

DDE EXECUTIVE COMMITTEE | STRATEGIC REPORT

DDE Working & Task Groups Effectiveness Enhancement Reform

WTG Restructuring, Governance Optimization & Implementation Roadmap

Based on DDE-ISI Six Priority Research Programs

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Agenda

01	Current State Diagnosis Operational challenges of 28 WTGs and mid-term review analysis
02	Strategic Anchoring DDE-ISI six research programs as the strategic baseline for reform
03	Restructuring Plan From 28 WTGs to 6 clusters + 2 committees: architecture & mapping
04	Governance System EC leadership model, annual management calendar & three-tier evaluation
05	Finance & Incentives Funding allocation, incentive mechanisms & exit pathways
06	Implementation Roadmap 2026-2028 three-phase phased implementation plan

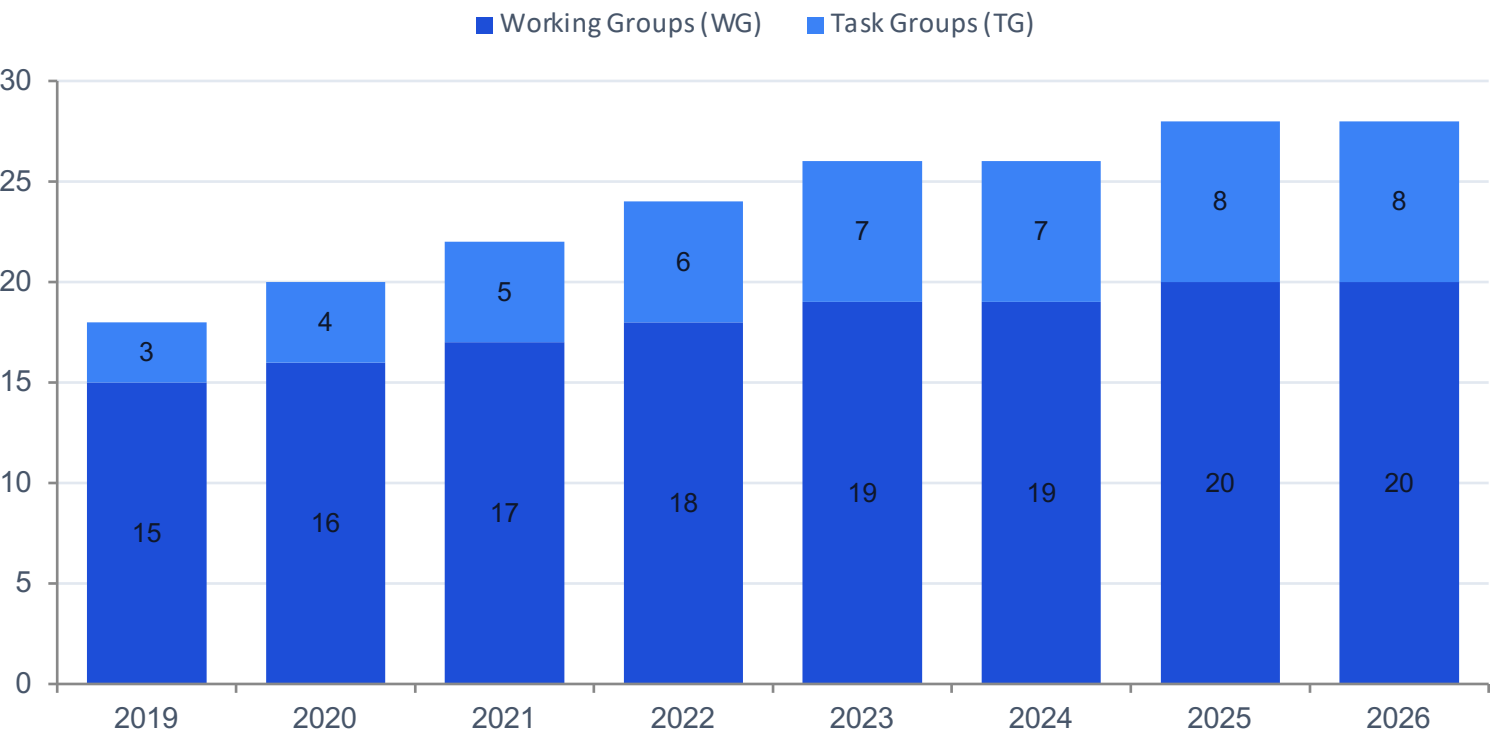
CHAPTER 1

Current State Diagnosis

Operational challenges, mid-term review results, and core issues of 28 Working & Task Groups

