LAND RECLAMATION AND REPURPOSING OF ASSETS

JUST TRANSITION TECHNICAL WORKSHOP
KONIN, 29TH OF SEPTEMBER 2021

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ENERGY AND EXTRACTIVES GLOBAL PRACTICE

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E.G., LANDS PLAY A KEY ROLE FOR A SHIFT FROM COAL TO RENEWABLE ENERGY

The Economist

(Missing ingredients - The bottlenecks which could constrain emission cuts. 2021-6-12)

"[…] one kind of bottleneck deserves special attention: the supply-side problems, such as scarce metals and **land constraints**, that threaten to slow the green-energy boom."

"The green revolution risks running short of minerals, money and **places to build**".

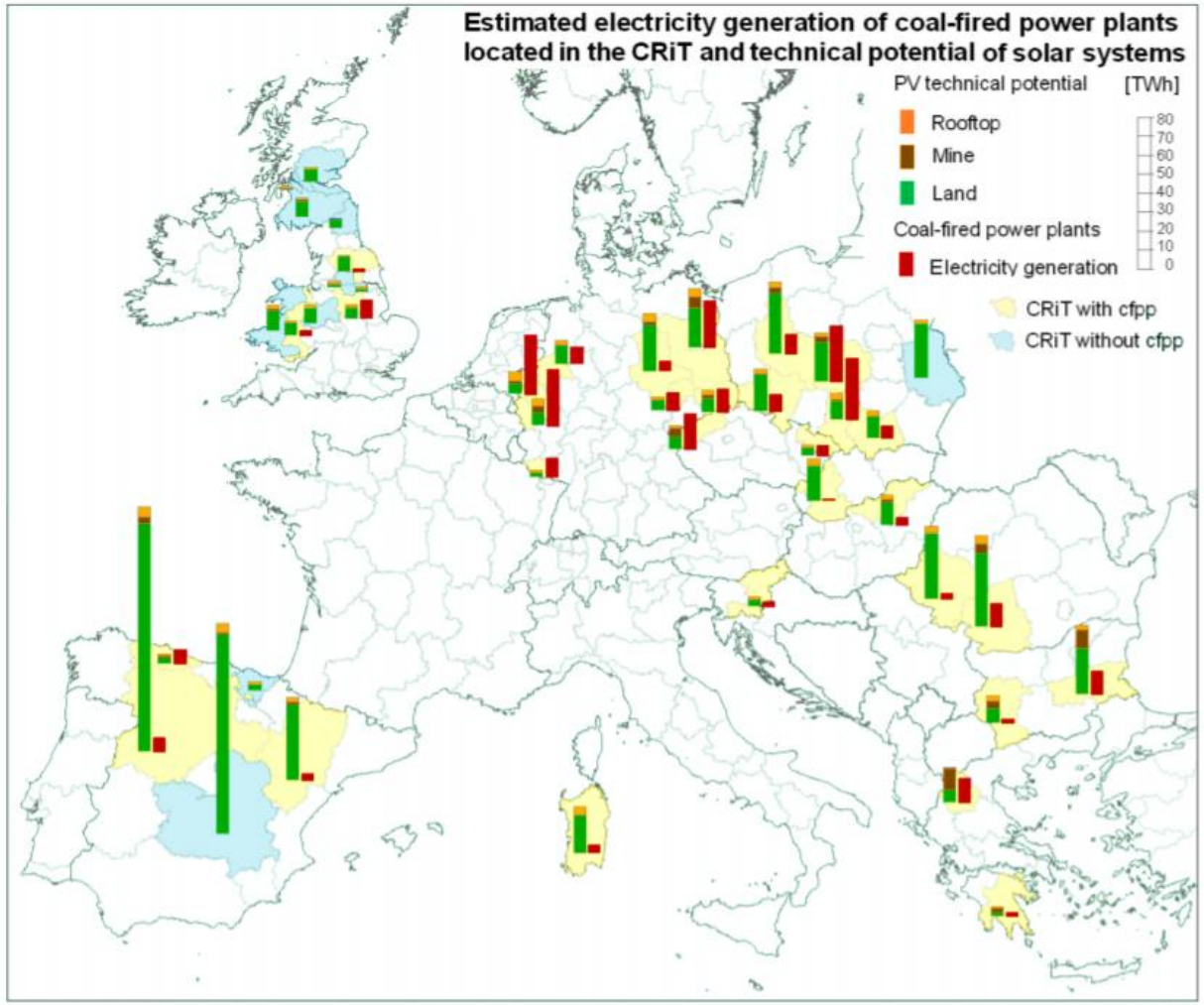
Brownfields are a Logical Source of Lands for RE Installations

"There is enough space in post-mining lands to generate as much electricity with solar as all the coal and lignite power currently produced in the EU."

