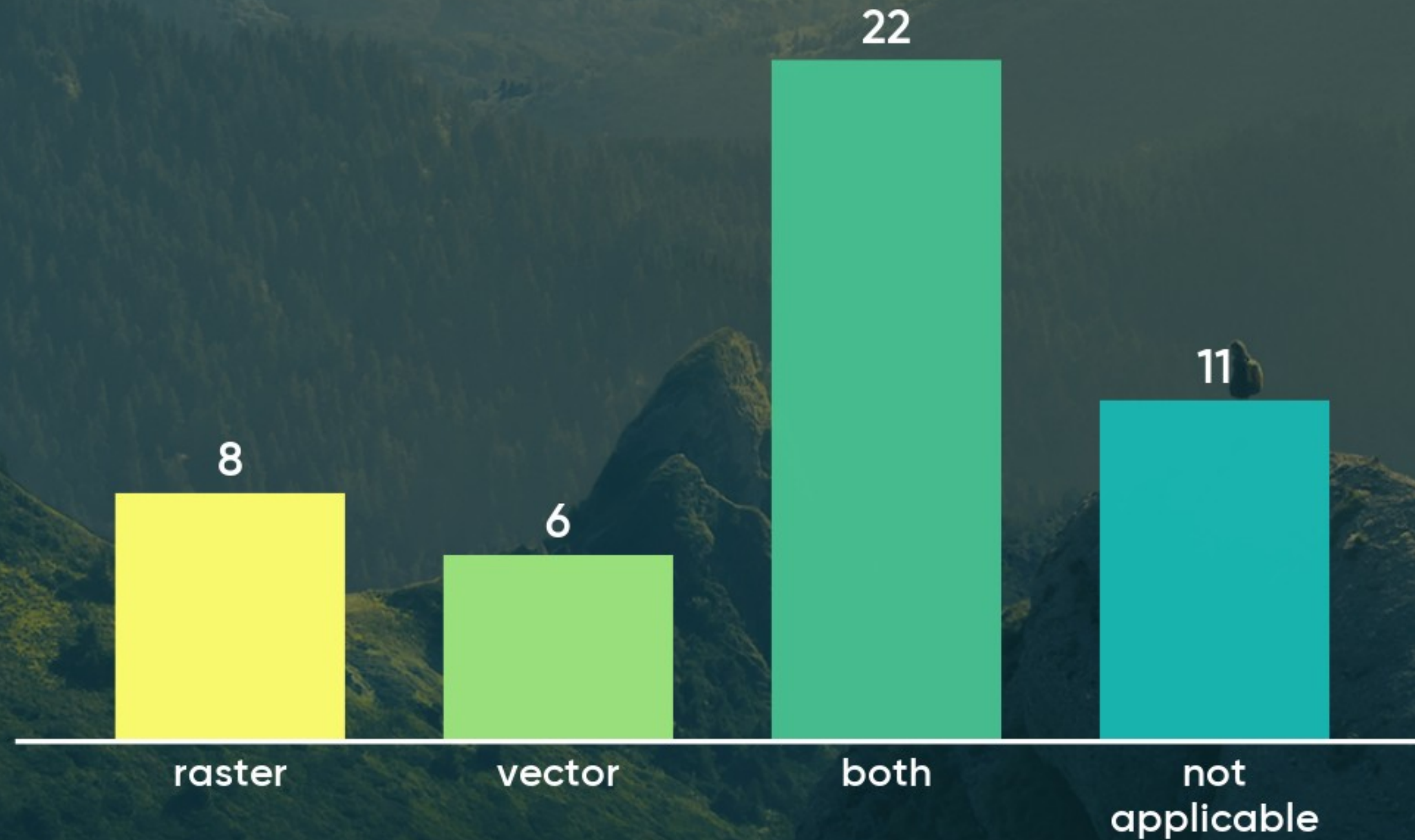


# Does your survey have a database schema suitable for creating regional compilations?



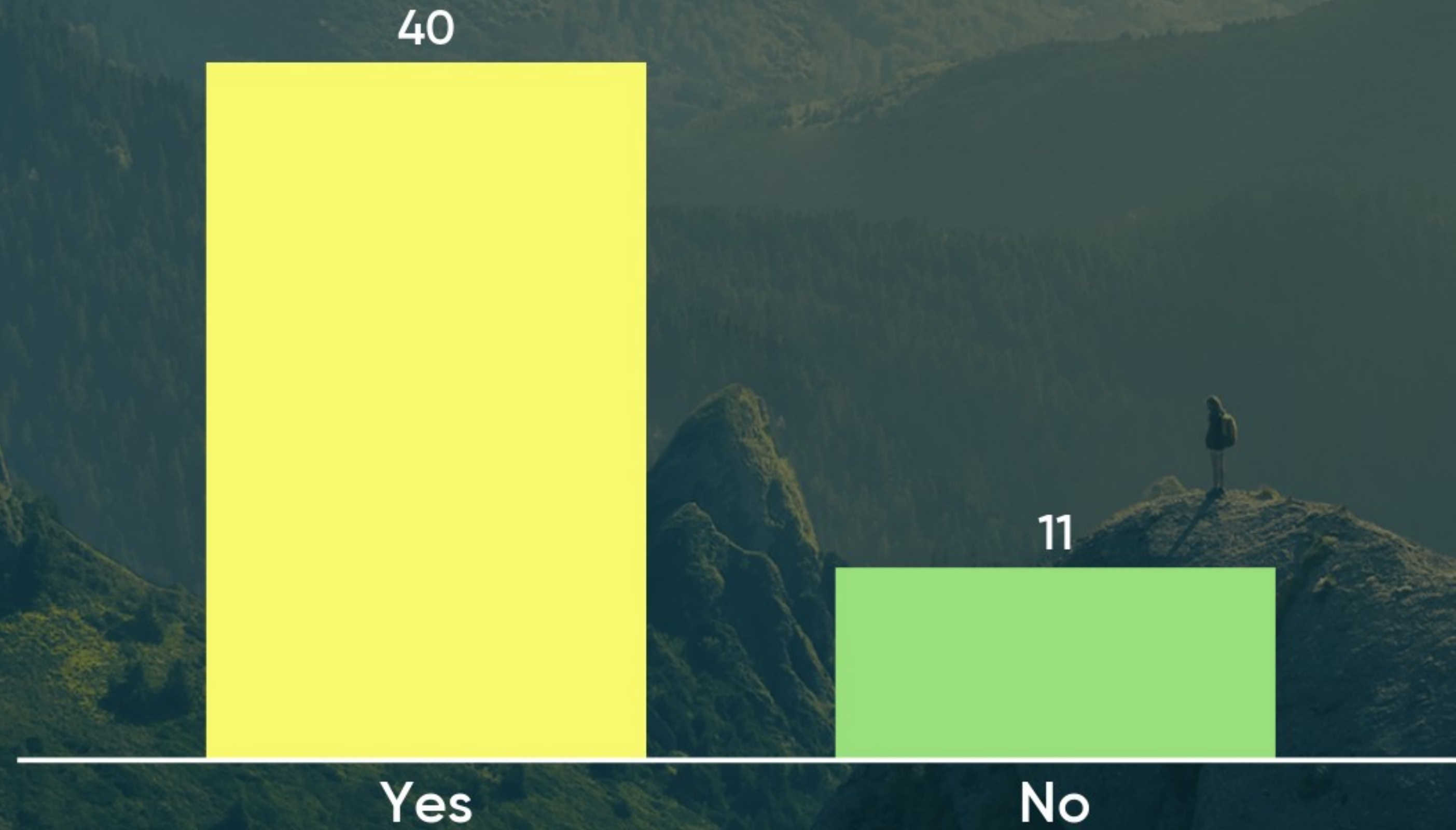


# If your survey is creating subsurface data such as top of rock or thickness of unconsolidated materials, what is the format?



