

Technology Fact Sheet for Mitigation

F. Hydro power¹

Sector: Energy	
Subsector: Power	
Technology characteristics	
Introduction	To generate electricity by making use of water downfalls.
Technology characteristics/highlights	<ul style="list-style-type: none"> • Well established for a long time. • Clean with no fuel combustion. • AC generators, driven by waterfalls through water turbines, will generate electricity, which is then connected via transformers to the national grid. • Renewable.
Institutional and organizational requirements	Existing regulations and expertise are sufficient. MOEW policy paper lists hydro power on the expansion and rehabilitation plans.
Operation and maintenance	Lower maintenance requirements compared to thermal power plants.
Endorsement by experts	Well endorsed locally and globally
Adequacy for current climate	No consequences on the current climate as long as water resources are abundant.
Scale/Size of beneficiaries group	The national grid will benefit from additional clean, combustion-free plants.
Disadvantages	Low load factor, operable only during rainy seasons.
Capital costs	
Cost to implement mitigation technology	USD 5,800/kW
<u>Additional</u> cost implement mitigation technology, compared to “business as usual”	USD 4,800/kW
Development impacts, direct and indirect benefits	
Direct benefits	<ul style="list-style-type: none"> • Fuel diversification. • Less power shedding. • GHG emissions reduction.
Economic benefits, indirect	On the generation side, similar job description to that of thermal power plants. On the hydro side, soMoEWhat expertise in civil and structural works will be needed.
Social benefits, indirect	<ul style="list-style-type: none"> • Diversifying fuel resources. • New jobs.
Environmental benefits, indirect	Clean generation and less GHG emissions from the national power sector.

Local context	
Opportunities and Barriers	<ul style="list-style-type: none"> • High capital cost associated with lands acquiring and dams and tunnels construction. • Low load factor.
Market potential	No potential for the private sector.
Status	To cover base loads when operating.
Timeframe	Medium to long term.
Acceptability to local stakeholders	Acceptable due to the success of existing plants, and the need to manage the water sector in a more beneficial manner.

ⁱ **This fact sheet has been extracted from TNA Report – Technology Needs Assessment Reports For Climate Change Mitigation – Lebanon. You can access the complete report from the TNA project website <http://tech-action.org/>**