Source: https://www.mdpi.com/2071-1050/11/13/3703 Solar Photovoltaic Electricity Generation: A Lifeline for the European Coal Regions in Transition; by Katalin Bódis, Ioannis Kougias, Nigel Taylor & Arnulf Jäger-Waldau

"[…] where national datasets are available the total area of Brownfield land identified in the report varies markedly, from 11,000 ha in the Netherlands to 128,000 ha in Germany, **800,000 ha in Poland** and 900,000 ha in Romania.

(Source: Environmental Liability Transfer in Europe: Divestment of Contaminated Land for Brownfield Regeneration Report NICOLE Brownfield Working Group, May 2011)



The World Bank's 3x3 Matrix: A Tested Methodology for Coal Transition

	Pillar 1 Institutional Governance	Pillar 2 People and Communities	Pillar 3 Environmental Reclamation and Re-purposing Land & Assets
Phase 1: **Pre-Closure Planning** 10- 18 months	Strengthen policies, institutions, inclusive processes, and build vision / strategies for socio-economic transformation	Pre-layoff social protection assessments & planning, labor profiles, user-needs	Assessing land & assets, preparing for reclamation and re-purposing
Phase 2: **Closure** 2+ years	Coordinating closure /decommissioning activities between enterprise and agencies	Deploying short-term social assistance to workers & communities, re-skilling	Implementation of appropriate technical standards, transfer of assets, mitigation of methane
Phase 3: **Regional Transition** 5-10 years	Special Purpose Entity coordinating around kick-start project implementation	Longer term re-skilling, education, active labor market policies	Reclamation of select land & assets, repurposing; engaging private investors to sustain regional transformation

Regional transition: Creating added value for post mining lands and assets

Without planning for closure and assessment of re-development risks, the **post-closure phase is often limited to land reclamation**, comprising recontouring the land, installation of simple drainage systems, and decontamination of land surfaces

Re-purposing of mine sites and use of land, built assets and other resources, offer high potential future value. Scenarios include RE, investment space, recreation, agriculture, forests, energy crops and natural habitats, underground storage or geothermal energy production.

Use of a **Land Repurposing Methodology (LRM)** with the help of GIS application LURA is key to an organized assessment of the potential and planning for the highest use of the land

Land Repurposing Methodology (LRM):

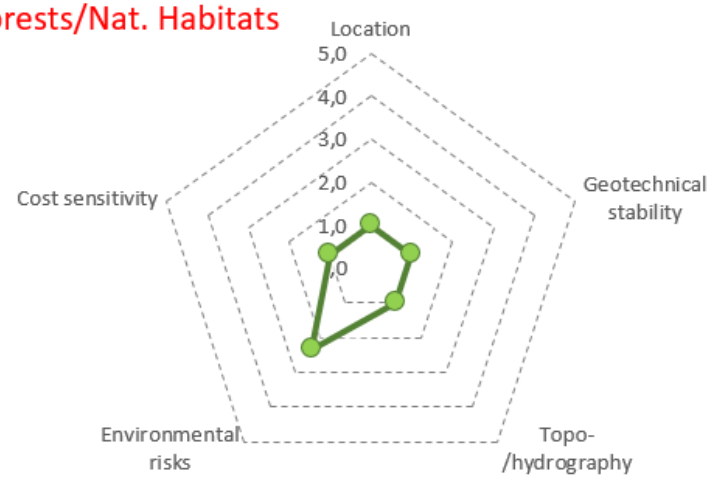
1. Stocktaking and site inventory
2. Clarification of the legal, regulatory and permitting situation
3. Site investigation and monitoring
4. **Land classification methodology – LURA**
5. Land repurposing master plan (LRMP)

Land Classification Methodology: What parameters are evaluated?