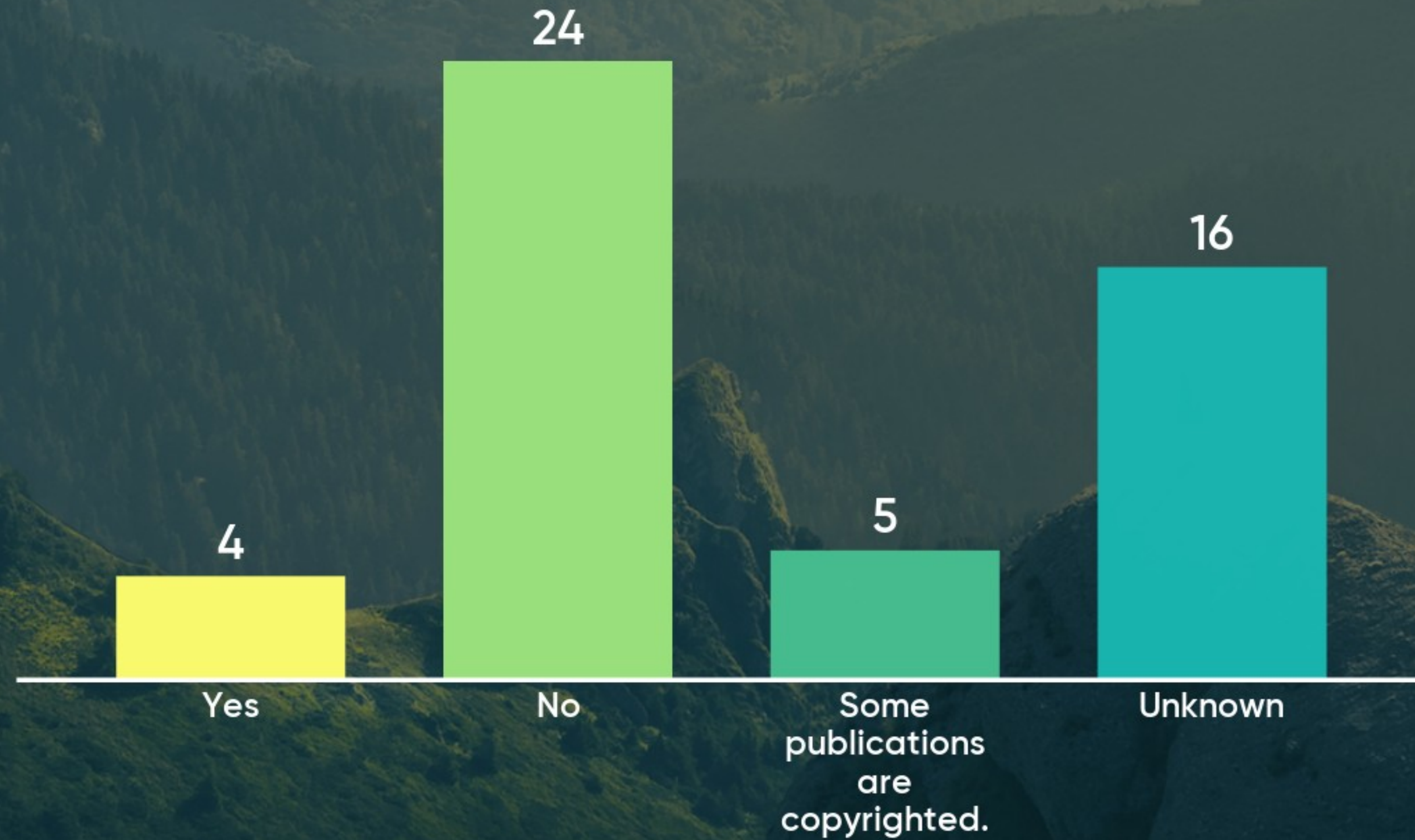


# Does your survey create or plan to create 3D data or models?



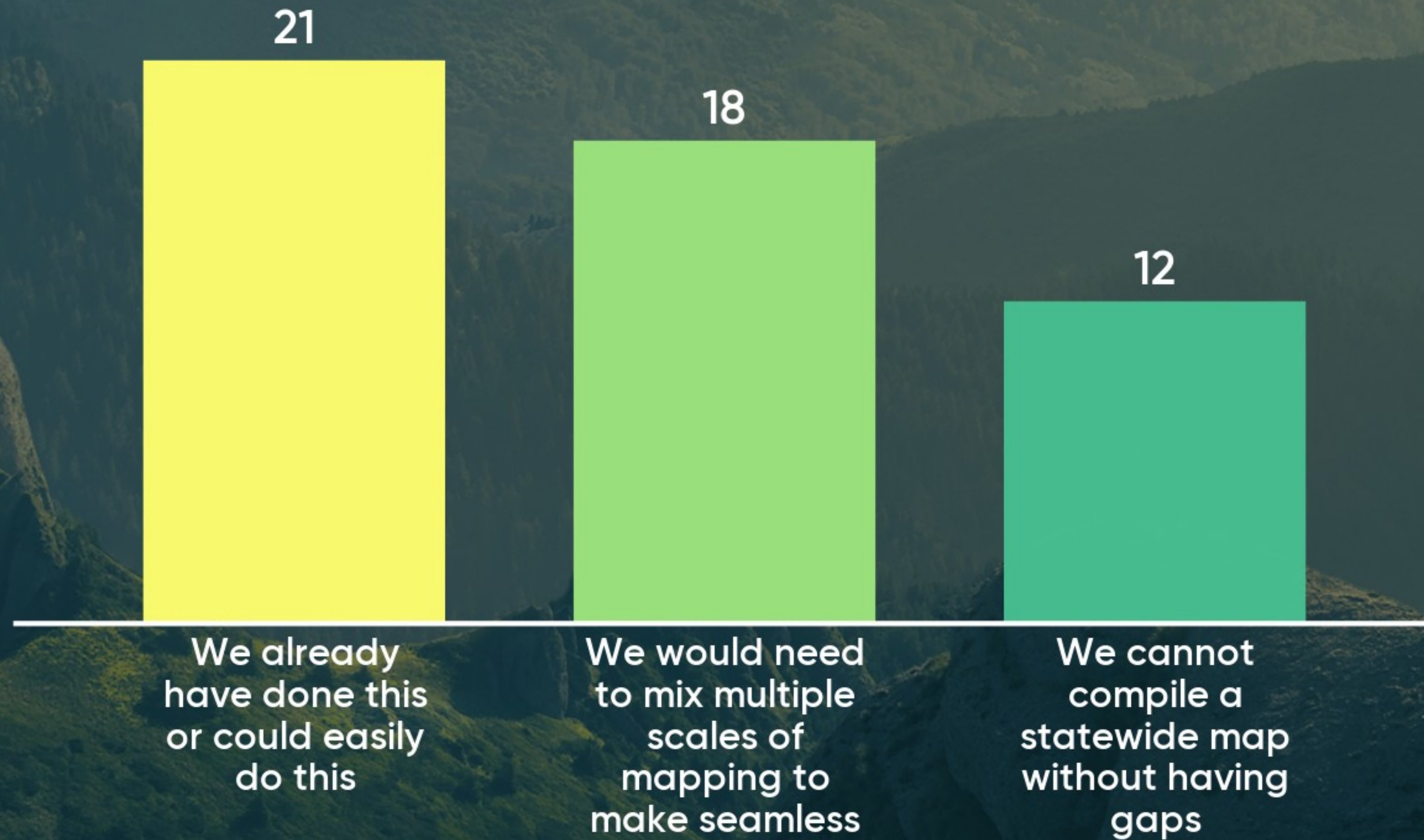


# Does your survey copyright your publications?



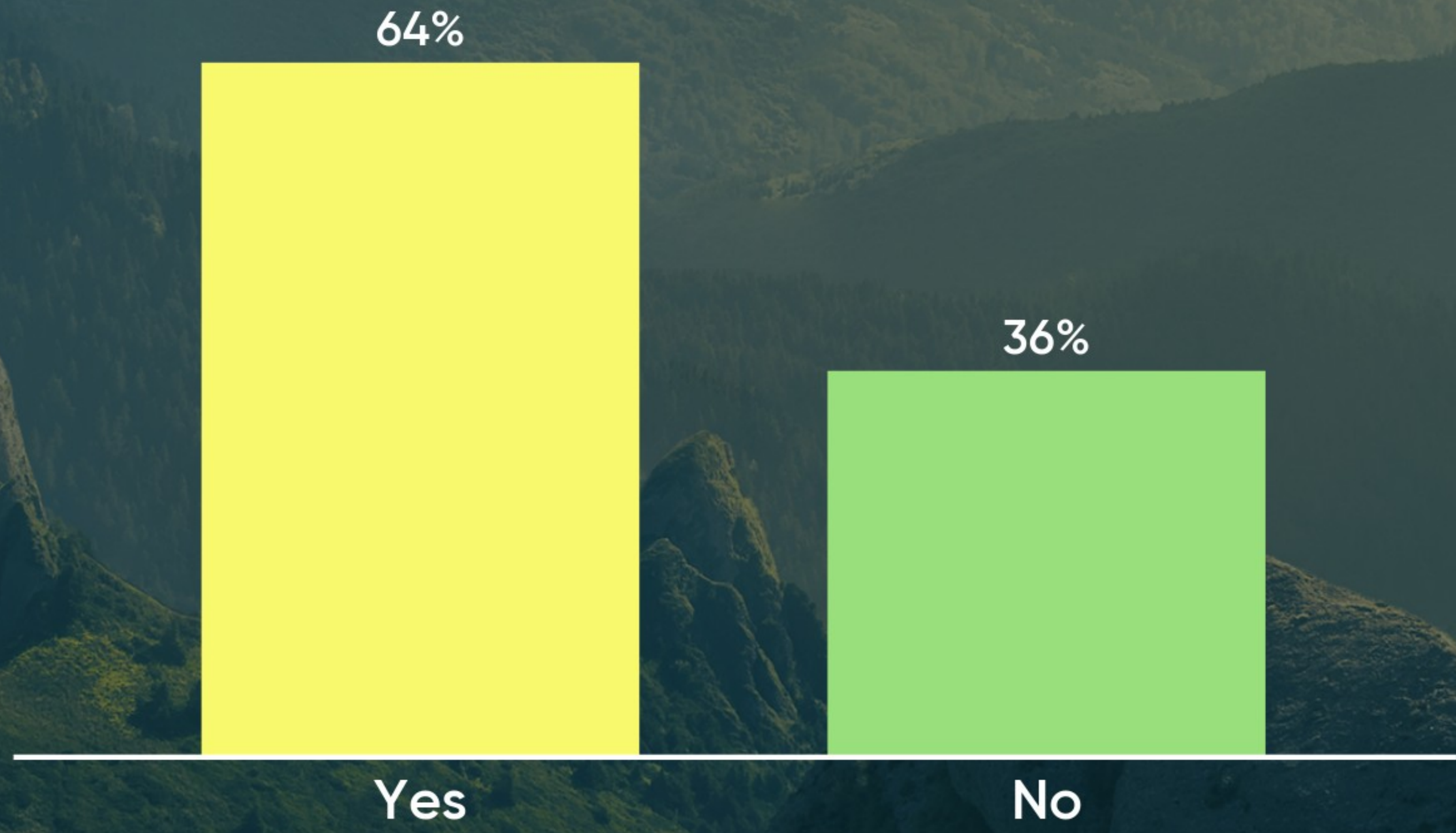


# States: Based on your current mapping inventory, could your state compile a seamless statewide 2D map in GeMS at an appropriate scale?



