



Doing Business in Ethiopia

Market & Opportunity for wind

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GE Renewable Energy, Sub-Saharan Africa

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installed

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countries

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Ethiopia



Ethiopia at a glance

Intro



- Addis Ababa is home to HQs of the African Union, UN Economic Commission of Africa (UN-ECA) and over 118 diplomatic missions
- One of the largest countries in the World #27 Africa #8
- Africa's sixth-largest economy and second-most populous nation - 95 million people
- Ethiopian Airlines is the biggest and most profitable airline in Africa. 100% managed by Ethiopians
- Second largest flower exporter in Africa after Kenya
- At 6,000 MW, the Grand Renaissance dam will be the largest hydroelectric power plant in Africa when completed, and the eighth largest in the world.
- #1 Coffee exporter in Africa

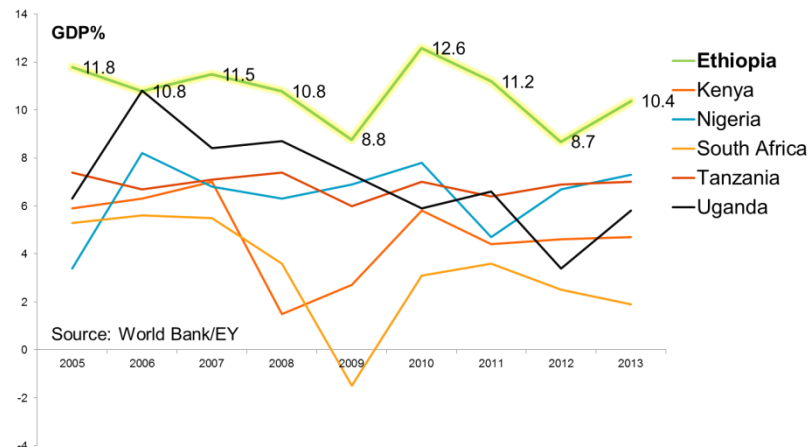


Ethiopia Market Overview

Economic & Political

- **One of the fastest growing economies in Africa and the world**

- Decade average annual GDP growth rate of 10.9%
- Stabilized inflation - 7.9% - tight fiscal/monetary policies
- Ranked top 10 in improved life expectancy at birth, education, and GNI Per Capita
- Agriculture, industry & services contributed 38.2%, 15.2% & 46.6%, respectively, to GDP in 2014/2015



- **Relatively stable political environment with EPRDF expected to remain dominant**

- EPRDF in power since 1991 - won 91% of seats in last election; May 2015. Next election in 2020
- Facing increasing ethnic tensions specifically from the Oromo who claim political & economic marginalization
- Faces terrorist threats from Al-Shaabab but has robust military and counterterrorism forces

