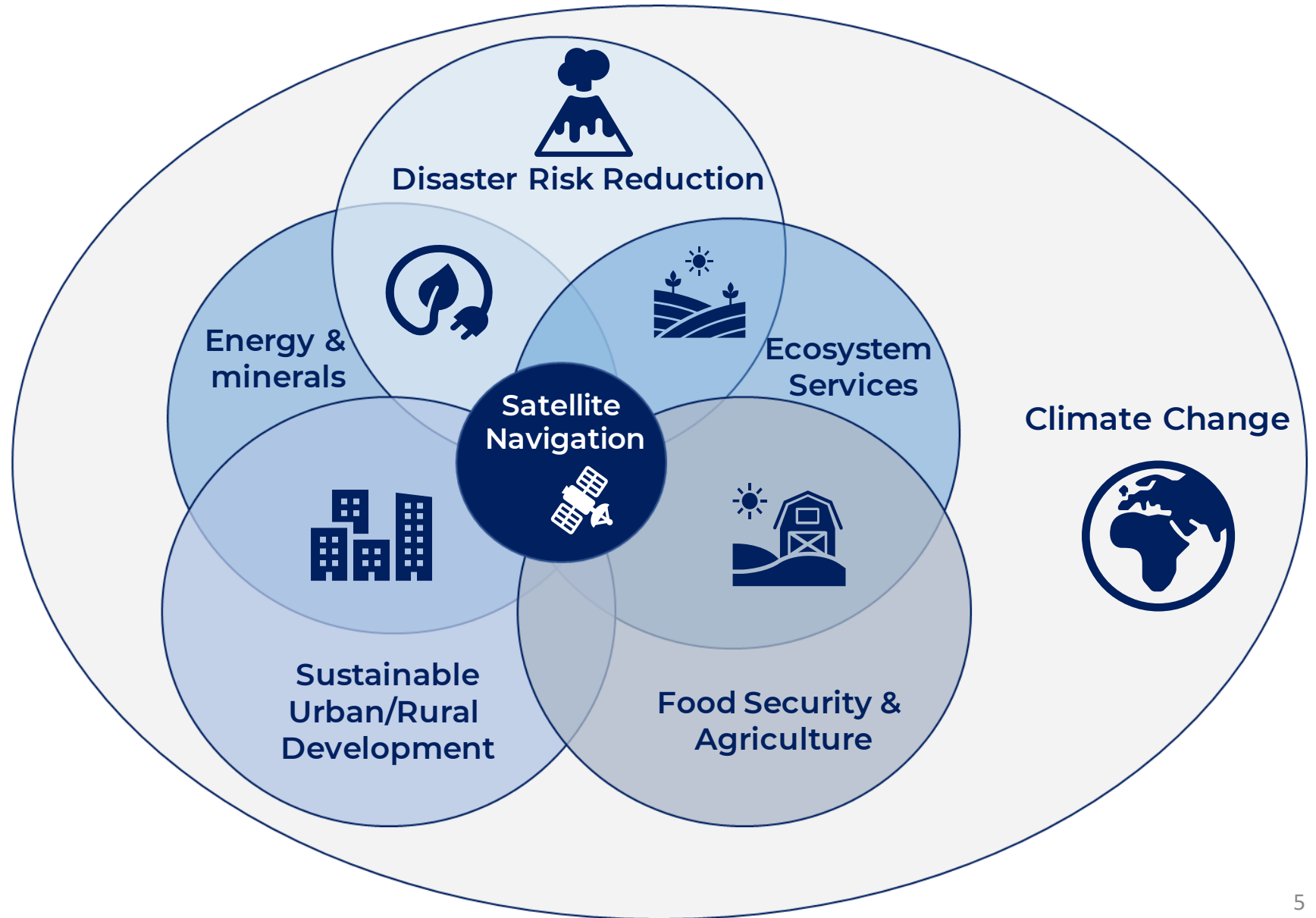


2023 Challenge Thematic Areas

The 2023 AEOC aims to identify innovative applications of space-based data across seven thematic areas, with climate change and navigation & positioning as cross-cutting areas.