WTG Count Expanded, Management Lagged Behind

DDE WTGs grew from 18 (2019) to 28 (2026): 20 Working Groups + 8 Task Groups, covering all solid Earth science disciplines. However, organizational expansion was not accompanied by commensurate management system upgrades.



28

Total WTGs
(2026)

20

Working Groups
(WG)

8

Task Groups
(TG)

+56%

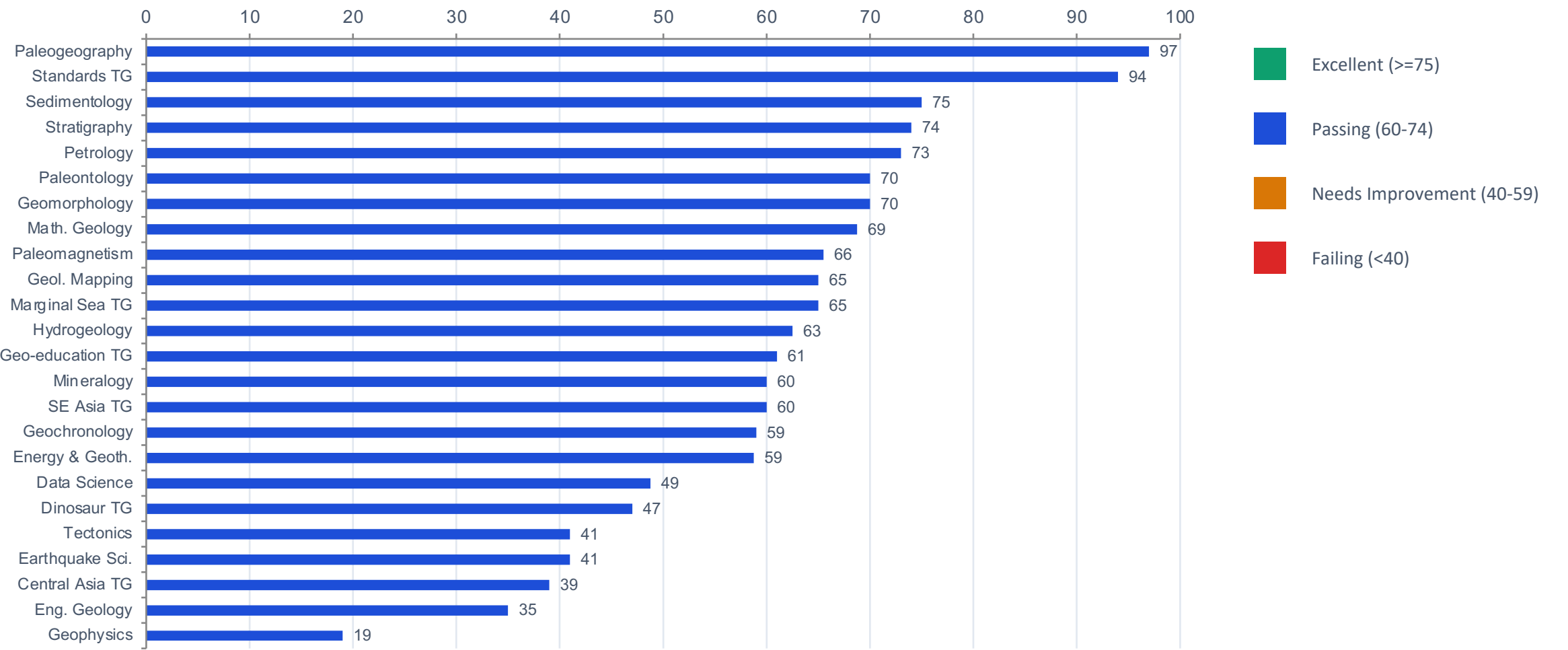
7-Year Growth
Rate

Key Insight

While WTG count grew 56% over 7 years, management protocols, goal alignment, and inter-group collaboration mechanisms remained stagnant — creating a widening gap between scale and governance capacity.