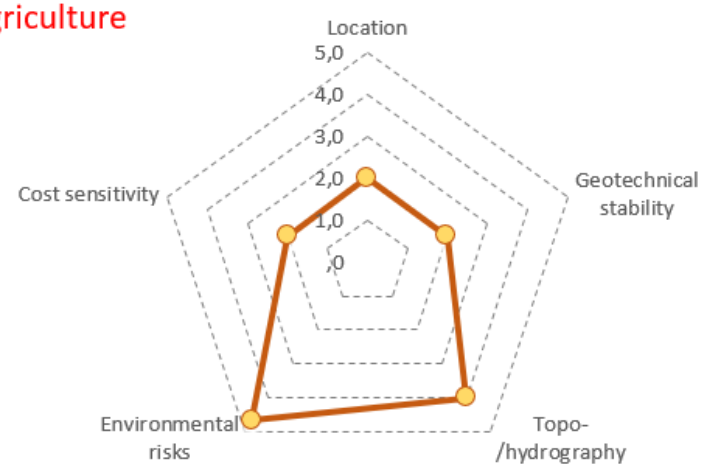
Land Classification Methodology:

- Intake of lands' bio-physical-chemical and socio-economic criteria regarding land repurposing potential
- Legacies and beneficial conditions, factually evaluated to rate parches of land for future land uses
- Using simple algorithms to define broad post-mining repurposing typologies and scenarios
- Including potential added value of lands
- Use LURA GIS application for land classification

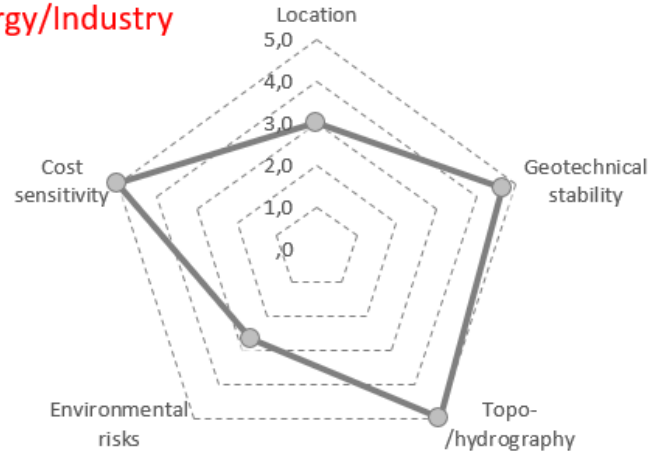
Forests/Nat. Habitats



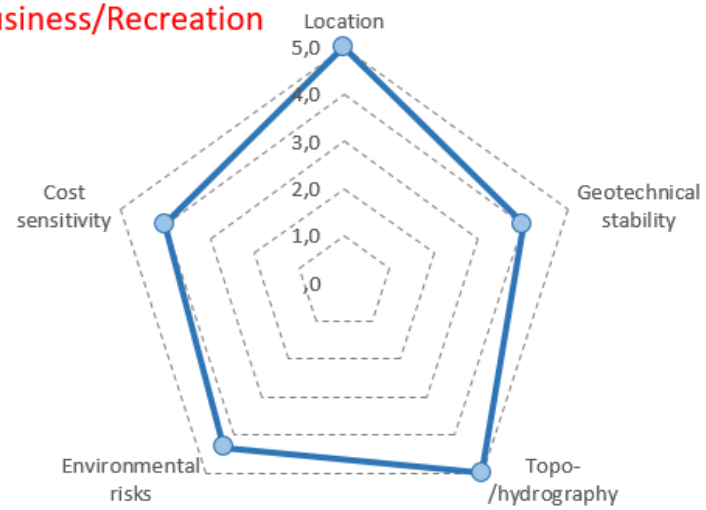
Agriculture



Energy/Industry



Business/Recreation



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Land Classification – LURA: Comparison of LURA output and PPC post mine planning