Also included for consideration, across all thematic areas, is innovative data collection techniques. These include upstream technologies like new satellites, on-board processing units and innovative in-situ measurement techniques.

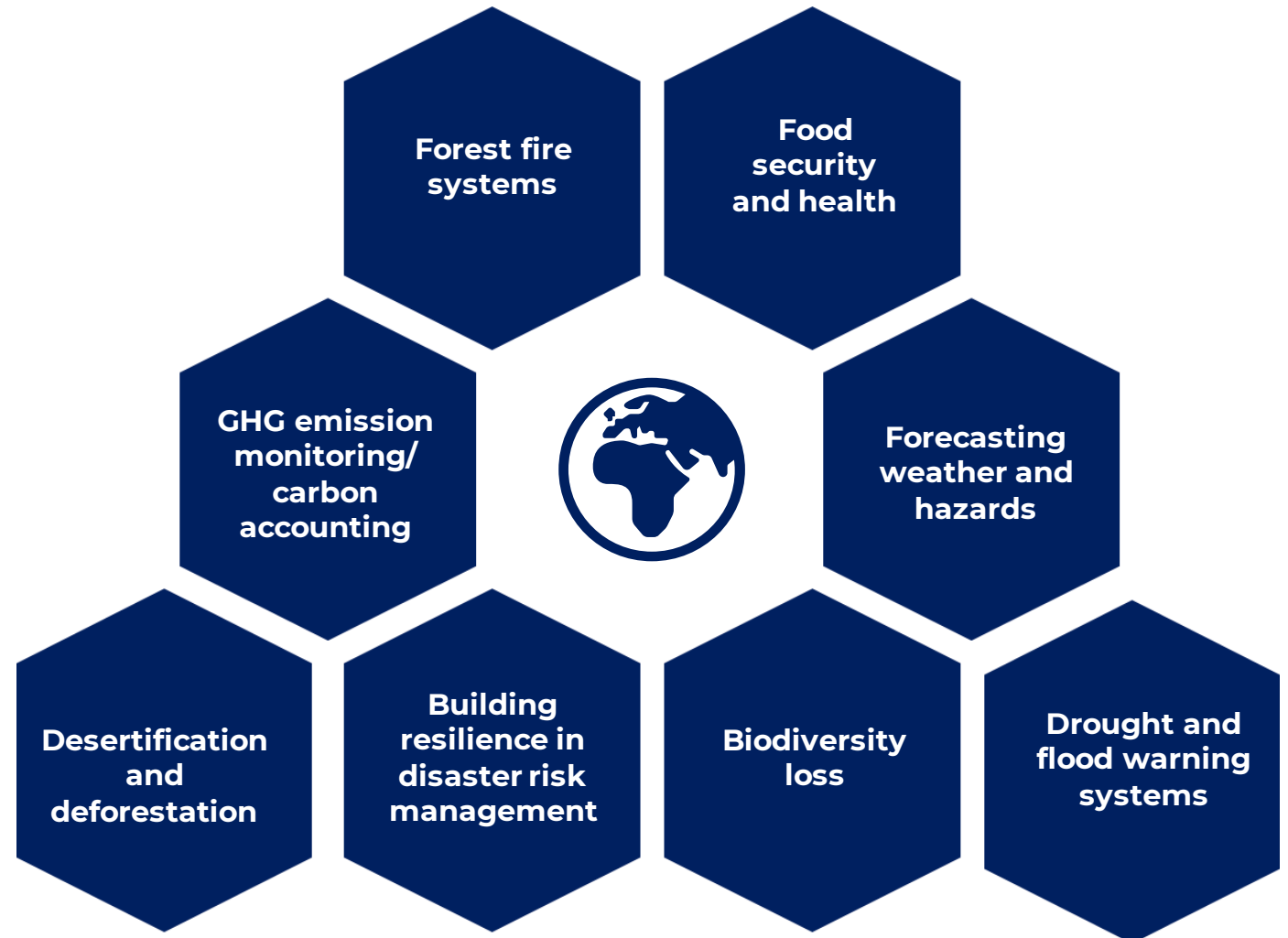


SBD has become a key instrument for Africans to study how climate change is likely to affect life, industries and markets worldwide