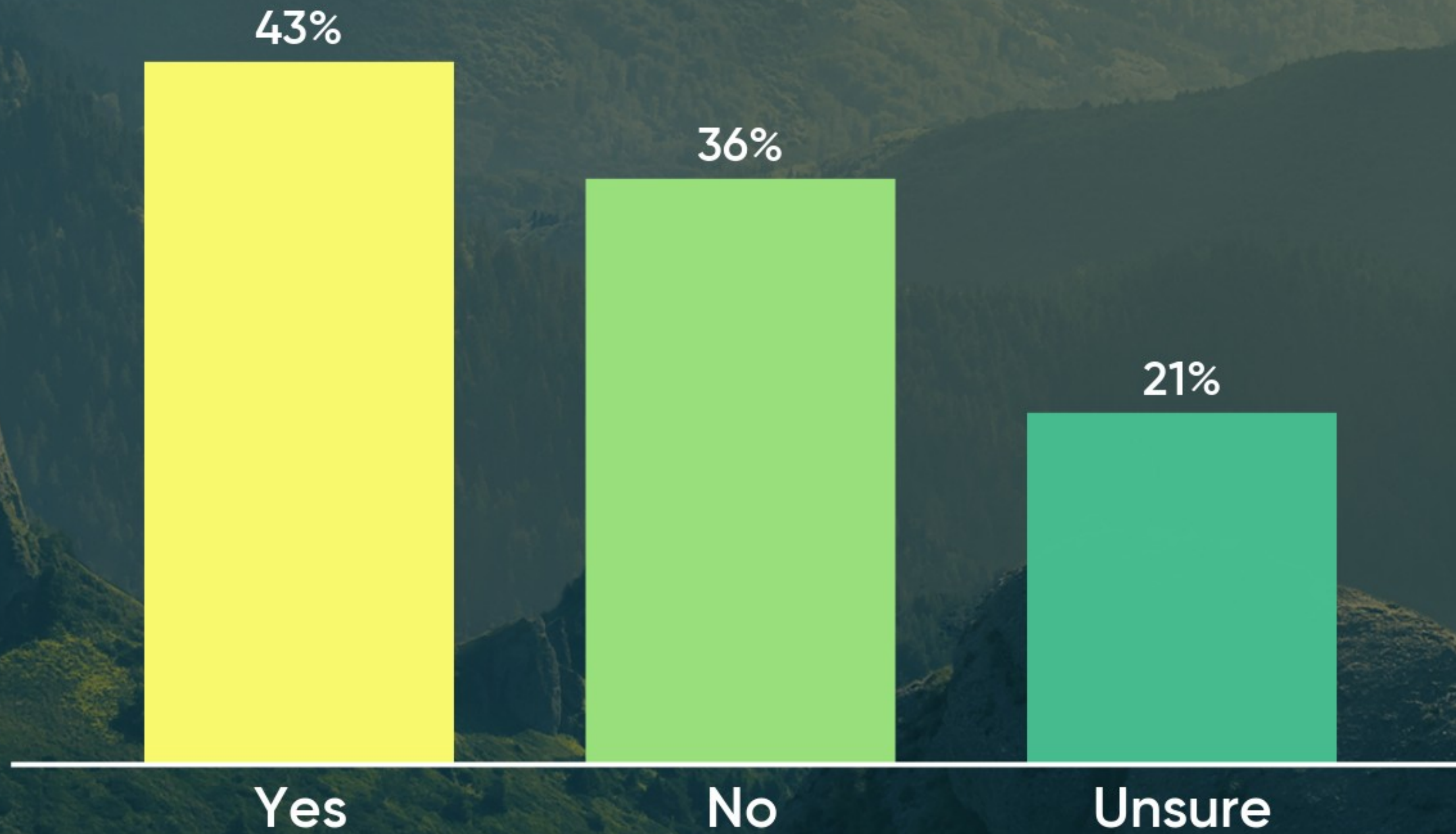


# FedMappers: Is your desired output product a 1:50,000 or less detailed geologic map?



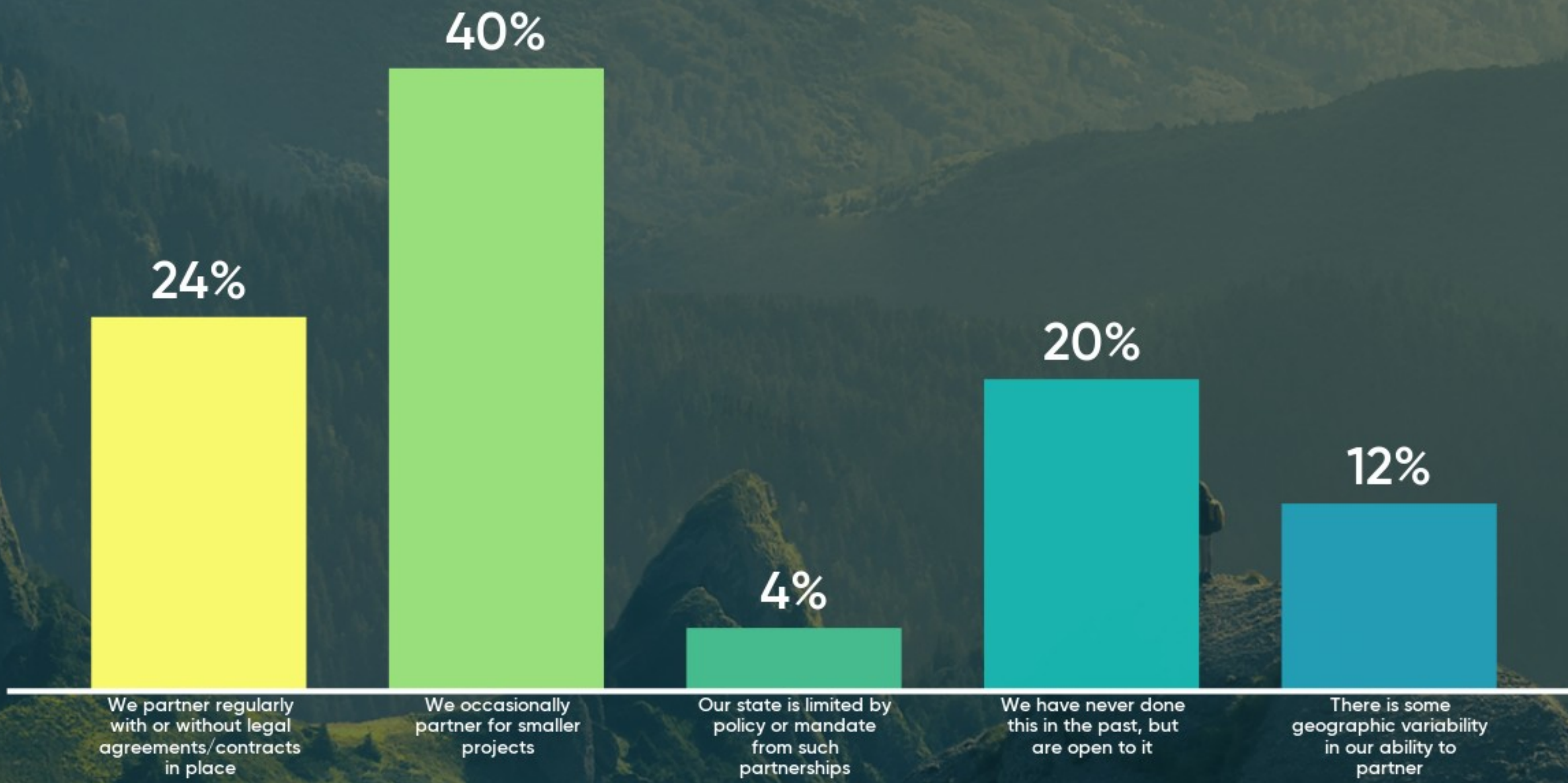


# FedMappers: Can your basic or applied research objectives be addressed by 1:50,000 or less detailed geologic mapping?



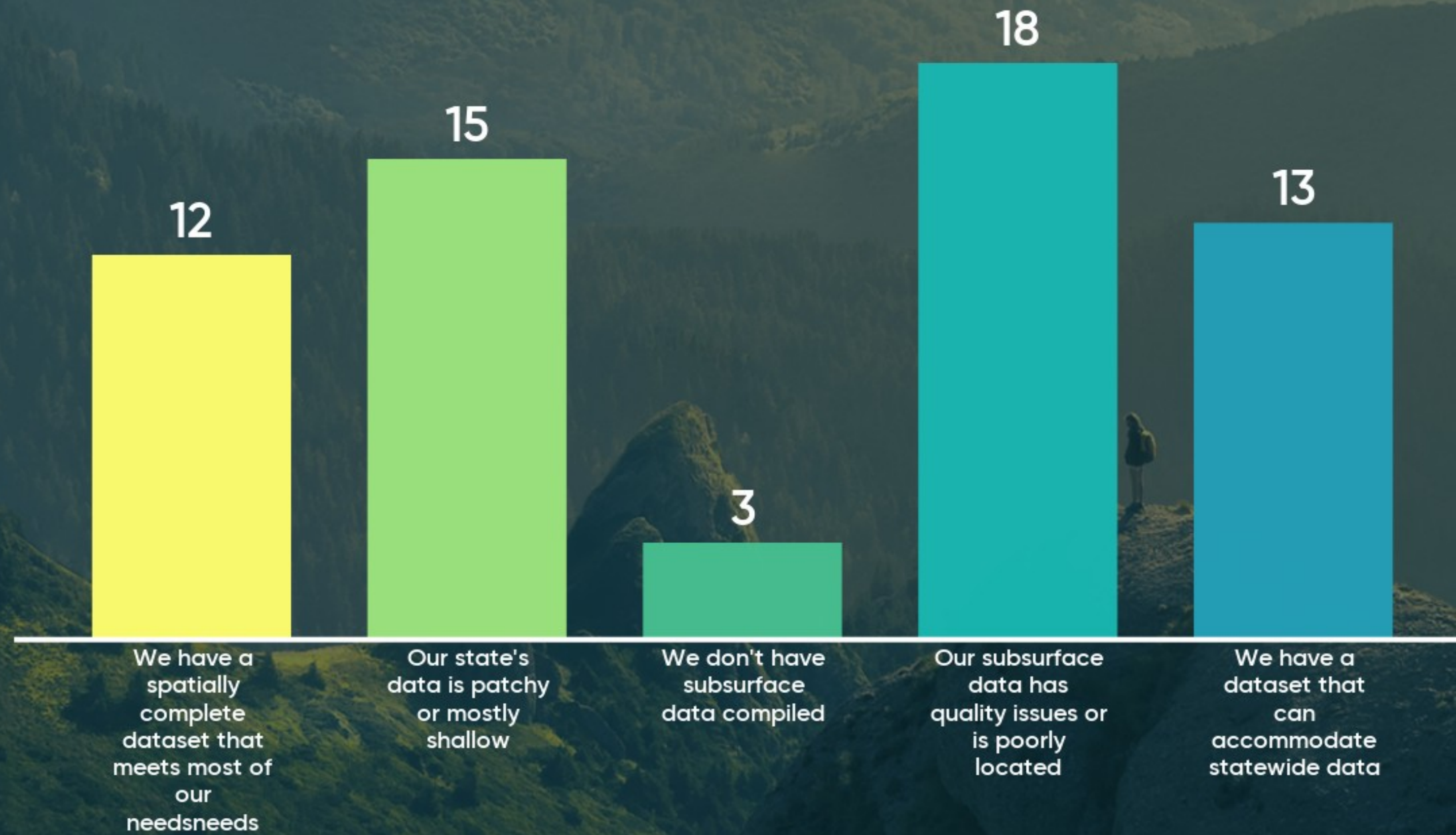


# States: Do you have the ability to partner with neighboring states for edgemapping or stratigraphic issues?



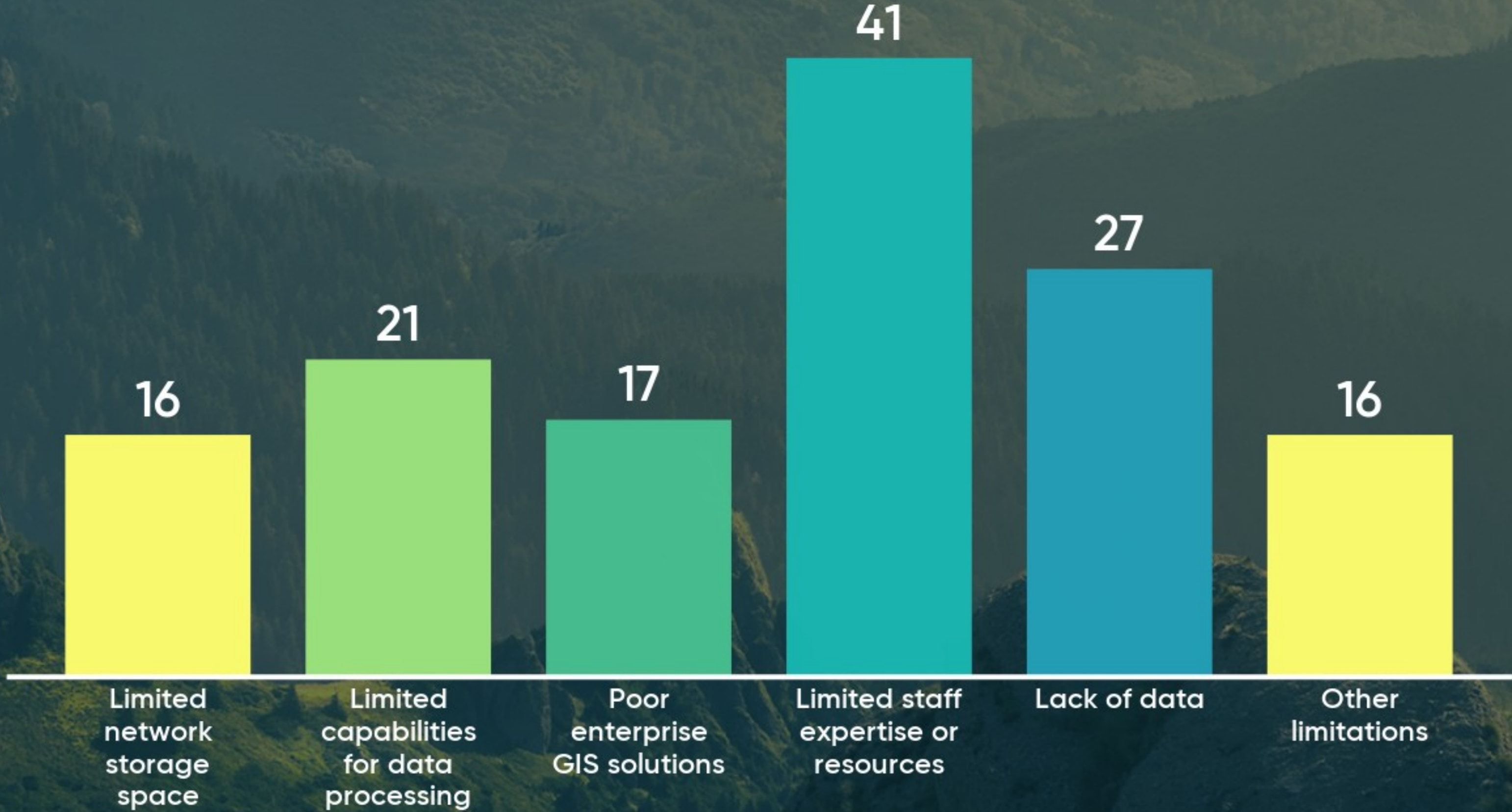


# States: Characterize your state's borehole data. (check all that apply)





# States: What are some of the limitations your survey faces with respect to the technicalities of going 3D? (Check all that apply)





# For those that checked 'Other', please briefly describe what the challenges are

We have no limitations

limited funding and staff availability.

software options and funding

funding

3d gridding is difficult

Difficulty getting software approved.