2024 Mid-Term Review: Severely Polarized Performance

24 WTGs were evaluated. Only 3 (13%) achieved excellent scores, while 11% scored below 40 or failed to submit reports. Overall effectiveness is below standard.



Six Core Issues Constraining WTG Effectiveness

MISSING GOALS

Absence of Scientific Objectives

WTGs lack clear scientific goals aligned with DDE's overall strategy. Research agendas are fragmented, preventing collective contribution to the DDE mission.

NO PROTOCOLS

Management Protocol Gap

No unified operational logic or management process exists. Annual report submission rates are low. Standardized KPIs and accountability mechanisms are absent.

REDUNDANCY

Severe Homogenization

Multiple WTGs have highly overlapping research scopes (e.g., Tectonics/Seismic/Paleomagnetism), causing scattered resources and duplicated, low-efficiency outputs.

NO SYNERGY

Collaboration Deficit

Effective inter-group coordination mechanisms are lacking. Cross-disciplinary joint projects are rare, unable to support the interdisciplinary collaboration required by DDE-ISI.

FUNDING GAP

Resource Misalignment

Funding levels (\$5K-\$10K) are severely disconnected from actual needs. Allocation is based solely on evaluation scores without strategic resource orientation.

LEADERSHIP

EC Leadership Vacuum

The Executive Committee has not set specific work objectives or milestones for WTGs. 'Autonomy' has devolved into 'drift,' lacking strategic traction.

CHAPTER 2

Strategic Anchoring

Using the DDE-ISI six research programs as the strategic baseline to redefine WTG value proposition and organizational logic

DDE-ISI Six Priority Research Programs

The DDE International Science Initiative (DDE-ISI) 2025-2028 focuses on six priority programs, providing the strategic framework for WTG restructuring.

PROGRAM 1

OneEarth Global Open Science Facility

AI-driven global public digital facility providing data linking, aggregation, processing, and open services. Supports 4D spatiotemporal gridding and causal reasoning.

Maps to: Data Science, Standards, Mathematical Geology

PROGRAM 2

Earth Structure

Multi-layer, multi-resolution global geological mapping from global (1:35M) to regional (1:24K) scale, including key vertical interfaces and basement structures.

Maps to: Geological Mapping, Geomorphology, Petrology/Mineralogy, Geophysics

PROGRAM 3

Earth Plate Motion

Reconstruct global plate tectonic evolution, integrating multi-source geological and geophysical data to build new models of plate motion over the past billion years.

Maps to: Tectonics, Paleomagnetism, Earthquake Science

PROGRAM 4

Earth Timeline & History

Build a dynamic Earth timeline integrating stratigraphy, paleontology, and geochronology to reveal the co-evolution of Earth materials and life.

Maps to: Stratigraphy, Paleontology, Paleogeography, Sedimentology, Geochronology

PROGRAM 5

Earth System Modeling

Shift from observation-driven qualitative to prediction-driven quantitative approaches. Build multi-layer spatiotemporal Earth system dynamics models.

Maps to: Engineering Geology & Environment, Earth System Modeling (NEW)