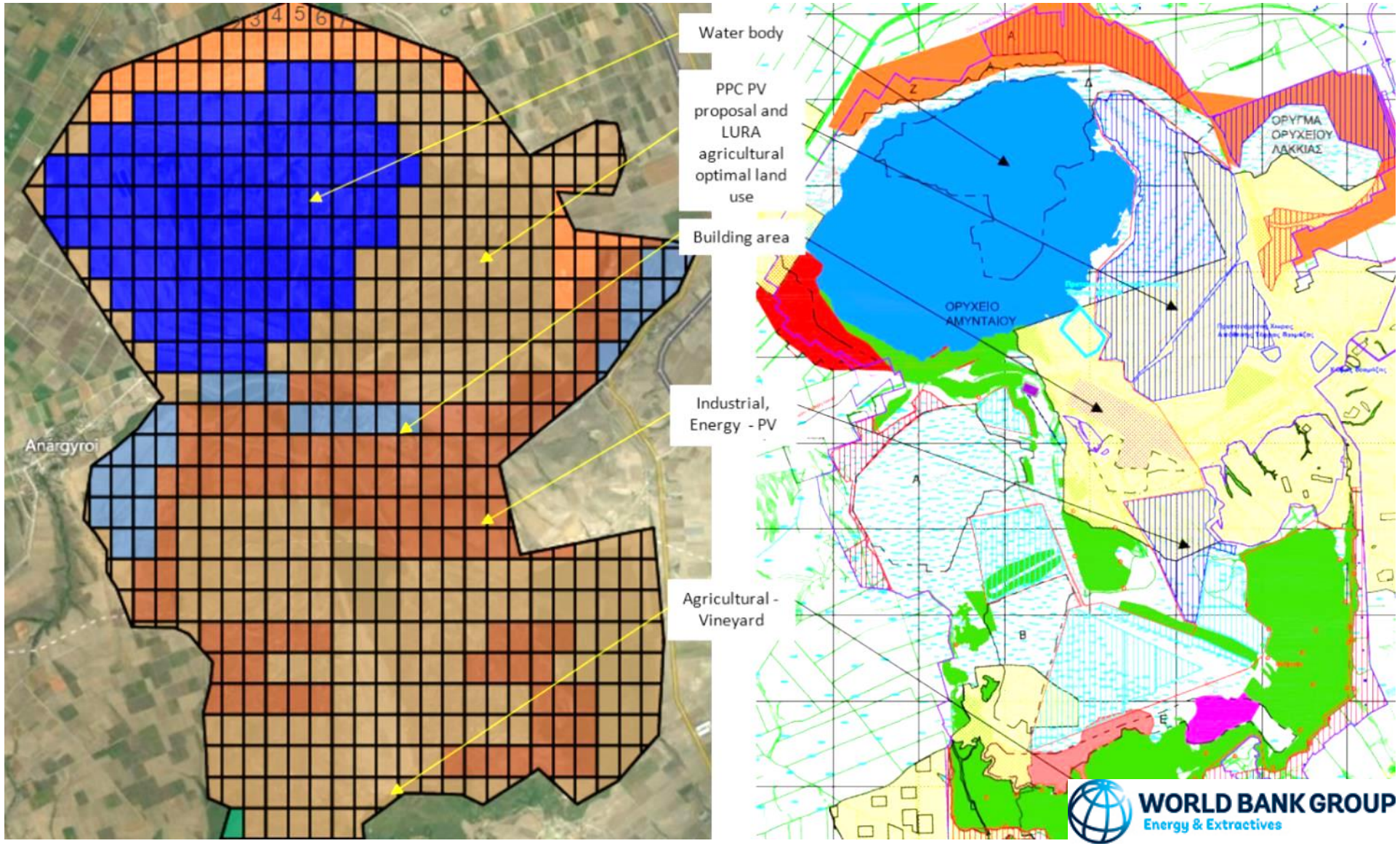
Utilization

- Forest, natural habitats
- Agriculture
- Industry, energy production
- Business, recreation, tourism
- Possible Water Body

