

Just Transition: An Opportunity for Transformation of Energy Supply

How can we get it right?

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The World Bank View of Just Transition

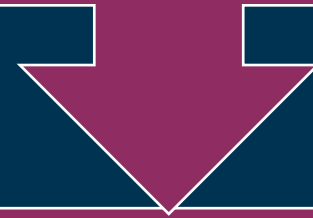
- A 3x3 matrix describes the framework of the World Bank approach to a just transition.
- Three pillars underpin a just transition: institutional governance, people and communities and environmental reclamation and repurposing land and assets
- Phases of transition are broken into pre-closure, closure and post closure/transition of the region.

	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 macro-economic & socio-economic transformations	Pre-layoff social protection assessments & planning, labor profiles, user-needs	Assessing land & assets, preparing for reclamation and re-purposing, resourcing ENV remediation costs	Grants, Reimbursable Advisory Services (RAS), and initial MPA or small IPF concessional lending
Phase 2: Closure 2+ years	Coordinating closure /decommissioning activities between enterprise and agencies	Social assistance to workers & communities, re-skilling, Active Labor Market Policies	Implementation of appropriate technical standards, transfer of assets, mitigation of methane	Grants, RAS, MPA including other MDBs and/or bilateral development agencies
Phase 3: Regional Transition 10+ years	Special Purpose Entity coordinating transition project implementation, managing funding sources	Longer term re-skilling, education, Active Labor Market policies, preparing workers for Future Jobs	ENV remediation of select land & assets by private / public sector, re-permitting and repurposing for private investors to sustain regional transformation	Grants, MPA including other MDBs and/or bilateral development agencies, NGOs, private sector

Post-mine closure is an opportune time for re-invention



Regulations governing reclamation of mined land and compliance vary across the UNECE region, but many regulations are aimed at restoring land to approximate its pre-mining state



Higher uses may be determined, but the legal framework for surface and subsurface ownership may have to be amended in some venues to allow repurposing and conveyance of surface and mineral titles for sale or leasing