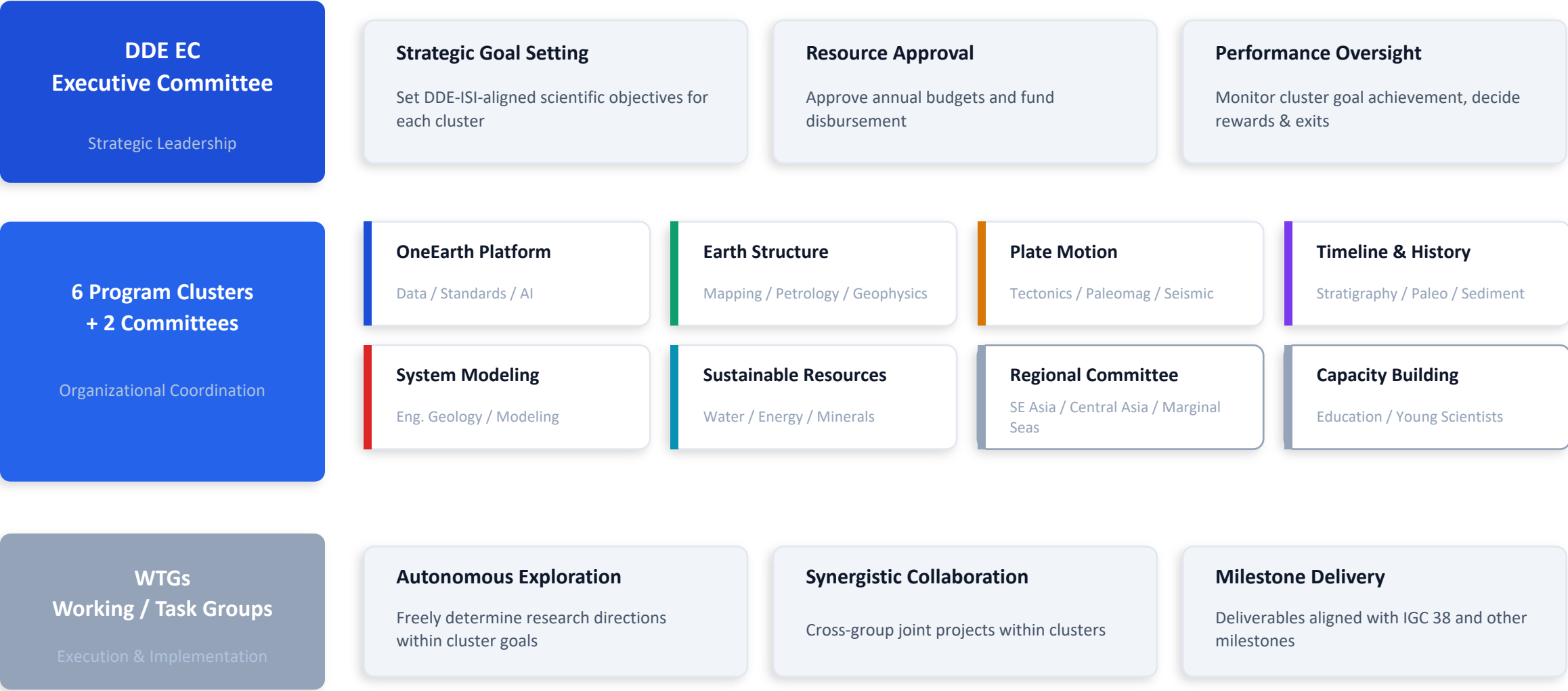
PROGRAM 6

Sustainable Earth Resources

AI-supported prediction and management of global energy, mineral, and water resources. Serves SDG goals with special focus on Global South countries.

Maps to: Hydrogeology, Energy & Geothermal, Mineral Resources (NEW)

