Traditional Chulha vs Biomass Cookstoves vs LPG

Prelims: *Current events of national importance | Energy*

Why in News?

Due to the LPG crisis, rural households are reverting to firewood. Modern biomass cookstoves Improved Cookstoves (ICS) are being promoted as cleaner, cheaper alternatives.

Feature	Traditional Chulha	Improved Biomass Cookstove (ICS)	LPG Stove
Definition	A mud or brick-based open fire cooking stove commonly used in rural India	A modern firewood-based stove designed with better airflow and combustion technology.	A modern firewood-based stove designed with better airflow and combustion technology.
Thermal Efficiency	0%	38–45%	60%
Fuel Use	High, wastes heat	Cuts fuel use by up to 2/3	Efficient, but costly fuel
Smoke & Pollution	Heavy smoke, indoor air pollution	Secondary aeration reduces soot & harmful gases	Clean combustion, negligible smoke
Health Impact	Respiratory hazards, drudgery for women	Cleaner combustion, less smoke exposure	Safe, minimal indoor pollution
Fuel Cost	Often scavenged; bought Rs.10/kg	Same firewood but reduced consumption; pellets/briquettes possible	More than Rs.100/kg (commercial LPG rates)
Energy Equivalence	4 kg firewood is equivalent to 1 kg LPG (low efficiency)	4 kg firewood equivalent to 1 kg LPG (in ICS)	

Feature	Traditional Chulha	Improved Biomass Cookstove (ICS)	LPG Stove
Savings	None; high consumption	More than 50% reduction in firewood use; 60% cheaper than LPG	Expensive during crisis
Upfront Cost	Negligible (mud stove)	Household Improved Cookstoves less than Rs.2,000; commercial greater than Rs. 20,000	Stove cost moderate; cylinder deposit required
Sustainability	Unsustainable if extraction is greater than regrowth	Sustainable if managed; alternative fuels (pellets, agri-waste)	Fossil fuel, non-renewable
Supply Chain Needs	Local firewood collection	Local distribution + awareness + after-sales support	Centralised LPG distribution network

Reference

The Hindu | Biomass Cookstoves