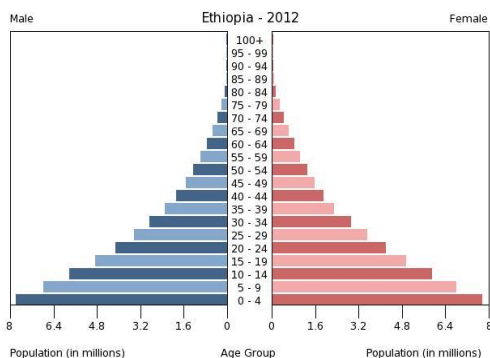


Ethiopia Market Overview

Comparative Advantages & Trade

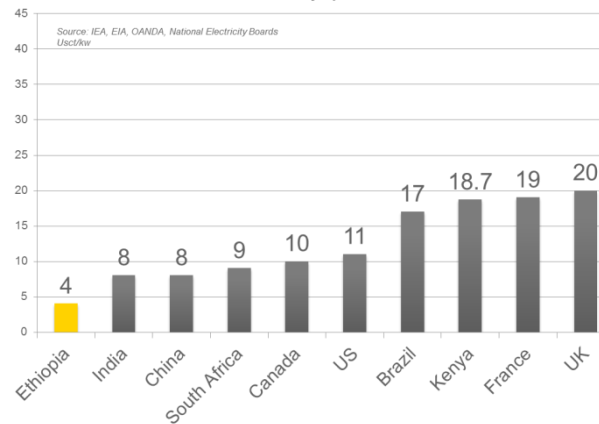
- **Strong comparative advantages however faces a growing trade deficit**
 - Demographics – large young population: media age under 20 with steadily increasing life expectancy; 63yrs
 - Factors of production in Ethiopia such as land, labor, and energy costs are comparatively low vs other cys
 - Ethiopia's debut credit rating (May 2014) B/B/B+ in-line with comparative African economies
 - 2014/15 total imports at \$16.5B: 42% capital goods and 27% consumer goods. These came from Asia -70% and Europe 20%. China accounted for 38%, followed by India 7%
 - \$3.1B total exports which incl. coffee 26%, oil seeds 17%, gold 11%, chat 9%, flowers 7%. Main export destinations are Asia 38%, Europe 33% and Africa 20%

Youthful Demographics



Countries	Standard & Poor's	Moody's	Fitch
Angola	BB-	BB-	Ba3
Ethiopia	B	B	B+
Ghana	B+	--	B+
Kenya	BB-	--	BB-
South Africa	BBB+	BBB	Baa1

Electricity prices

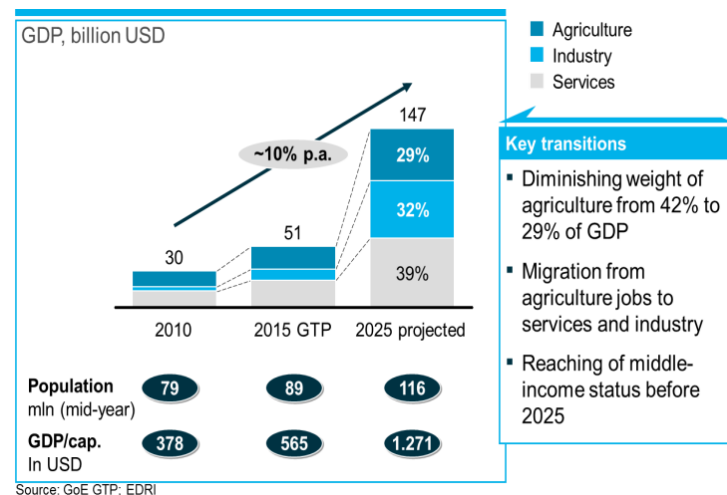


Ethiopia Market Overview

Development Plan & Growth Strategy

- **Ethiopia's economic development vision is captured in the GOE's 5-yr Growth and Transformation Plan (GTP)**

- GTP I – 2010/15: attain MDGs, sustain rapid, broad-based & equitable economic growth to eradicate poverty
- GTP II – 2015/20: 11% real GDP growth rate, rapid industrialization & structural transformation
- Shift from agrarian economy to manufacturing & services
- improve trade balances and increase foreign exchange reserves

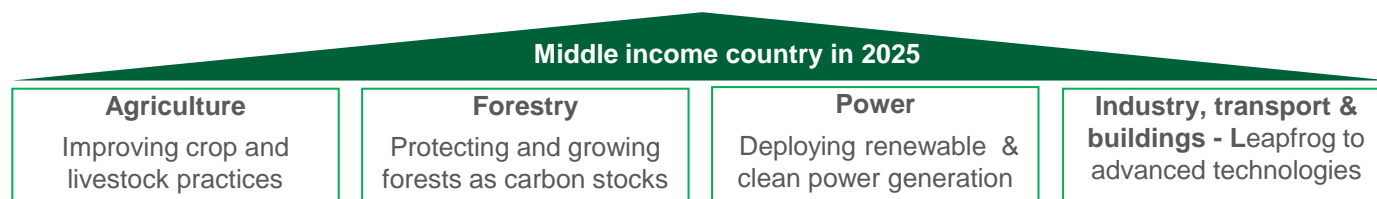


Ethiopia Market Overview

Development Plan & Growth Strategy

- **GOE is committed to building a climate change-resilient green economy and reaching middle income status by 2025**

- The challenge: To achieve economic development goals in a sustainable way
- The plan: To follow a green growth path that fosters development and sustainability based on four pillars:



- **The GOE is engaged in massive infrastructure expansion projects across the full value chain**

- Quadrupling power 2GW to 8GW (2020), 132,500km new Transmission & Distribution lines
- Constructing 2,395km of rail, 10,000km of new roads
- Spending \$12B over 25yrs to be biggest energy exporter in Africa
- \$2.8B in HC investments, met MDGs, building 800 hospitals



Ethiopia Market Overview

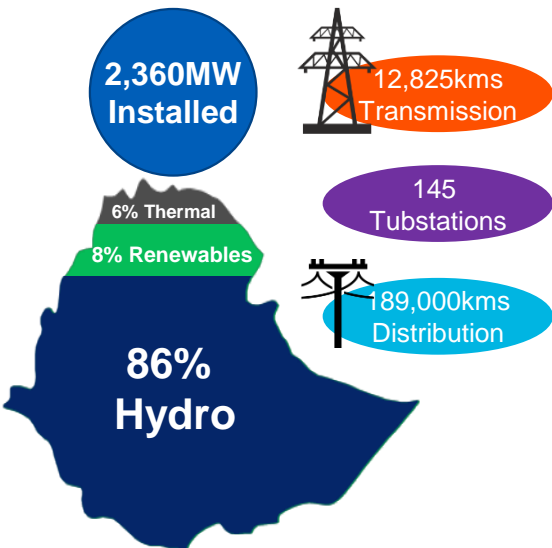
Operating Environment

- **The private sector is expected to play an increased role in the economy, though government investment will remain strong**
 - The GOE has investment incentives aimed at attracting FDI, particularly export-oriented investment projects
 - On April 5, 2016, the Ethiopian Parliament approved Ethiopia's membership to the African Trade Insurance Agency (ATI) which covers political and trade risks
 - Chinese companies, supported by Chinese export trade and project finance agencies, are aggressively in infrastructure, construction and textile sectors
 - Indian and Saudi Arabian firms are mainly involved in agricultural
 - Dutch companies play a prominent role in the floricultural industry
 - Turkish companies increasingly engaged in manufacturing, textiles and construction