Three-Tier Architecture: Strategy - Clusters - Execution



CHAPTER 3

Restructuring Plan

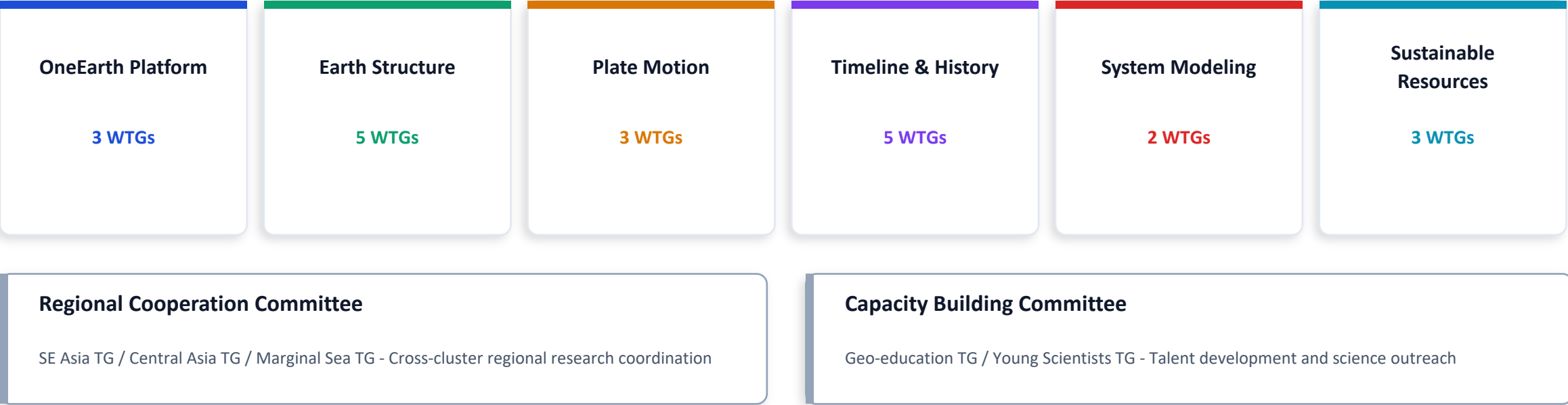
Reorganizing 28 WTGs into 6 program clusters + 2 cross-cutting committees
aligned with DDE-ISI

28 WTGs to 6 Clusters + 2 Committees: Full Mapping

Target Cluster	Original WTGs (28 total)	Count	Change
OneEarth Platform	Data Science WG, Standards TG, Mathematical Geology WG	3	-
Earth Structure	Geological Mapping WG, Geomorphology WG, Petrology + Mineralogy WG (merged), Geophysics WG, Surficial Geochemistry WG	5	Merge 1
Plate Motion	Tectonics WG, Paleomagnetism WG, Earthquake Science WG	3	-
Timeline & History	Stratigraphy WG, Paleontology + Dinosaur TG (merged), Paleogeography + CO2PIP TG (merged), Sedimentology WG, Geochronology WG	5	Merge 2
Earth System Modeling	Engineering Geology & Environment WG, NEW: Earth System Modeling WG	2	New 1
Sustainable Resources	Hydrogeology WG, Energy & Geothermal WG, NEW: Mineral Resources WG	3	New 1
Regional Cooperation Committee	Southeast Asia TG, Central Asia TG, Marginal Sea TG	3	To Committee
Capacity Building Committee	Geo-education TG, Young Earth Scientists TG	2	To Committee

Note: After 3 merges and 2 new formations, the original 28 WTGs become 26 active groups + 2 committees, all aligned with DDE-ISI six programs.

6 Program Clusters + 2 Cross-Cutting Committees



Design Principles

Each cluster corresponds to one DDE-ISI program with a cluster coordinator appointed by the EC. WTGs within a cluster share scientific objectives while maintaining research autonomy. Cross-cutting committees handle regional and educational issues, connecting horizontally across all clusters.

Six Program Clusters: Objectives, Composition & Milestones

Cluster	Core Scientific Objective	Constituent WTGs	Milestone Output	Annual Budget
OneEarth Platform	Build AI-driven global geoscience data facility; achieve FAIR data sharing	Data Science & AI Platform WG, Data Standards TG, Computational Geology WG	OneEarth Platform v1.0 launch	\$45K
Earth Structure	Complete global 1:1M geological map; build multi-layer Earth structure model	Global Geological Mapping WG, Geomorphology WG, Petrology & Mineralogy WG, Geophysics WG, Geochemistry WG	Global 1:1M bedrock map	\$50K
Plate Motion	Reconstruct billion-year plate evolution; reveal geodynamic mechanisms	Structural Geology & Plate Motion WG, Paleomagnetism WG, Seismic Science WG	New plate motion model release	\$30K
Timeline & History	Build dynamic Earth timeline; reveal Earth-life co-evolution	Stratigraphy WG, Paleontology & Evolution WG, Paleogeography & Paleoclimate WG, Sedimentology & Basin Analysis WG, Geochronology WG	Digital Earth Timeline release	\$50K
System Modeling	Build multi-layer Earth system dynamics model; achieve predictive capability	Engineering Geology & Environment WG, Earth System Dynamics WG (NEW)	Earth System Model prototype	\$20K
Sustainable Resources	AI-predict global energy, mineral, water resources; serve SDGs	Groundwater & Water Resources WG, Energy & Geothermal WG, Mineral Resources Prediction WG (NEW)	Global resource potential map	\$30K