Total

Unusable Category

- Archaeological interest areas
- Forest authority areas



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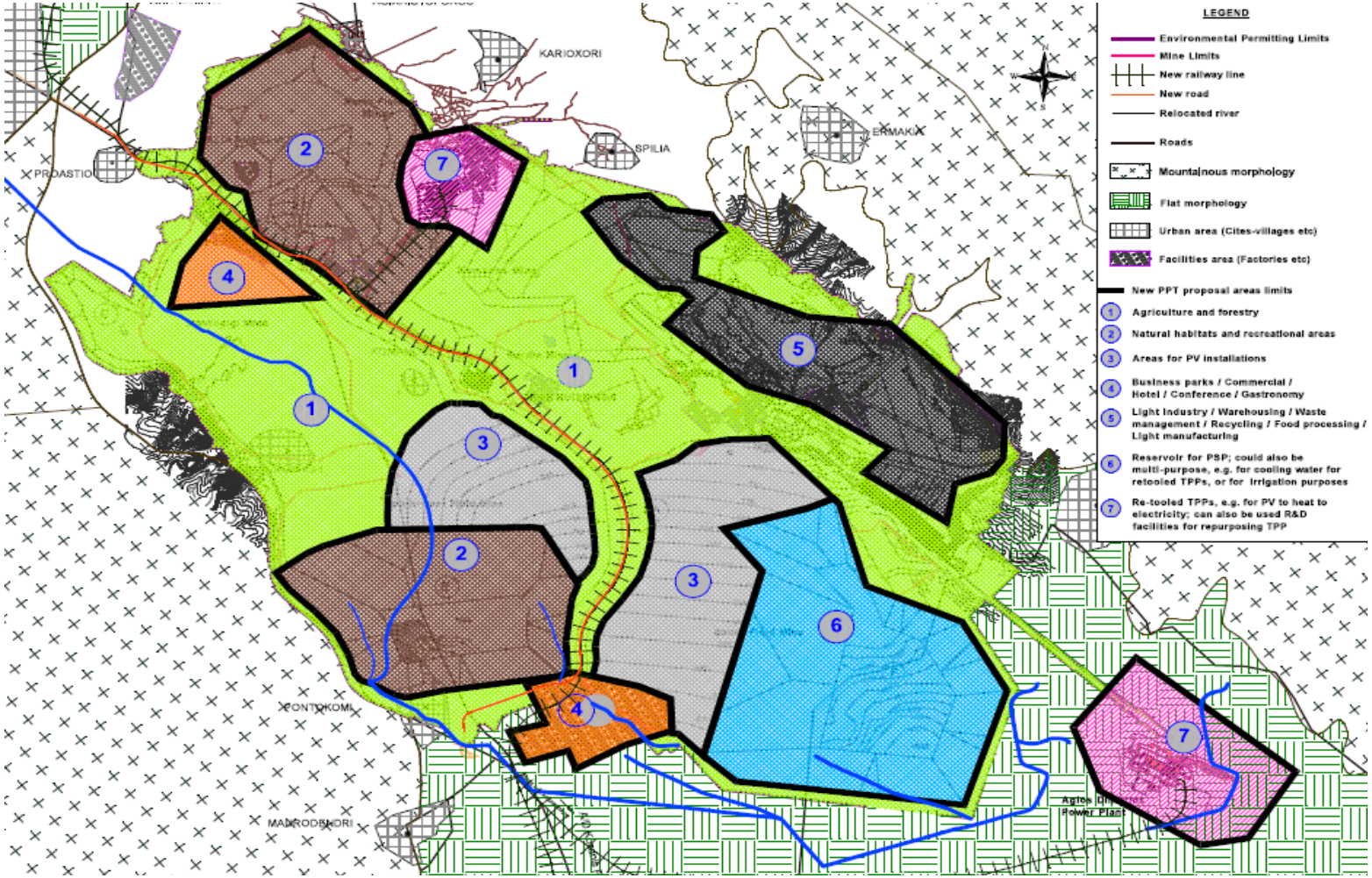
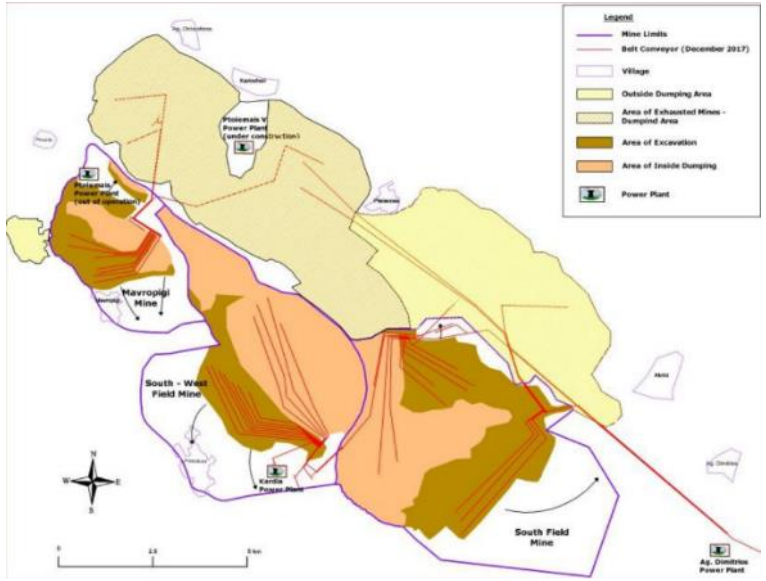
Regional transition: Classification system for land repurposing and planning