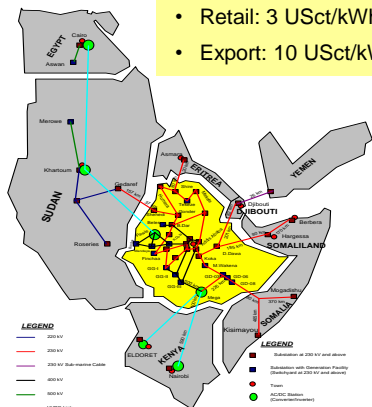
Ethiopian Energy Sector Overview

Current Status

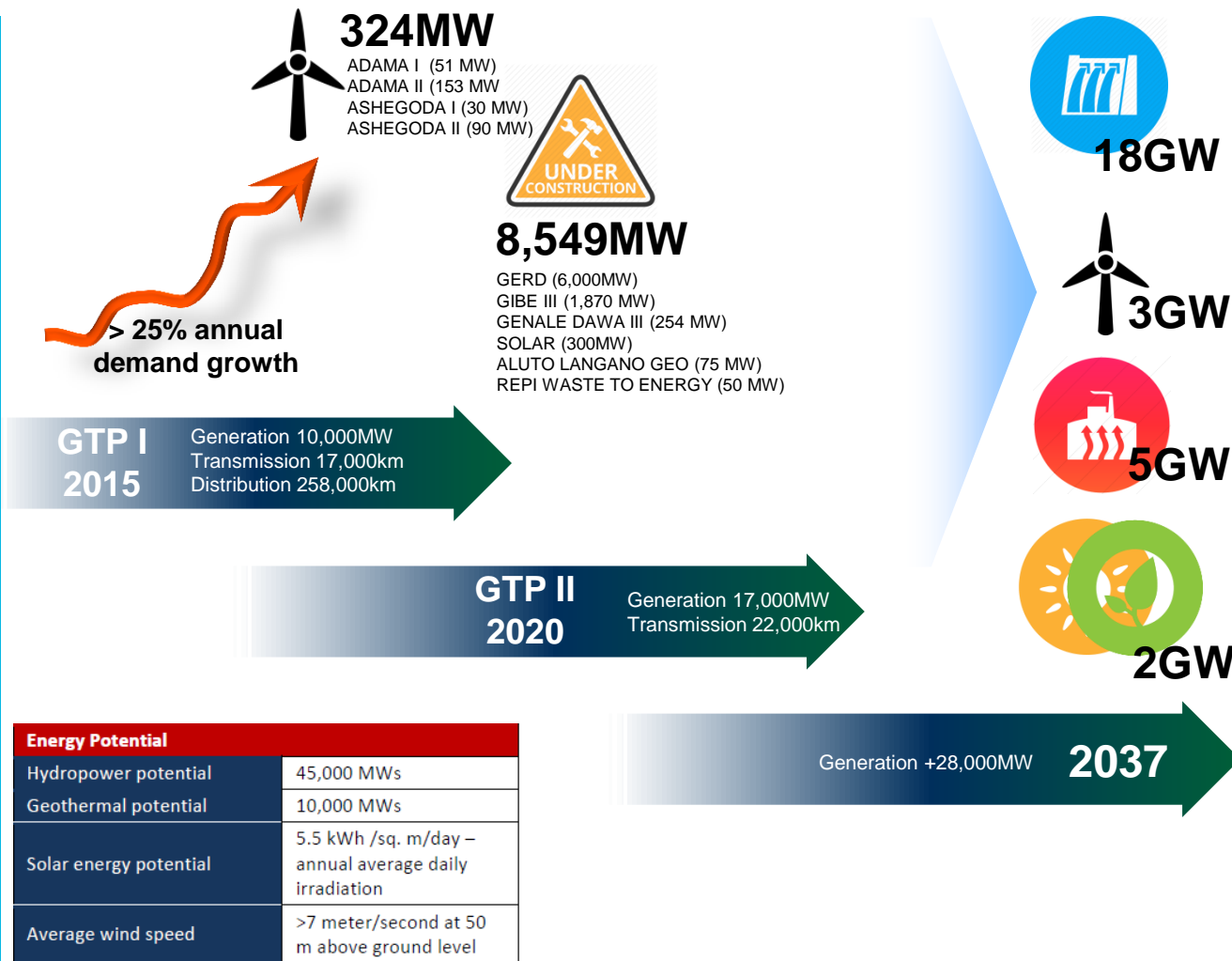


Tariffs:

- Retail: 3 USct/kWh
- Export: 10 USct/kWh



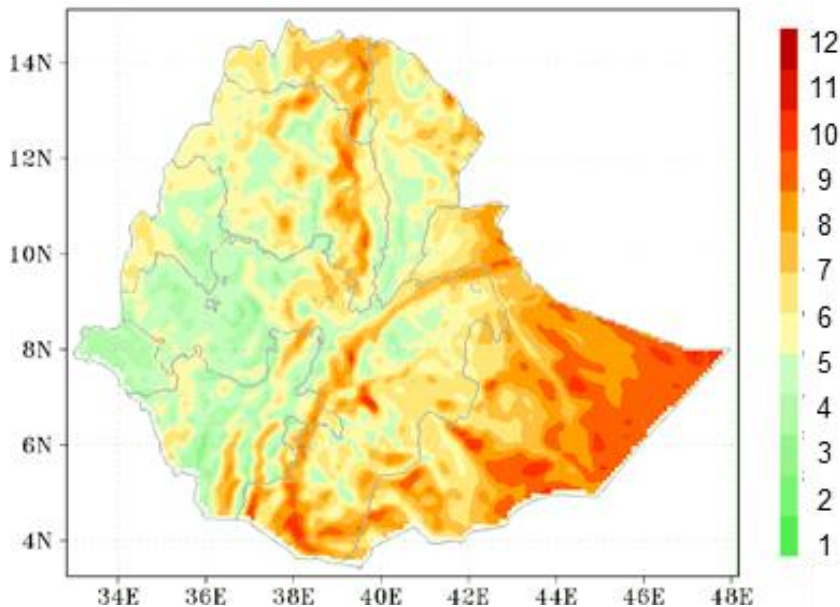
Power Sector Development Plan



Ethiopian Energy Sector Overview

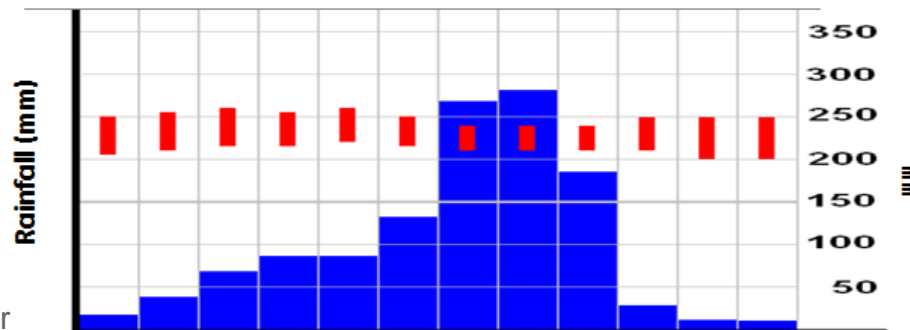
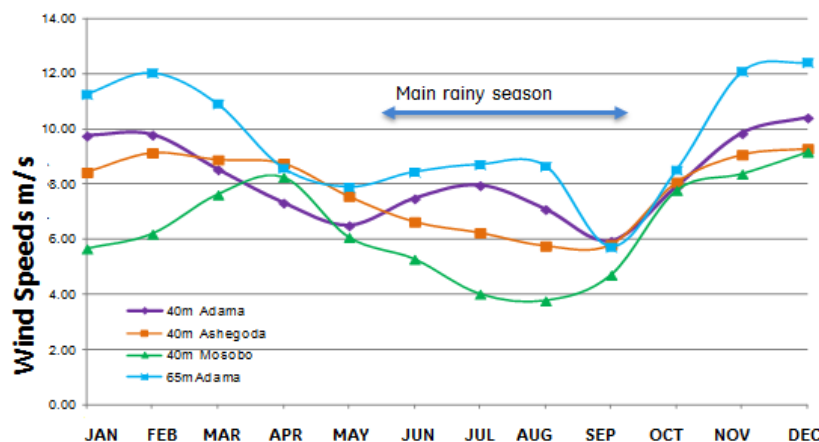
Wind Potential

Distribution of Average Wind Speed, m/s (Height: 50m, 1980~2009)



- Good sites with av. speed >7m/s
- Central N-S axis, East central region
- Lower altitude sites with greater air density hence greater power extracted from the air – i.e. Aysha area
- Complex topography causes turbulent flows and makes it difficult to use approximations for wind speed data
- Ogaden remote from transmission & security issues