Regional Cooperation Committee: Coordinates SE Asia, Central Asia, Marginal Seas research. Annual budget: \$15K

Capacity Building Committee: Advances geo-education and young scientist development. Annual budget: \$10K

CHAPTER 4

Governance System

EC leadership model, annual management calendar & three-tier evaluation system

"Goal-Driven + Autonomous Exploration" Dual-Wheel Model

EC RESPONSIBILITIES

Goal Setting & Strategic Steering

- Set 3-year scientific objectives aligned with DDE-ISI for each cluster
- Define annual milestone deliverables (e.g., IGC 38 outcomes)
- Appoint cluster coordinators with clear accountability boundaries
- Approve annual budgets and resource allocation plans
- Conduct quarterly cluster progress review meetings
- Trigger intervention & rectification for underperforming clusters

WTG AUTONOMY

Autonomous Exploration & Free Research

- Freely determine specific research directions within cluster goals
- Self-organize academic events and workshops
- Choose partners and methodological approaches independently
- Eligible to apply for Frontier Exploration Fund (non-directed)
- Research outputs jointly attributed to WTG and DDE
- Encouraged to initiate bottom-up cross-cluster joint projects

Core Principle: EC "steers, not rows" - sets strategic direction and milestone goals without over-intervening in specific research content. WTGs enjoy full academic freedom within the goal framework, achieving "structured but not stifled, free but not chaotic."

WTG Annual Management Cycle: Key Milestones & Processes

Q1 / Jan Annual Report Submission Each WTG submits prior-year work report and next-year work plan to Secretariat Deadline: Jan 31	Q1 / Feb EC Review & Evaluation EC organizes Science Committee to review reports and complete annual performance evaluation Feb 1 - 28	Q1 / Mar Fund Disbursement Disburse annual funding based on evaluation results; sign annual work agreements By Mar 15	Q2 / May Mid-Year Progress Check Cluster coordinators submit semi-annual progress briefs; EC reviews milestone achievement By May 15	Q2 / Jun WTG Joint Workshop Organize annual WTG joint academic workshop to promote cross-cluster collaboration Late June
Q3 / Aug EC Meeting Review Review overall WTG progress at EC annual meeting; adjust strategic direction During EC Annual Meeting	Q3 / Sep Cross-Cluster Project Call Issue call for cross-cluster joint projects to encourage interdisciplinary collaboration Sep 1	Q4 / Nov Annual Evaluation Launch Launch comprehensive annual evaluation: output metrics, collaboration, goal achievement Nov 1	Q4 / Dec Budget Approval EC approves next-year WTG budget plan and cluster objectives By Dec 15	Rolling Exit Mechanism Trigger Initiate exit procedure for WTGs failing evaluation for 2 consecutive years Year-round

Three-Tier Evaluation: Annual / Mid-Term / Completion

1

Annual Evaluation

Once per year / All WTGs

- Annual report quality & completeness
- Scientific outputs (papers, datasets, models)
- Alignment with DDE-ISI objectives
- Intra-cluster collaboration contribution
- Website maintenance & DDE event participation

Results determine next-year funding tier

2

Mid-Term Evaluation

Every 2 years / All WTGs

- 2-year comprehensive scientific contribution
- Milestone deliverable achievement status
- International impact & partnership expansion
- Data sharing & open science practices
- Talent development & team building

Results determine continued funding or direction adjustment

3

Completion Eval.