Climate Change:

Satellites observing Earth have a unique vantage point for capturing change across the planet. For this challenge, how can SBD, in conjunction with Artificial Intelligence (AI), be utilised to support climate change adaptation and mitigation strategies, such as multi-hazard early-warning systems for high-impact hydro-meteorological events, monitoring how climate change impacts crop & animal production together with its economic implications and supporting the development of renewable energy sources?

Potential Application Areas

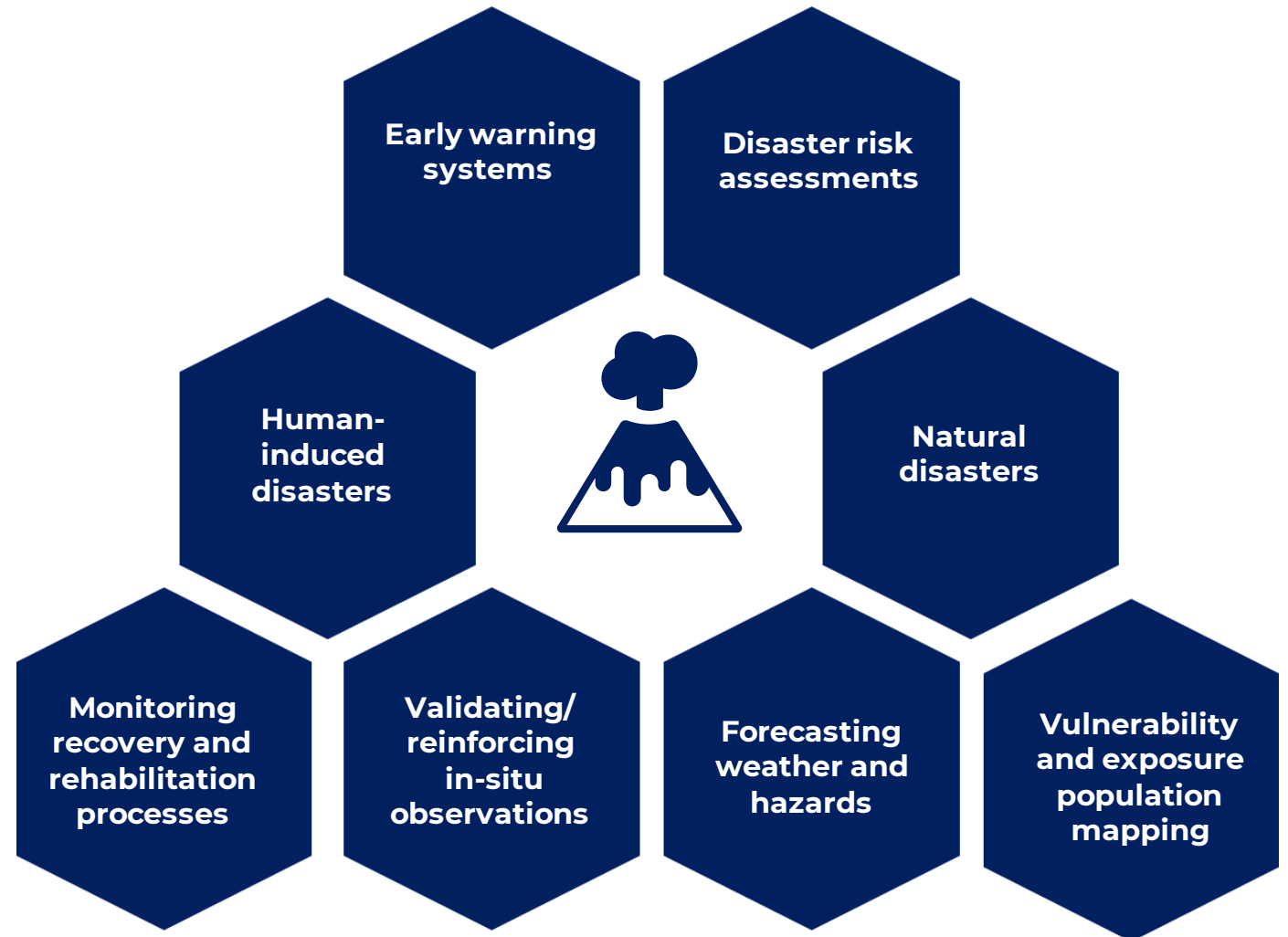


The effective application of SBD in disaster risk management can assist with protecting lives and safeguarding property

Disaster Risk Reduction:

Space-Based Data can be leveraged to support humanitarian and disaster management efforts including early warning systems, near-real time hazard detection and monitoring the recovery and rehabilitation process. For this challenge, how can SBD be utilised in novel ways to assist with disaster prevention, mitigation, preparedness, response and recovery?