Illustrative example of land repurposing master plan (LRMP):



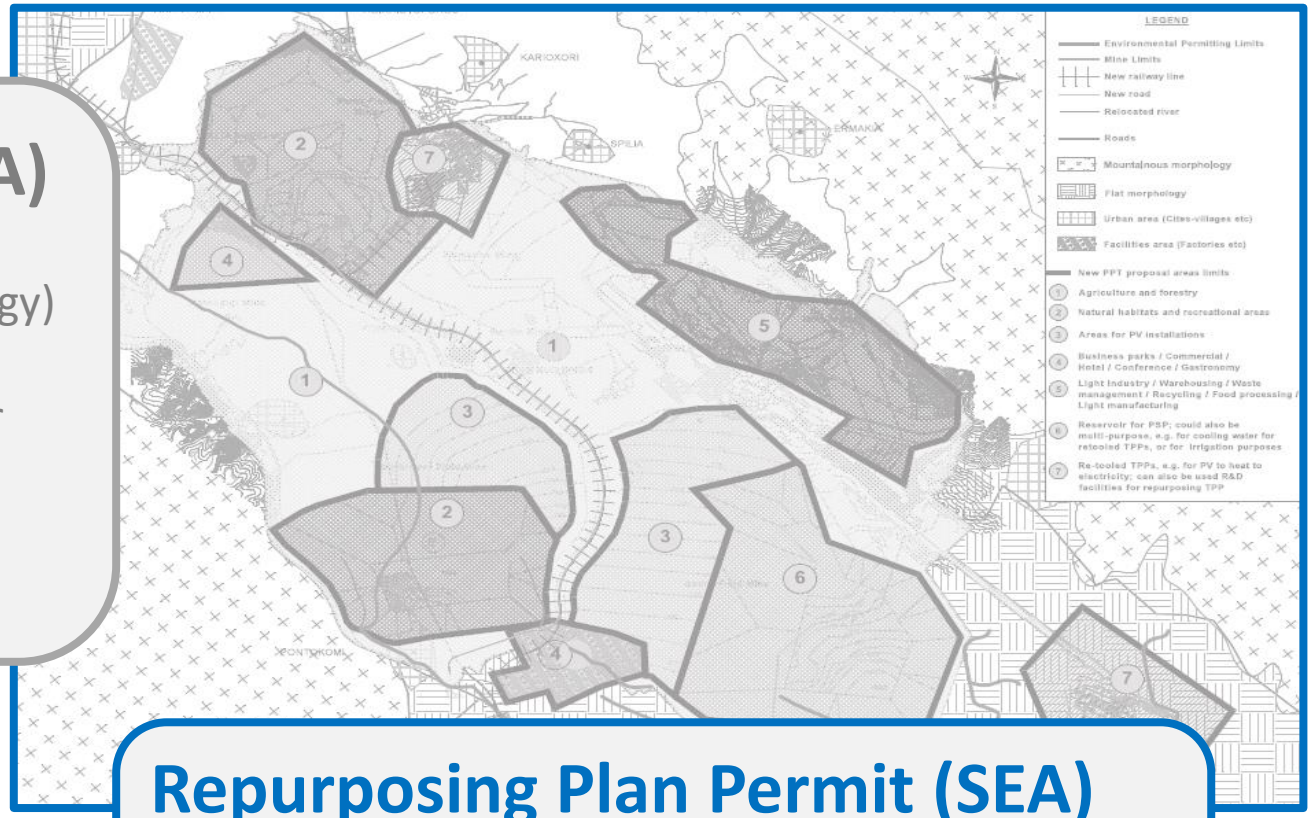


Regional Transition: Enabling Policy and Regulatory Framework

Vision for Environmental Permitting Structure:

ZONE Permit (ESIA)

- ✓ Land use (incl. forestry & archeology)
- ✓ Biodiversity impacts
- ✓ Impacts on natural water receptors
- ✓ Socio-economic
- ✓ RE installations