Planning is the key to a post mining strategy

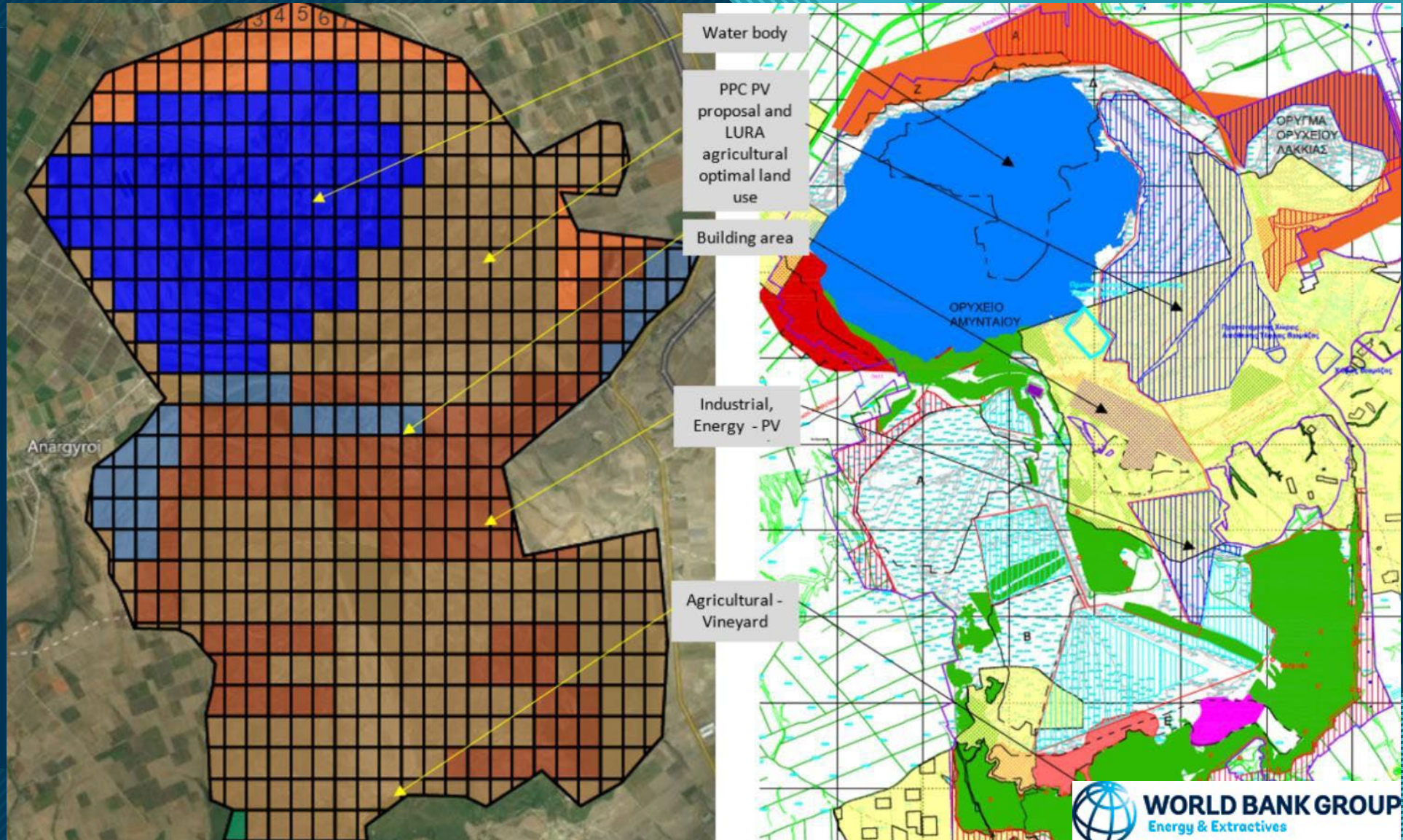
- Many mines are closed each year that have little or no preparation for closure other than what is mandated by law
- Reclamation is usually dependent upon bonded funds that were established prior to mining—but in many jurisdictions this is insufficient or no longer available
- Mines may be required to have updated mine closure plans, but the coal mine operator is not required to fund land repurposing after reclamation is completed.
- Renewable energy installations at coal mines are commonly financed by energy developers which may be the former operator of the mine, but commonly is an unassociated third party
- Mine operations planning and closure planning which consider repurposing could make integration of options more cost effective

Benefits of RE Installations on Repurposed Mined Land

- Electricity production from RE on reclaimed and repurposed mined land can:
 - Use mine's sub-stations for grid connection—often a huge economic saving
 - Supply clean energy to the post-mining community—open cast mines are being used for massive new installations
 - Use otherwise fugitive methane to produce electricity to local grid - supplanting power from abandoned mine methane (AMM) as the gas resource declines with RE—making an eventual transition to green power
 - Store energy using underground mine infrastructure and void space for pumped hydro storage, use molten salt for thermal storage for later conversion to electricity or direct use, or gravity to move heavy weights which will release kinetic energy by being dropped into the mine void.

The World Bank's Land Use Repurposing Application is free for public use

Utilization	
	Forest, natural habitats
	Agriculture
	Industry, energy production
	Business, recreation, tourism
	Possible Water Body
Total	
Unusable Category	
	Archaeological interest areas
	Forest authority areas



PV installations are the most common choice for RE—but many configurations are possible



Aquaculture and PV



PV panels on mining benches



Active mine with an RE future?

The Group of Experts on Coal Mine Methane and Just Transition has ongoing activities that

- The GoE is working to close the gap between knowledge of coal mine closure and practice through its Task Forces:
 - Methane Emissions Reductions
 - Safe Operation and Closure of Coal Mines
 - Just Transition
- International Centers of Excellence in Poland and China are conduits for application of best practices in the field
- The GoE and the Secretariat are using using RPTC funds in Albania to examine the opportunities for coal mine repurposing and energy transition

We need your help!

- Our group is diverse, and our mandate is clear
- Cooperation among our expert groups could yield exciting results
- Energy transition, job creation and innovation are all needed to provide a just and equitable transition for workers and to safeguard energy resiliency
- Let's work together!

Thank you!

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