Potential Application Areas

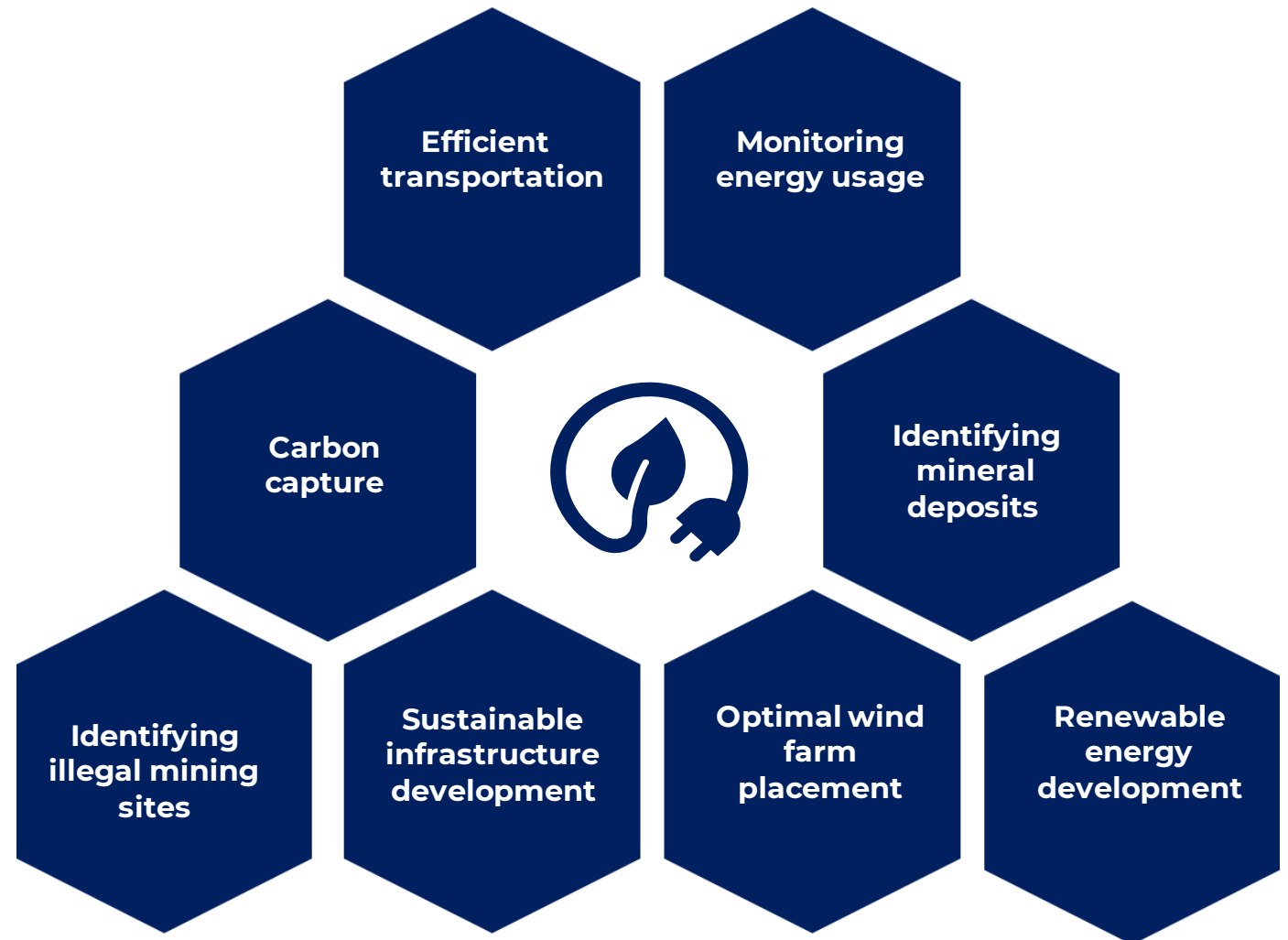


EO and remote sensing technologies can be used to uncover and manage new mineral deposits and energy resources

Energy and Minerals:

Energy providers are shifting towards renewable energy sources and implementing actions to make their energy management activities more resilient to environmental hazards. For this challenge, how can SBD be utilised to assist decision-makers with identifying where energy and mineral resources exist and the potential impact of environmental conditions and hazards on these resources? Additionally, how can SBD support the efficient use of these resources?