End of 3-yr cycle / Relevant WTGs

- 3-year goal achievement comprehensive review
- Major scientific breakthroughs & innovations
- Contribution to DDE mission
- Sustainable impact & legacy
- Decision: renew, merge, or dissolve

Results determine WTG renewal, merger, or dissolution

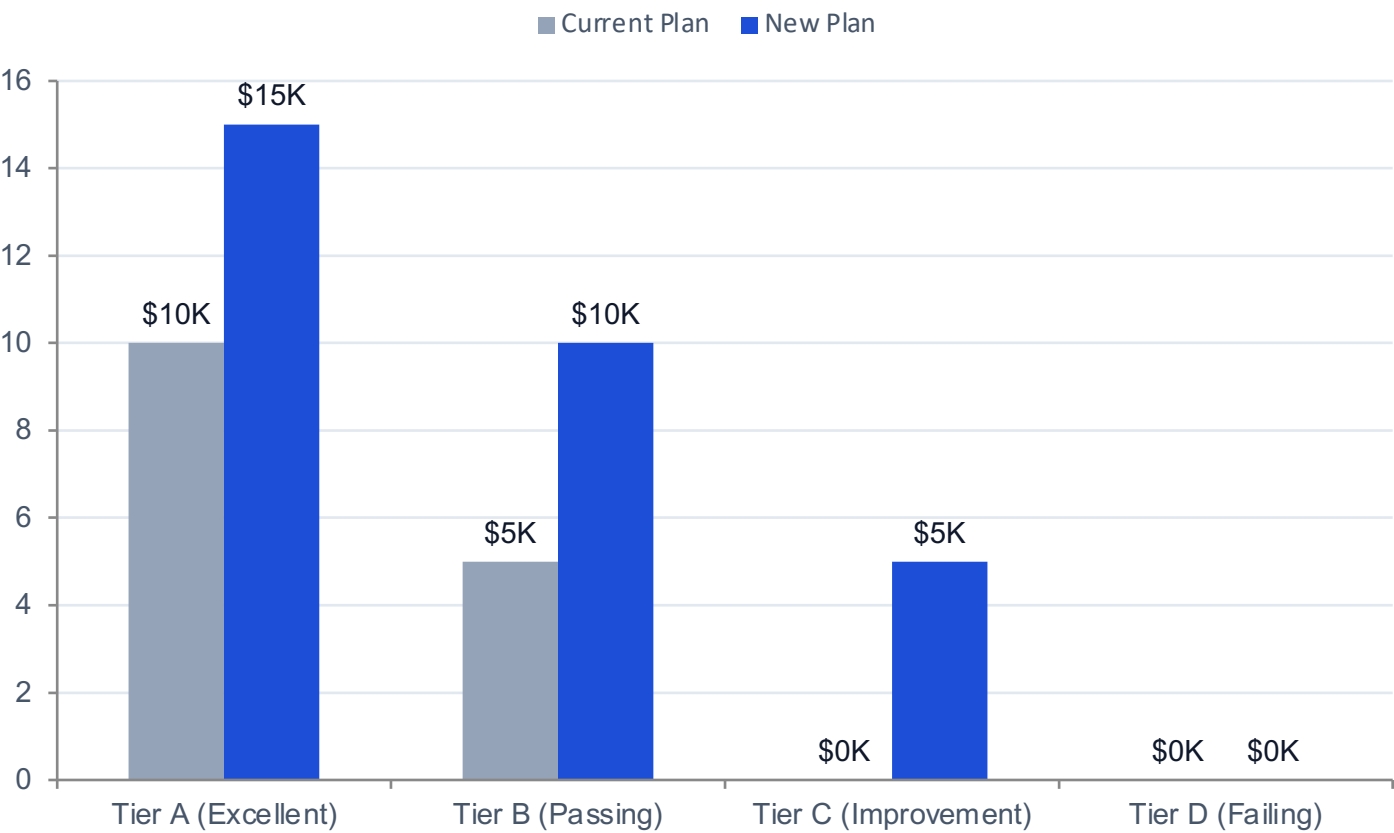
CHAPTER 5

Finance & Incentives

Funding allocation, incentive mechanisms & exit pathway design

Three-Tier Funding: Doubled Budget, Performance-Linked

Total annual budget increases from ~\$120K to \$250K (+108%), with a three-tier funding system where allocation is directly linked to evaluation results.



