



UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION



FEDERAL DEMOCRATIC REPUBLIC OF ETHIOPIA
MINISTRY OF INDUSTRY



LEATHER INDUSTRY DEVELOPMENT INSTITUTE



MODJO LEATHER CITY
AN INCLUSIVE AND SUSTAINABLE LEATHER DISTRICT

INCLUSIVE AND SUSTAINABLE INDUSTRIAL DEVELOPMENT





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The Modjo Leather City’s Feasibility Study has been prepared by a JOINT TECHNICAL TEAM (JTT) composed of:

UNIDO – United Nations Industrial Development Organization

LIDI – Leather Industry Development Institute in cooperation with the Addis Ababa University (AAU)

The JTT has operated under the supervision of the Ministry of Industry of the FDR of Ethiopia.

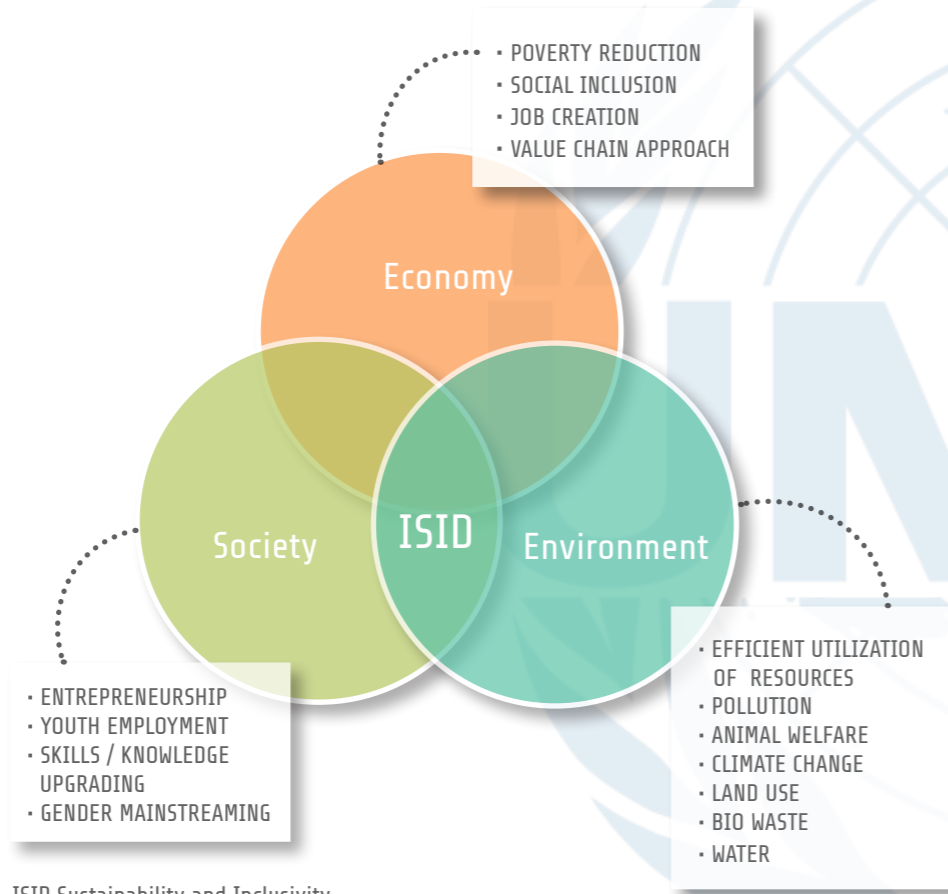
0n INTRODUCTION

ISID INCLUSIVE AND SUSTAINABLE INDUSTRIAL DEVELOPMENT

The Lima Declaration, adopted by UNIDO's Member States in December 2013, set the foundation for a new vision of inclusive and sustainable industrial development (ISID) and highlighted the role of industrialization as a driver for development.

In light of the renewed mandate given to both UNIDO and the United Nations as a whole, the Organization's programmatic focus is accordingly structured in three main fields of activity, each of which represents different aspects of ISID: creating shared prosperity, advancing economic competitiveness and safeguarding the environment.