GIS Staff centralization

No staff Position committed to GIS/database

The quality of some of the subsurface data is not good enough for 3D usage



# For those that checked 'Other', please briefly describe what the challenges are

limited time money and staff and so far 3-D work has been specific to projects

software/computing

Funding

Verification of borehole locations. Wildly variable skill level for geologic picks through the years (students with minimal exp to PGs with decades exp)

GIS staff/time

limited budget, access to software limited

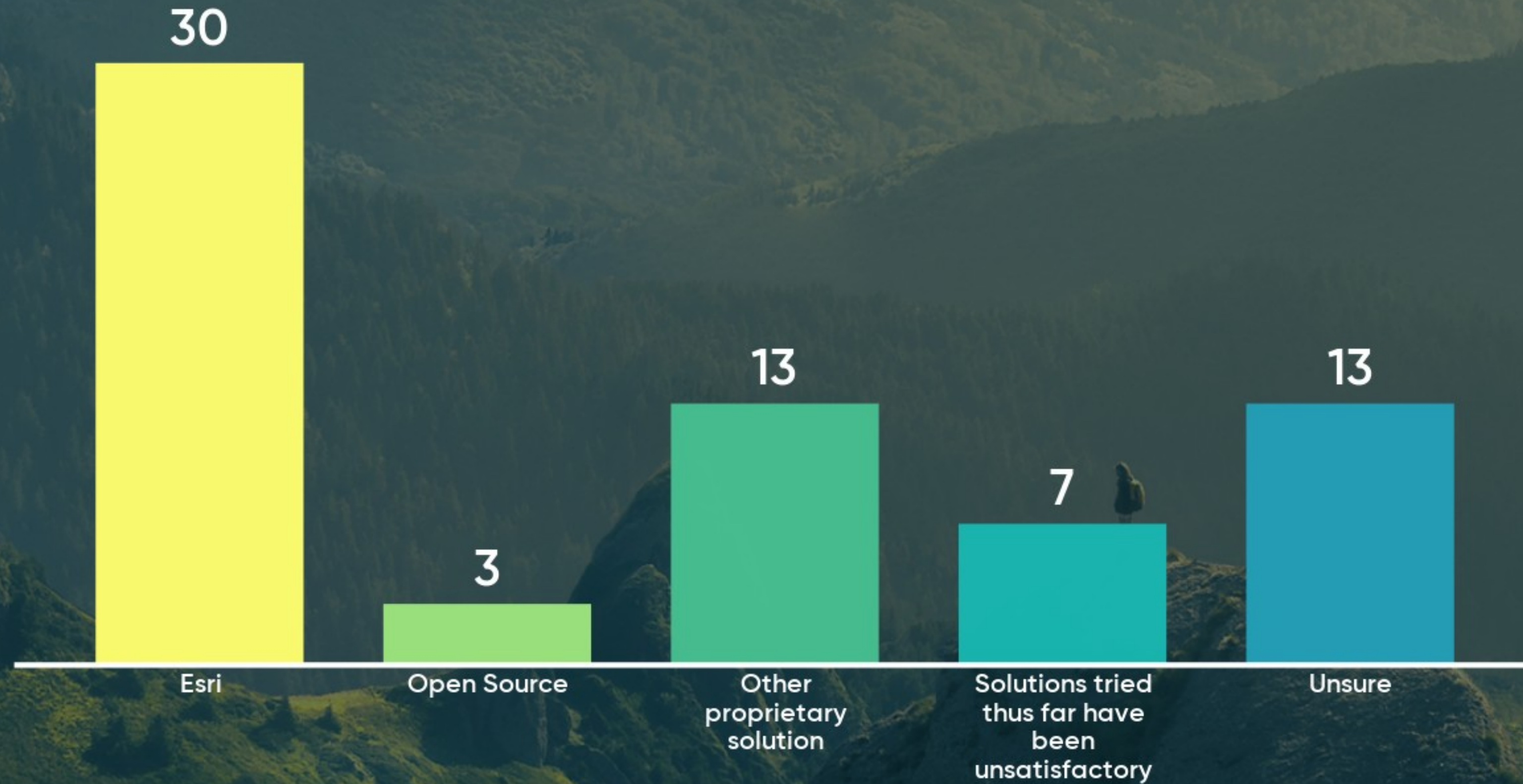
Funding

For mappers, lack of 3d product need. 3d data and products are more in the realm of water and oli and gas geos