Potential Application Areas

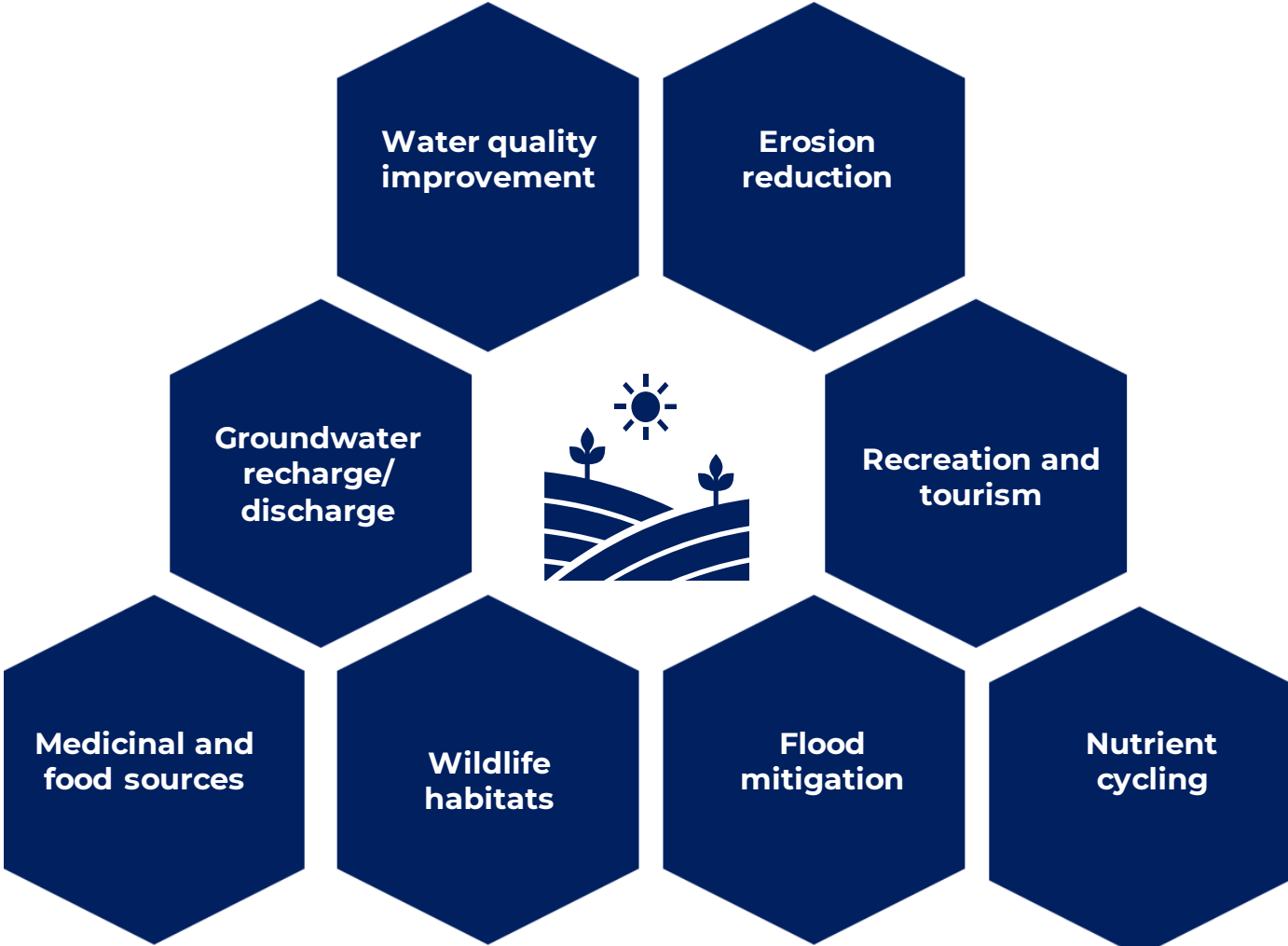


SBD can be used to accurately map ecosystems to support effective planning and sustainable decision-making

Ecosystem Services:

Humans derive many benefits from healthy ecosystems. SBD can be used to conduct natural capital accounting to ensure that ecosystem services are maintained and effectively managed. For this challenge, how can SBD be utilised in novel ways to solve problems or support initiatives involving the sustainable use of ecosystem services such as water quality improvement and erosion reduction, to name a few?

Potential Application Areas



SBD has potential to address issues centered around urban and rural sustainability

Sustainable Urban/Rural Development:

SBD can enhance a city's efforts on disaster risk mitigation, building resilience against natural hazards and climate change impacts. SBD can also provide significant cost and time savings in urban/rural planning, monitoring and indicator measurement, particularly over large areas where data is limited. For this challenge, how can SBD assist in sustainable urban/rural development in areas such as infrastructure monitoring and sustainable urban/rural planning amongst others?

Potential Application Areas



SBD application plays an essential role in food security, safety and sustainability

Food Security and Agriculture:

Space-based technologies can contribute to long and short-term humanitarian responses to food crises. In this regard, space-based data can support land management practices such as soil conservation, crop diversification and pest/disease management. For this challenge, how can SBD be utilised to improve food security and support the development of sustainable food systems, including improvements in crop monitoring and precision agriculture amongst others?

Potential Application Areas



Satellite navigation systems can be used in conjunction with EOD to provide deeper insights for decision makers

Satellite Navigation:

Satellite navigation (satnav) systems play a crucial role in providing precise location and timing services which can be used in conjunction with Earth observations to better enable critical decision-making. Farmers can utilise satnav as an effective tool to direct their field equipment with great accuracy for precision agriculture. For this challenge, how can Satnav, particularly Satellite-Based Augmentation Systems (SBAS), and earth observation data be leveraged to support various initiatives requiring precise location and timing services?

Potential Application Areas