ISID Sustainability and Inclusivity



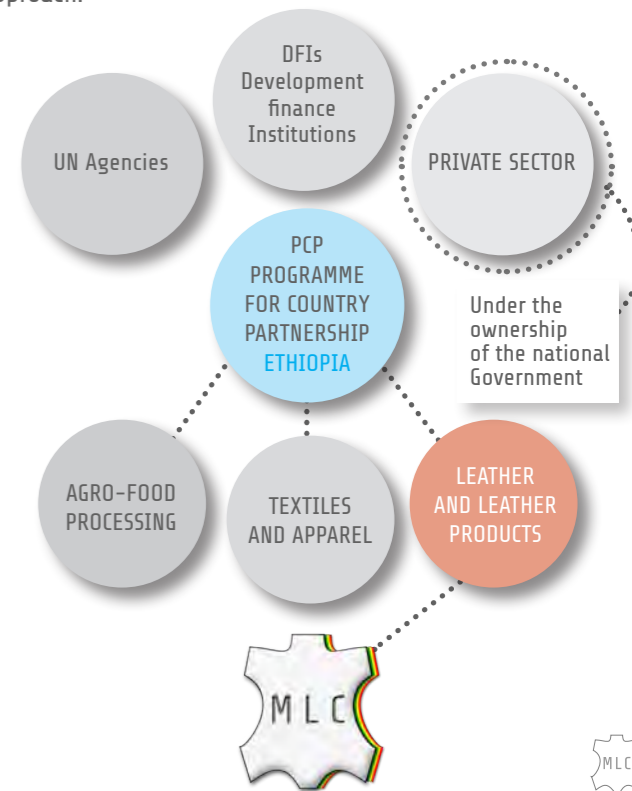
UNIDO'S VISION AT A GLANCE

ISID enhances and reinforces economic growth and diversification in a socially inclusive and environmentally sound manner, guided by four overarching principles:



Programme for Country Partnership (PCP) - ETHIOPIA

In order to operationalize the partnership approach, UNIDO developed a new type of assistance package for its Member States: the Programme for Country Partnership (PCP). PCP is a custom-built partnership formula with each beneficiary Country maintaining ownership of the complete process. Ethiopia has been selected as one of the pilot countries to apply this new approach.

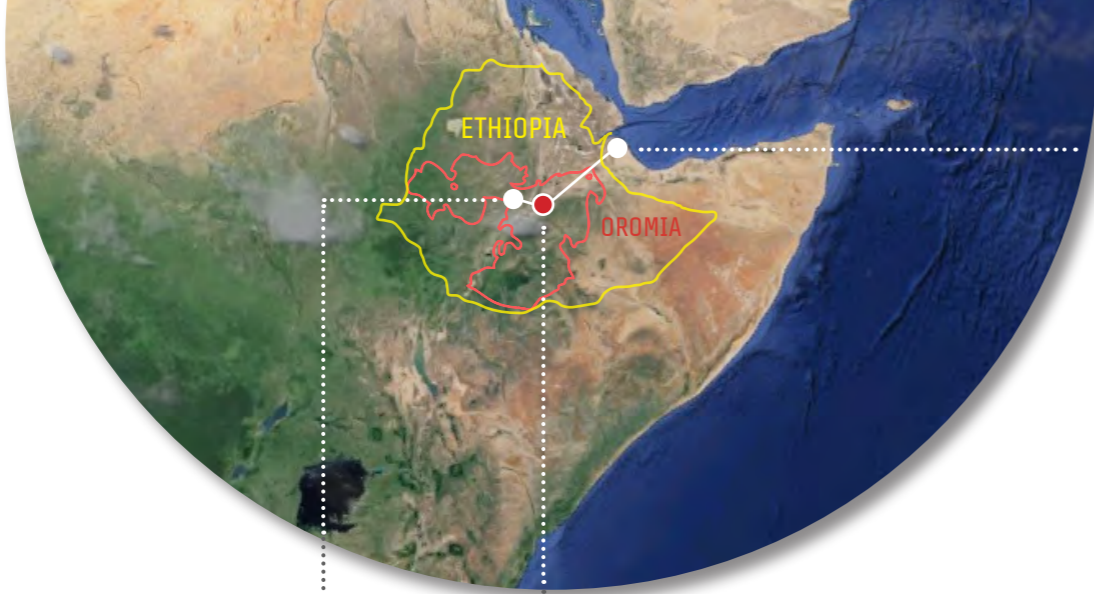


01 INTRODUCTION

WHY ETHIOPIA? WHY MODJO?

The Ethiopian leather industry enjoys significant comparative advantages. Indeed Ethiopia has one of the world largest livestock population making the country ranking the 1st in Africa. Twenty-nine tanneries are processing and producing finished leather in different sites with a total of installed capacity of 500 million square feet per year.

About 48% of the existing tanneries in Ethiopia are operating in Oromia region, due to availability of raw materials and water supply as well as skilled manpower generated from a long leather processing tradition in the area. However, the impact of the pollution caused by tanning operations, has created many environmental and social problems due to the proximity of the Modjo urban area.



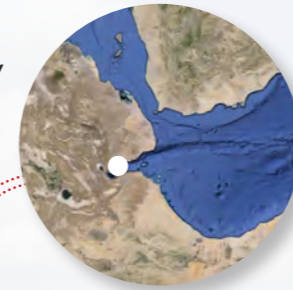
ADDIS ABABA CITY



MODJO CITY



DJIBOUTI CITY



The city of Modjo is located in a strategic position well connected to the main roads to Addis Ababa and Djibouti port as well as to the railway currently under construction.



ACTUAL PLANNING AND ENVIRONMENTAL CONTEST

THE PROBLEM

The tanning process is characterized by the production of solid, liquid, gaseous wastes and sludge which are discharged most of the time into the environment. The absence of a proper urban planning for the tanneries in Ethiopia has created many difficulties in monitoring as well as in mitigating the generated pollution, especially considering that they are located in different parts of the country.