Need to invest more in GIS staff and software



# States: Does your state have a current software solution in place for modeling in 3D? (Check all that apply)



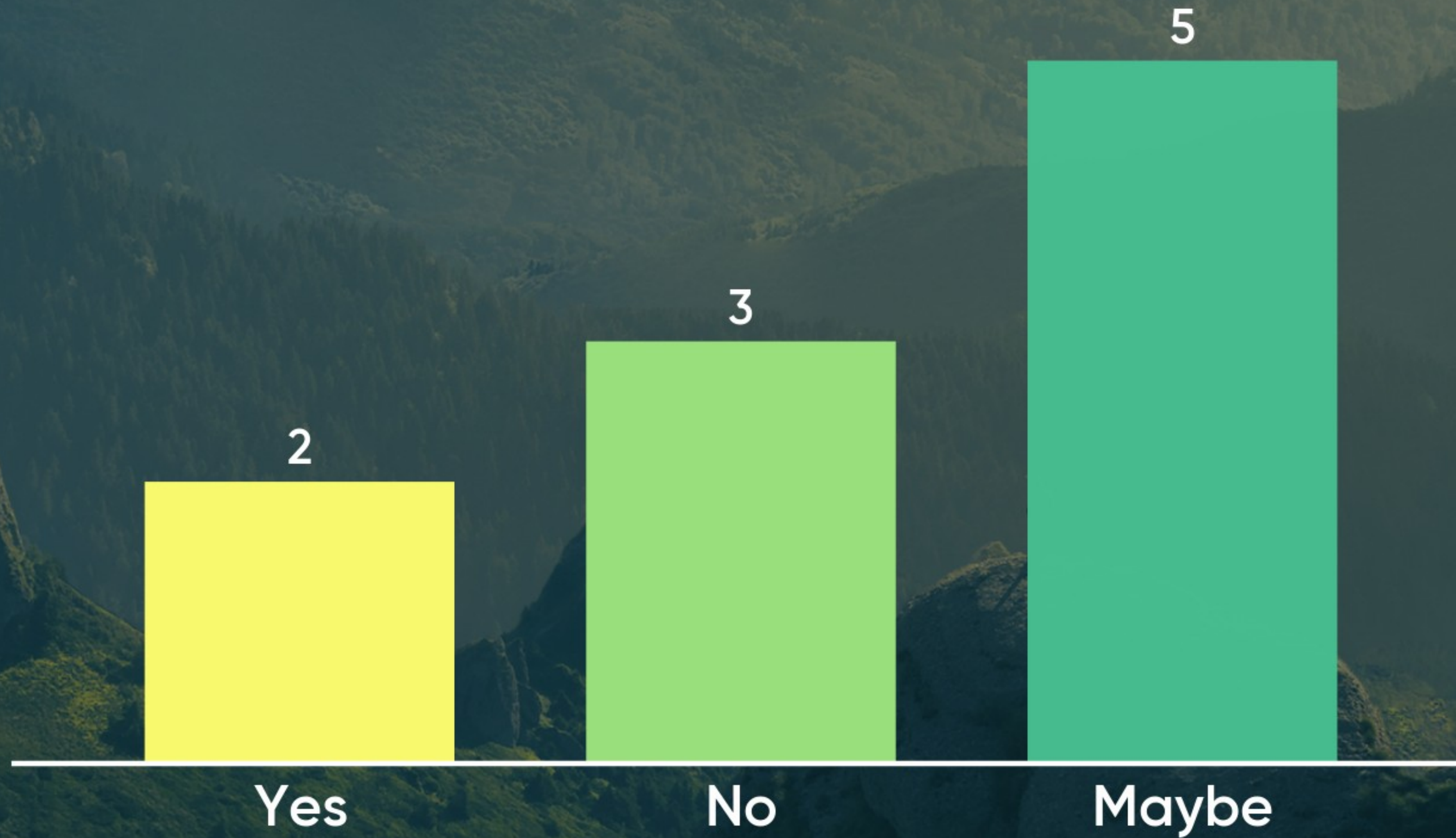


# FedMappers: Does your Fedmap project involve a partnership with a state survey to get the work done?



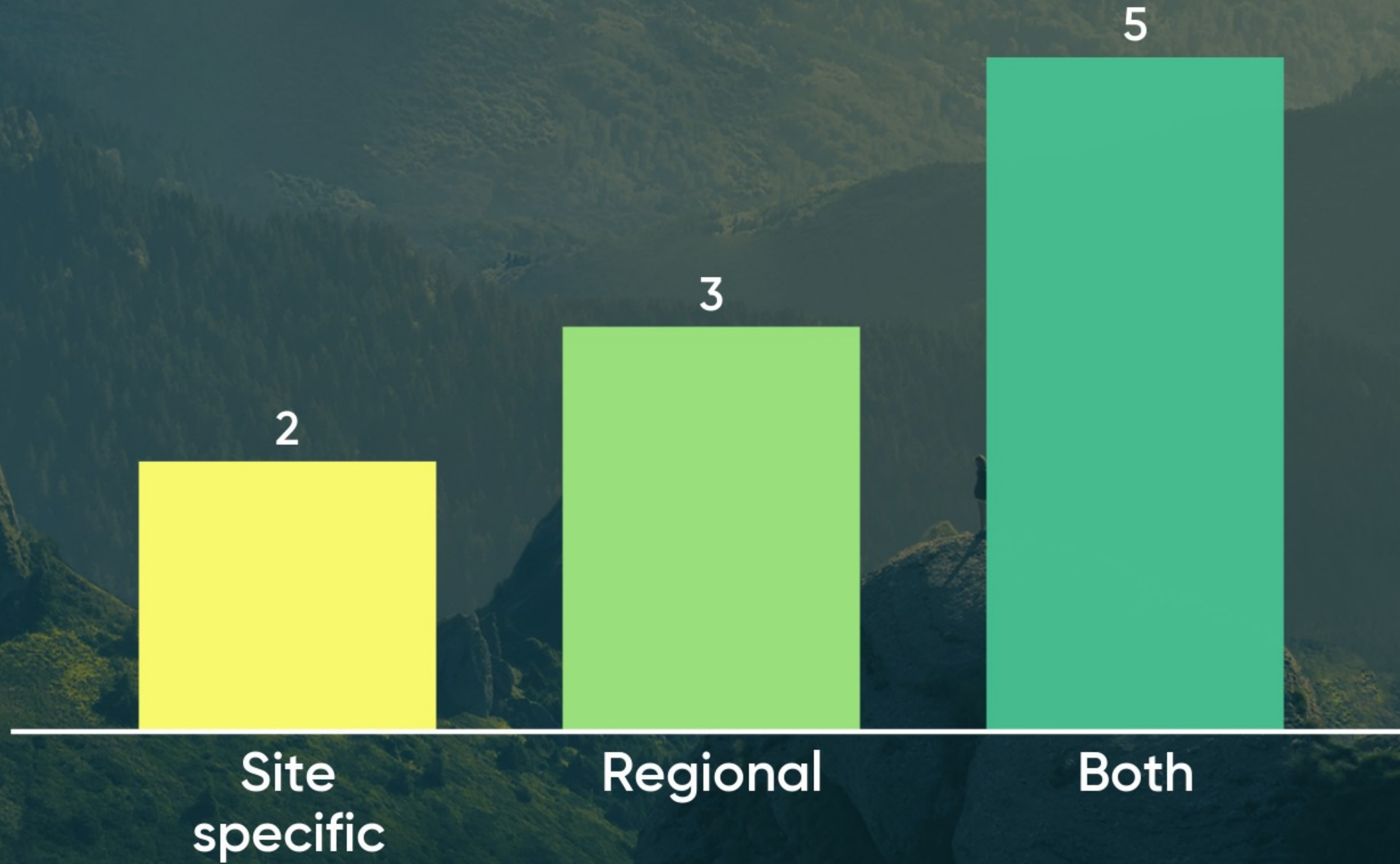