\$15K

Tier A (Excellent, Score >= 80)

\$10K

Tier B (Passing, Score 60-79)

\$5K

Tier C (Improvement, Score 40-59)

\$0

Tier D (Failing, Score < 40)

Incentives & Exit: Reward Excellence, Eliminate Underperformance

INCENTIVE MECHANISMS

- **Funding Upgrade:** 2 consecutive A-tier evaluations auto-upgrade to next funding level
- **Supplementary Grants:** A-tier WTGs eligible for additional project funds (\$5K-\$15K)
- **International Recognition:** Outstanding WTGs recognized at DDE annual meetings & IGC congresses
- **Priority Recommendation:** Outstanding WTG leaders prioritized for DDE leadership positions
- **Expanded Autonomy:** A-tier WTGs gain greater research autonomy & resource allocation rights
- **Cross-Cluster Leadership:** Eligible to initiate and lead cross-cluster joint projects

EXIT MECHANISMS

- **Warning Notice:** C-tier evaluation triggers written EC warning and rectification requirement
- **Rectification Period:** C-tier WTGs enter 6-month rectification period; must submit improvement plan
- **Downgrade:** 2 consecutive C-tier years: funding reduced to \$0; leadership replaced
- **Forced Merger:** 2 consecutive D-tier years: WTG forcibly merged into another group in cluster
- **Dissolution:** Completion evaluation failure with no improvement: formal WTG dissolution
- **Non-Submission:** Failure to submit annual report without cause: immediate funding suspension

CHAPTER 6

Implementation Roadmap

2026-2028 three-phase phased implementation to ensure smooth reform rollout

2026-2028 Phased Implementation Plan

Phase 1

Approval & Launch

2026 Q3 - Q4

- EC approves restructuring plan
- Issue WTG reform policy document
- Appoint 6 cluster coordinators
- Notify all 28 WTGs of restructuring
- Initiate merger group transition
- Develop new management protocols & evaluation standards
- Complete 2027 annual budget preparation

Phase 2

Full Restructuring & Trial Run

2027 Q1 - Q4

- New architecture officially operational
- WTGs submit first post-restructuring annual reports
- Implement new three-tier evaluation system
- Disburse new-standard funding
- Organize first WTG joint workshop
- Launch cross-cluster joint project call
- Mid-term evaluation & adjustment
- Recruit & establish new WTGs

Phase 3

Evaluation & Normalization

2028 Q1 - Q4

- Complete first 3-year cycle completion evaluation
- WTG renewal, merger, or dissolution decisions
- Submit DDE-WTG outcomes to IGC 38
- Optimize management protocols & evaluation standards
- Develop next cycle (2029-2031) strategy
- Establish normalized operational mechanisms
- Evaluate overall reform effectiveness

Five Core Reform Recommendations

01

Restructure per DDE-ISI

Reorganize 28 WTGs into 6 clusters + 2 committees aligned with six research programs. Eliminate homogenization, align with strategic objectives.

02

Strengthen EC Leadership

EC sets 3-year scientific objectives and milestones for each cluster. Implement goal-driven + autonomous exploration dual-wheel model.

03

Establish Management Calendar

Define key milestones: annual report (Jan), EC review (Feb), funding disbursement (Mar), mid-year check (May), etc.

04

Double Funding + Tiered Support

Total budget from \$120K to \$250K/year. Establish \$15K/\$10K/\$5K/\$0 four-tier performance-linked funding system.

05

Reward & Exit Mechanism

Consecutive excellence earns upgrades & expanded authority. Consecutive failure triggers rectification, merger, or dissolution.

Expected Outcomes

Through systematic reform, DDE WTGs will transform from 28 loosely independent groups into a coordinated system of 6 strategic clusters. At IGC 38 in 2028, DDE will demonstrate its substantive scientific contributions as an international big science program, laying the organizational foundation for global implementation of DDE-ISI.

DDE EXECUTIVE COMMITTEE | 2026

Thank You

We look forward to working with all EC members to advance the DDE WTG reform