INDIVIDUAL Permit (ESMP)

- ✓ Waste production and emissions
- ✓ Water use and wastewater production
- ✓ Hazardous materials use / handling
- ✓ OHS, fire safety

Repurposing Plan Permit (SEA)

- ✓ Alignment with spatial planning frameworks
- ✓ Environmental / social sustainability of zoning
- ✓ Allowable use typologies

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A Rough Road Map to Repurposing of Lands and Assets

Theme ↓ / Phase →	Final phase of mine operation	Physical closure, dismantling of mine infrastructure	Reclamation and Repurposing	New post-mining land development and use
Physical closure, remediation and repurposing	Tune operations to facilitate closure; Plan final physical mine state at closure; Inventory equipment and staff to retain for closure	Finalize closure as per permit; Contain all risks and liabilities (geotechnical, env., methane…); Preserve key assets and infrastructure	Lands preparation of investments: reshaping, landscaping, placement of infrastructure, access, utilities; Establishment of protected areas, residual waterbodies, recreational areas and zones for agricultural / forestry activities; Realization of planned investments as per spatial plan and permits.	
Lands management and spatial planning	Analyze existing regional / local spatial plans, planning instruments, or initiatives to produce spatial plans; launch project in LURA; Review spatial status of mine lands	Produce conceptual spatial plan and link with existing regional / local spatial planning instruments; Analyze repurposing options (LURA); Define land use types and zones for post-mining lands and assets (LURA)	Produce strategic ES assessments to guide and facilitate sustainable economic development, balancing commercial areas with green zones for nature preservation, recreation etc.; Maintain land reserves for e.g. greening as compensation or offsets for greenfields investments off site; maintain and refine spatial plans.	
Legal and regulatory oversight	Prepare for obtaining closure permit, including env. measures; Check legal status of mine lands, as well as their post mining dedication & any restrictions	Review and approval of spatial and zoning plans; Enforcement of PPP; Enforcement of all closure obligations under permit.	Approval of rezoning and strategic ES assessments associated with the spatial reorganization; Notify of any restrictions in land use, e.g. strategic mineral reserves.	Create enabling regulatory conditions for investments, e.g. blanket environmental permits for designated commercial / industrial zones;
Strategic planning and financing	Plan legal succession to mine operator e.g. special purpose entity (SPE); Plan for hand-over of mine lands & assets to successor of mine operator.	Establish SPE or similar entity; Take over control over mines and assets; Commence comprehensive and integrative stakeholder engagement.	Analysis of post-mining development scenarios; Integrate considerations on jobs, social protection, environment, reutilization scenarios; Mobilize pub./priv financing.	Implement financial or material incentives, such as enabling investment facilitation services: access to suitable lands, financing, utilities and waste management, support with permitting.
Stakeholder engagement and consultations	Outreach to affected communities and other stakeholders on closure plans, timelines, and tentative repurposing plans.	Consultations on post mining spatial plans and land zoning proposals.	Surveys, consultations, outreach on expectations, preferences, ideas, input, demand for support in the context of lands repurposing and economic development.	Continued “open line” for stakeholder engagement and information sharing, for receiving input, questions and grievances.

Mine closure standards application

LURA deployment

SPE establishment

The Role of Land Repurposing

6 good reasons for land and assets repurposing planning:

1. Post mining lands have a **wide scope of properties** (topographic, hydrographic, geological, geotechnical, environmental, socio-geographic) to be considered.
2. Their **potential added value** through repurposing can differ by orders of magnitude.
3. Post-mining lands may be **optimally suitable for very different purposes**.
4. Repurposing assessments and spatial planning **support the strategic planning of regional economic transition**, and inform other planning processes such as TJTPs.
5. Availability of spatial information **supports setting sectoral focus** for post-mining development and the corresponding re-skilling and re-training approach.
6. **Land availability is often a constraint**; in combination with enabling regulation post mining lands van constitute **highly attractive investment space**.

THANK YOU

FOR MORE INFORMATION, PLEASE CONTACT:

Wolfhart Pohl| wpohl@worldbank.org
Chrys Steiakakis| c.steiakakis@geosysta.com
Rachel Perks| rperks@worldbank.org
Magdalena Chawula Kosuri | mchawulakosuri@worldbank.org