# FedMappers: Does your Fedmap project involve modeling in 3D?



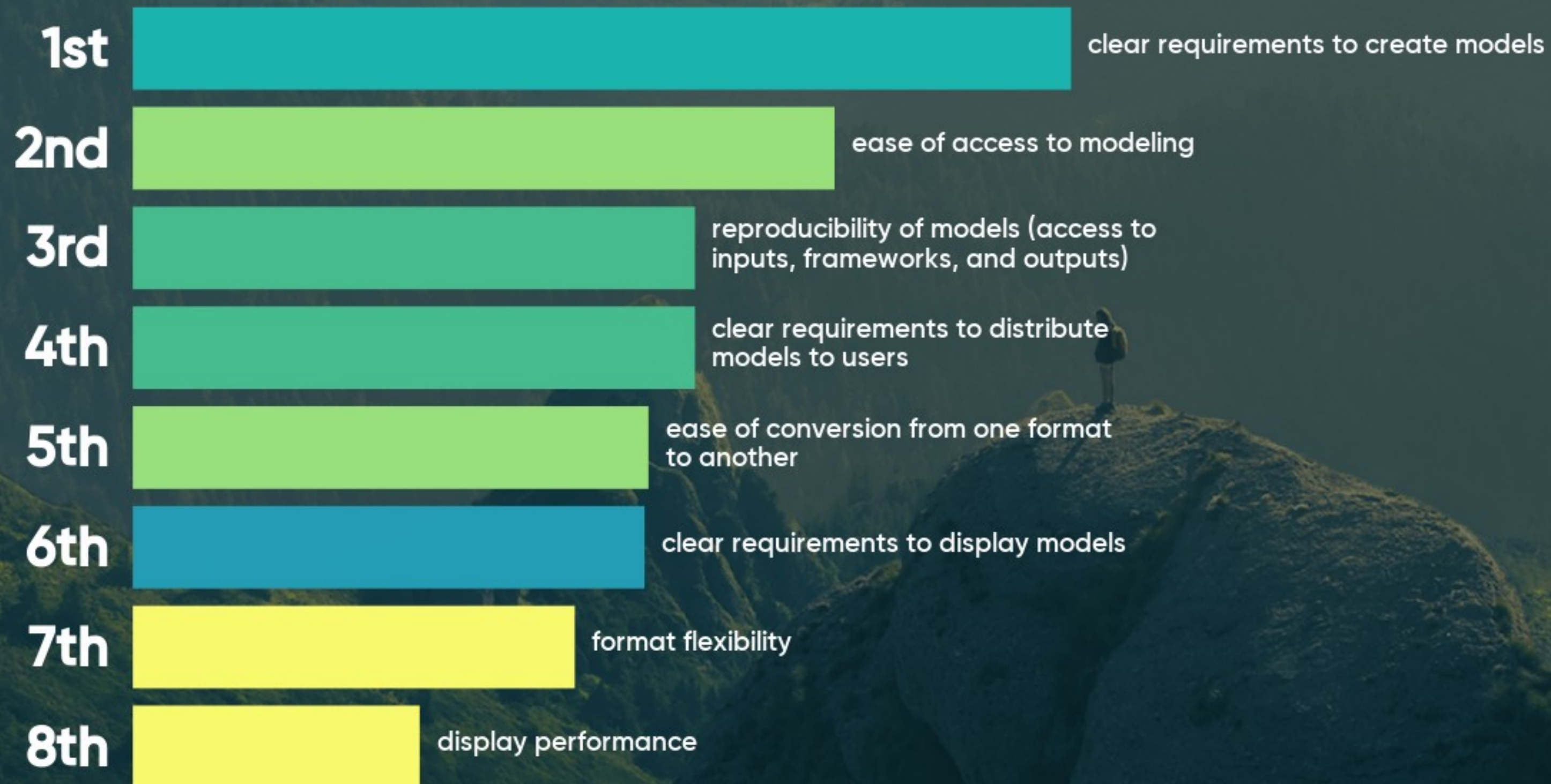


# FedMappers: If your project creates 3D models, are they site specific or regional?



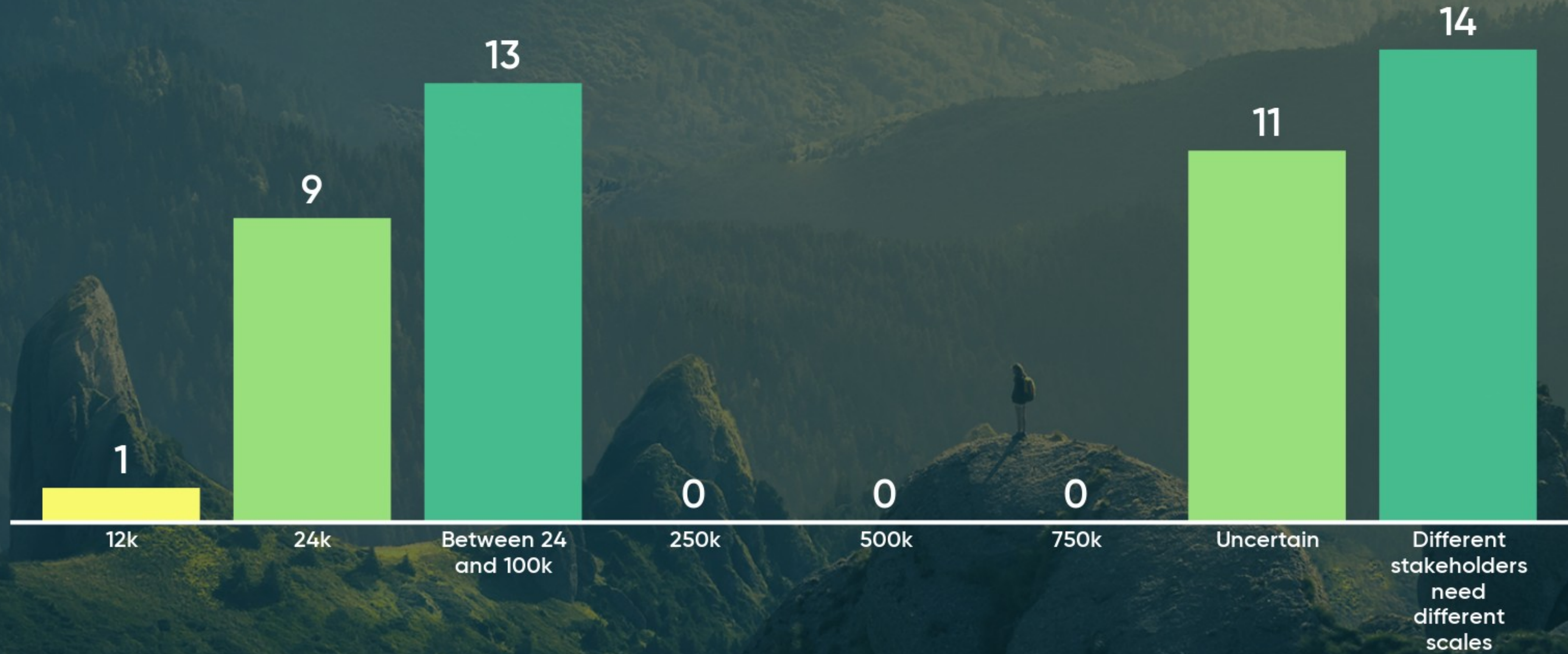


# Everyone: Please rank the importance to your state for each factor with respect to the GeoFramework Initiative 3D output standards