Wind Speed Monthly Variation from 4 data loggers



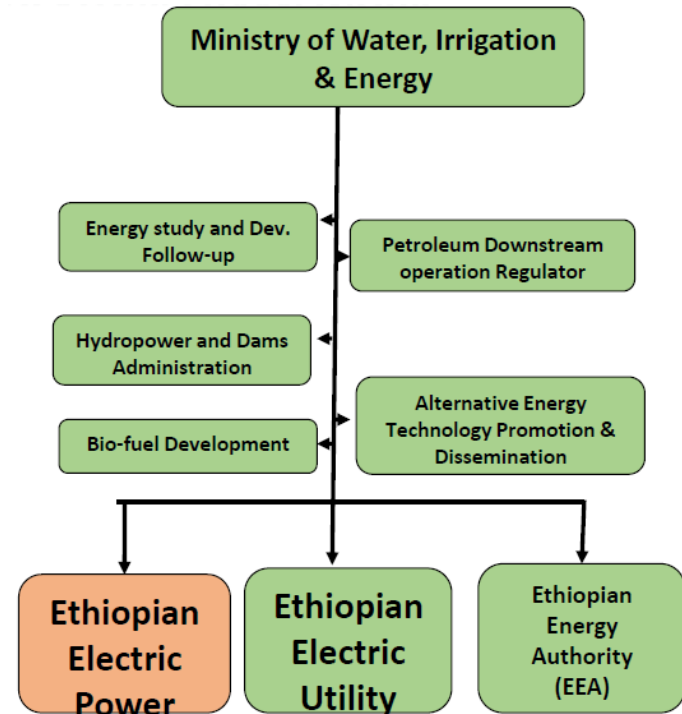
Ethiopia Rainfall Graph



Ethiopian Energy Sector Overview

Institutional and Regulatory Framework

- **Ministry of Water Irrigation & Energy (MoWIE)**
 - is the lead institution for the Energy Sector
- **It supervises Three Institutions:**
 - ↳ **Ethiopian Electric Power (EEP):** Generation & Transmission Construction and Operation, Universal Electric Access Program, Power Export
 - ↳ **Ethiopian Electric Utility (EEU):** Distribution, Sales
 - ↳ **Ethiopian Energy Authority:** Regulatory body for electricity and energy efficiency
- **Its responsibilities fall into Three Broad Categories:**
 - Resource assessment and development,
 - Policy and regulatory, and
 - R&D



Ethiopian Energy Sector Overview

Energy Sector Policy

- **The Energy policy envisages to meet the following broad objectives:**
 - Increase access to affordable and adequate clean energy; follow climate resilient green economy strategy
 - Considers Hydropower as the backbone of the country's energy generation and maximize its utilization
 - Improve security and reliability of energy supply and be a regional hub for renewable energy.
 - Drive capacity building and technology transfer
 - Strengthen cross boarder energy trade, exchange of know-how, information and transfer of technologies
 - Strengthen energy sector governance, institutions, systems and operations
 - Ensure environmental, social safety and gender equity
 - Strengthen energy sector financing.
 - Explore for natural gas and other hydrocarbon fuels
 - Encourage Public-Private Partnership in energy generation



Ethiopian Energy Sector Overview

Private Sector Participation

- **Based on the Energy policy, emphasis is being placed on creating an enabling environment for both Public and Private investors**
 - Focus on encouraging private sector participation either in partnership with Public or independently without any limitation of generation capacity
 - The public sector expected to play significant role in power sector development
 - Positive steps - PPA signed for the first Geothermal IPP for 1000 MW generation at Corbetti with Icelandic-Reykjavik Geothermal Company
 - Power Africa technical adviser in place to establish operating framework



Ethiopia Market Challenges

Barriers to Market Entry and Local Requirements

- **The gov't is engaged in slow economic reform and liberalization, and the state remains heavily involved in most economic sectors.**
 - Highly agriculture reliant; limited incentives to SMEs & local manufacturing
 - Limited access to finance, difficulty in processing Letters of Credit (LOC) and Forex shortages
 - Electricity demand continues to outpace supply as new hydropower dams struggle to produce at full capacity
 - Power transmission lines and distribution facilities are either insufficient or require replacement
 - Slow transition to IPP agreements, PPA frameworks for geothermal, solar, wind and biomass
 - Extreme weather and drought continue to drive down growth and increase inflation.
 - Downturn in the global economy impacting demand and price of Ethiopia's primary export commodities
 - Government procedures and paperwork are usually bureaucratic and time-consuming
 - Ethiopia's judicial system is poorly staffed and inexperienced, particularly with respect to commercial disputes
 - Semi-skilled workforce; emphasis on engineers & technical education
 - Land use allocation, compensation, and relocation poses significant issues



Ethiopia Market Opportunities

Best prospects

- **Strong commercial opportunities in agriculture, infrastructure, energy, aviation, healthcare, and tourism**
 - Ethiopia is endowed with abundant agricultural resources and has diverse ecological zones for agricultural production and agro processing exports, partnership, and direct investments.
 - Significant investment in large social and economic infrastructure projects, including power generation, industrial zones and parks, housing construction, water and irrigation, roads and railways, airports and dry ports, telecommunication and internet networks as well as sugar and fertilizer factories.
 - Energy is the most significant sectors for Ethiopia's economic growth and development. The GTP II targets an increase in power generation capacity from its current 2,300MW to over 17,000MW by 2020.
 - The GOE has recently issued tenders for several renewable energy projects with the tender evaluation process focused on quality and project experience.
 - Incentives available for priority export sectors, particularly in power, textiles, garments, leather, horticulture/floriculture and agro processing