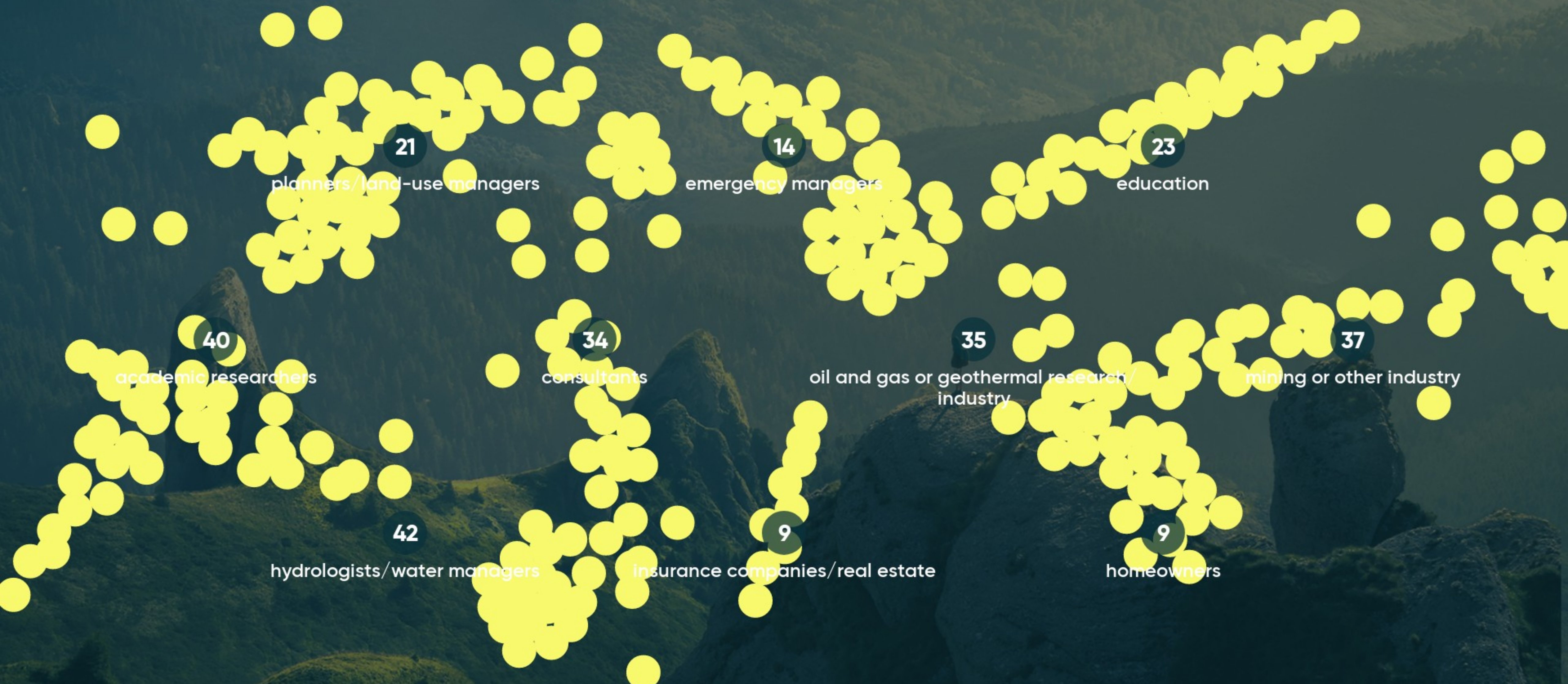


# States: What scale of 3D map data will best meet the needs of the stakeholders in your state?



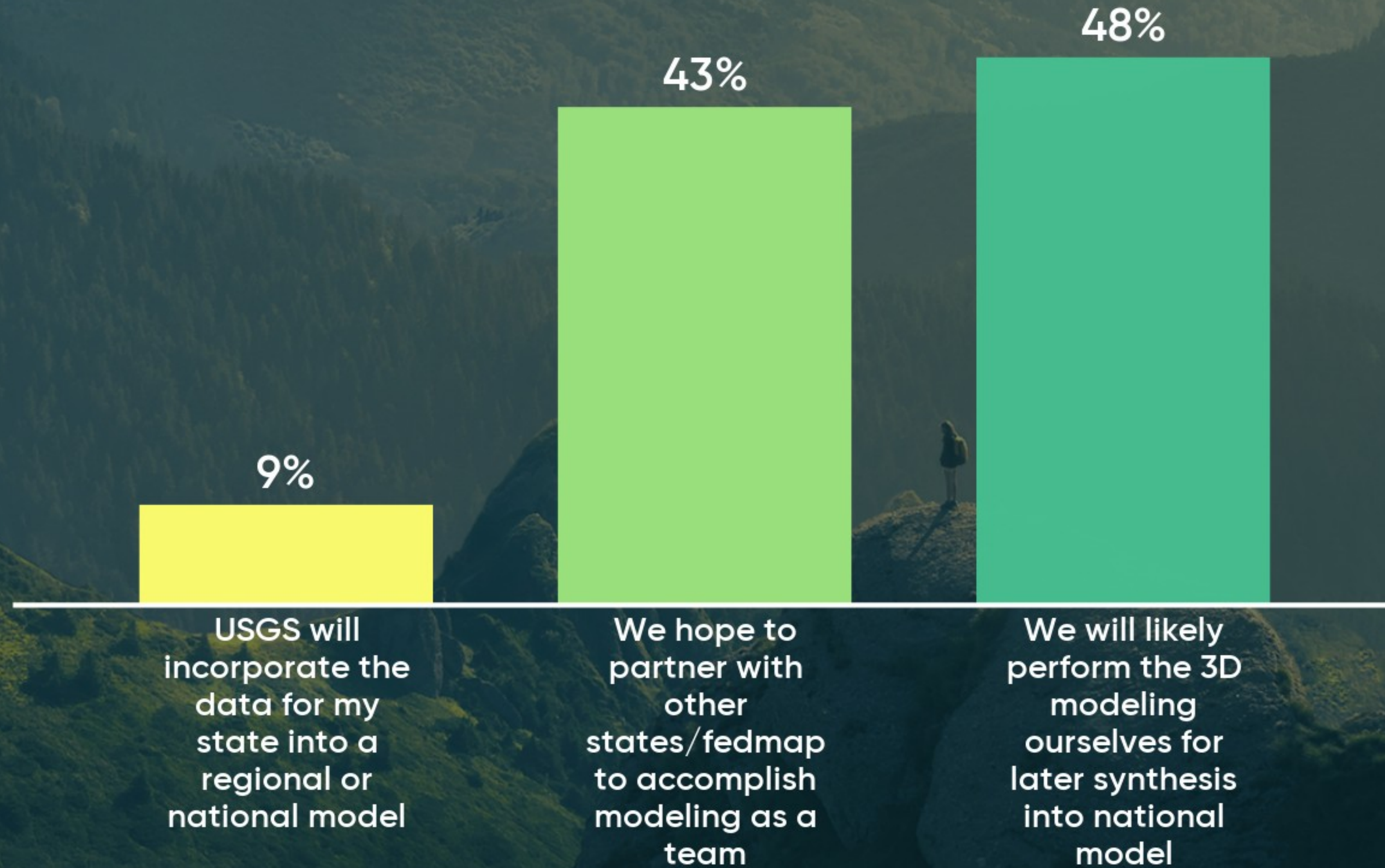


# State Surveys: Which stakeholder group in your state are likely users of geologic 3D map data? (check all that apply)



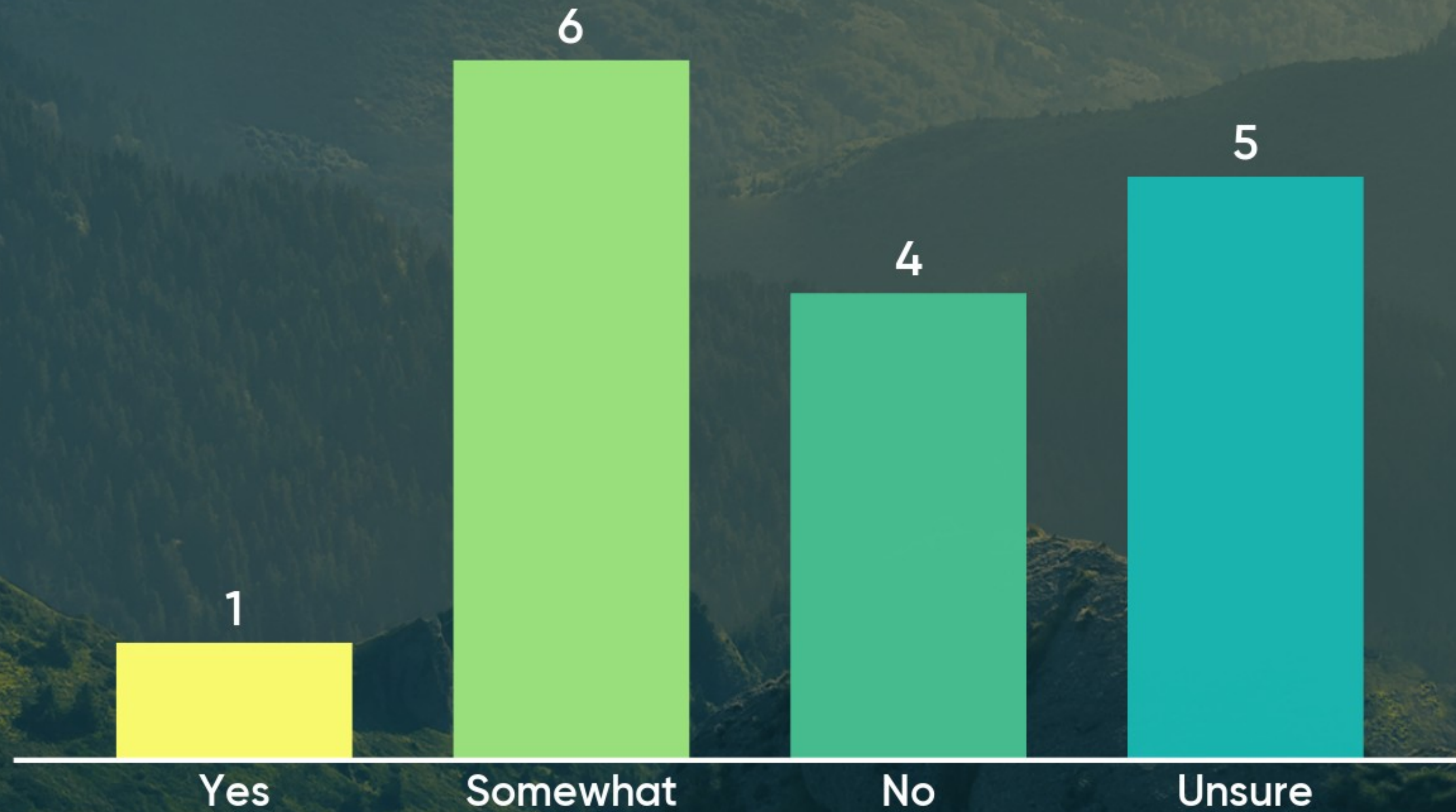


# States: Who do you envision/wish to perform the actual 3D modeling of your state?



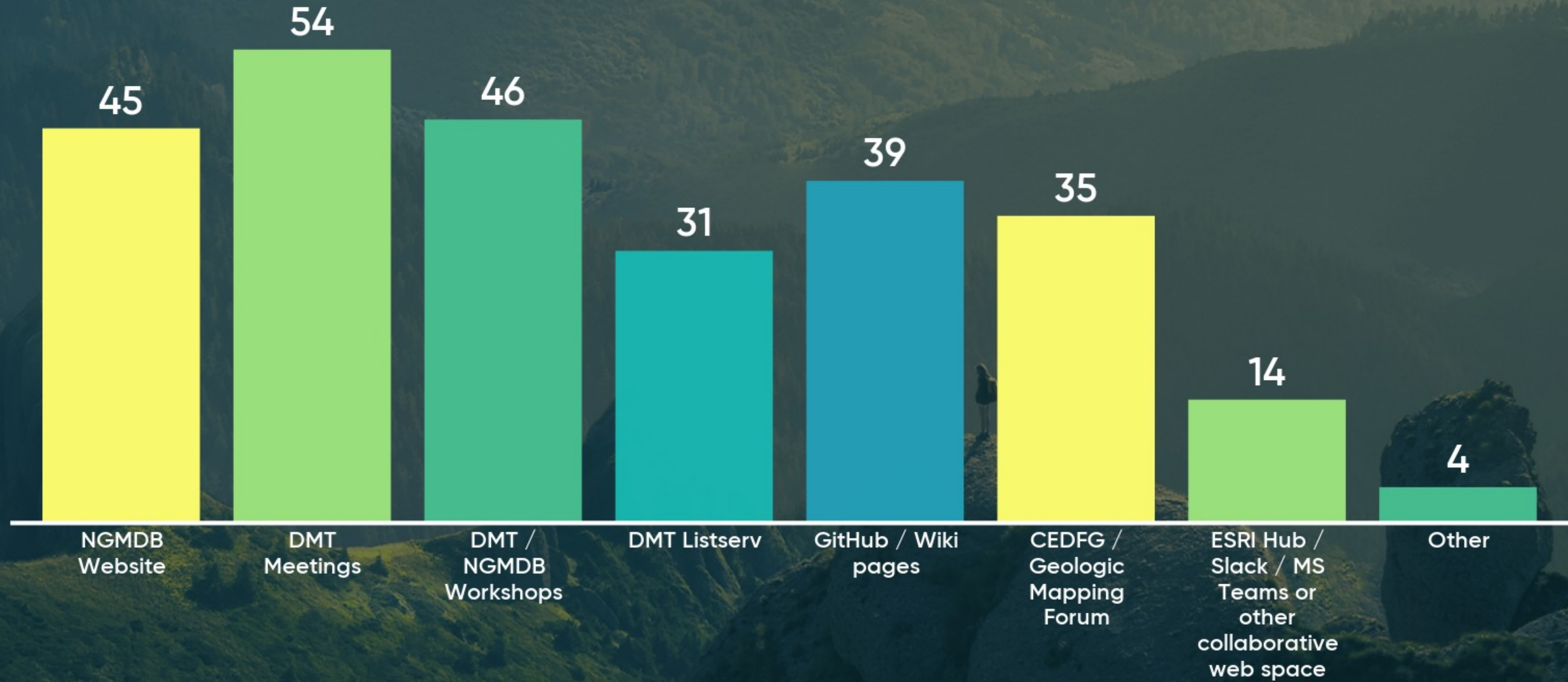


# FedMappers: Will national-scale 3D geologic model data address the research objectives of Fedmap at large?





# Check all that apply: What collaboration tools for GIS, GeMS, and mapping information do you currently use or want to use





# If you said other, what is it?

<https://gitter.im/gems-schema/community>

interacting-cooperating with adjacent states to resolve issues

USGS Community for Data Integration

Monthly lunch bag gatherings

GMAC meetings

Gitter

CDEFG Meetings

Attending seminars - see what is going on outside of my group