The pollution problems created from tanning activities require an urgent solution that looks at a proper urban planning for the relocation of the existing tanneries operating in urban areas.

Actual planning and ecological contest: environmental pollution

02

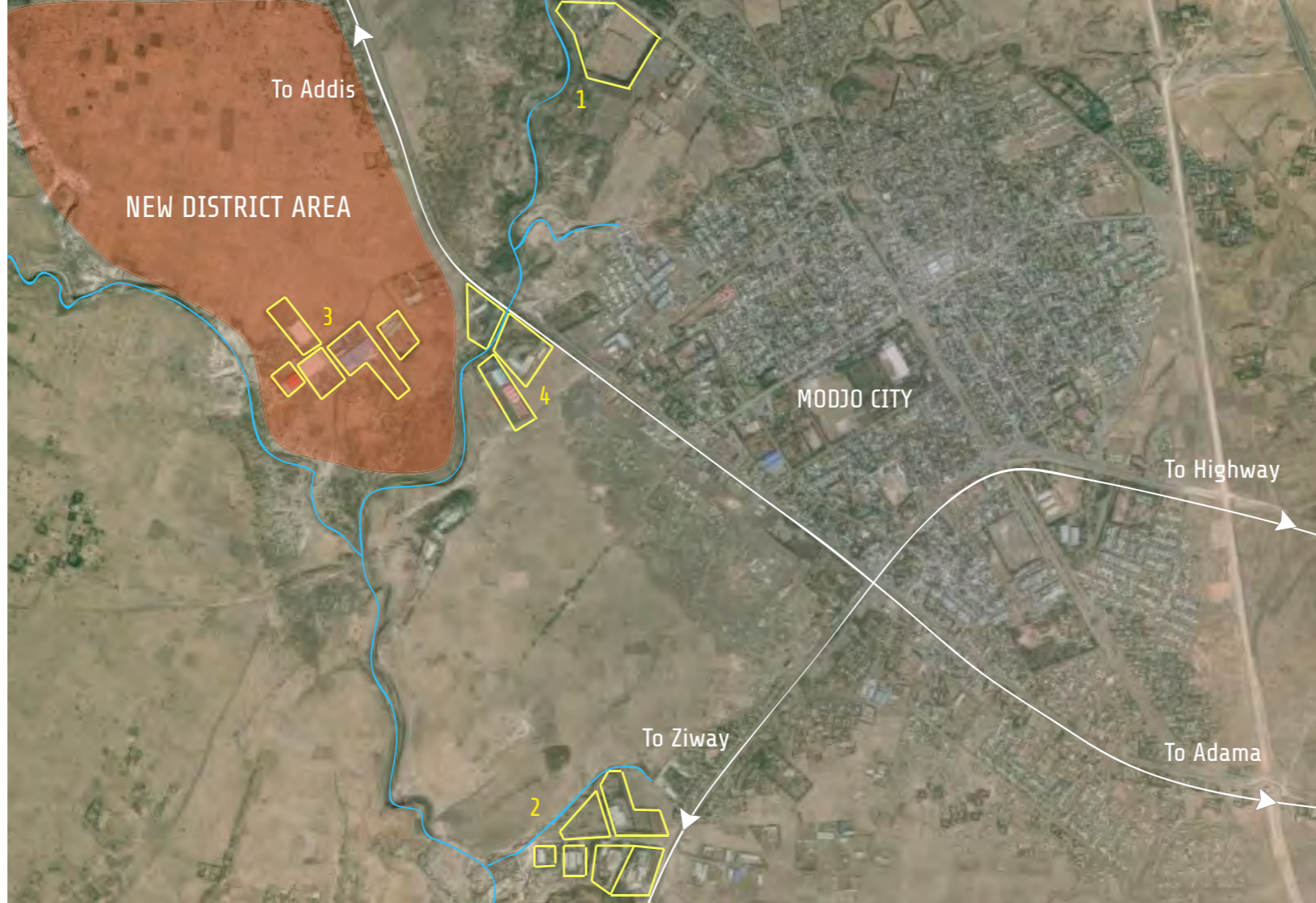
METHODOLOGY and APPROACH

THE SOLUTION

These problems are common to the majority of the tanneries located in various Countries around the world. The best solution to solve these environmental problems is to set-up a leather district. An industrial district is an agglomeration of companies, suppliers, service providers, training and R&D institutions as well as offices of the local authorities in a dedicated area. This area will reinforce the synergies and relations between these different players.

Moreover, through these linkages, one district is inevitably connected to other national industrial stakeholders as well as to the overall Ethiopian economy.

The concentration of tanneries in a new and modern industrial district allows the elaboration of a common environmental strategy for facing all pollution problems in a cost efficient manner. Furthermore, the district will play a valuable role in enhancing foreign and local direct investments as well as tanneries relocation. In light of the above considerations, the construction of a centralized waste water treatment plant including a chrome recovery and by-products processing plant is required.



● Tanneries to fully/partly (i.e. the wet-ends) relocate

- 1-2 EXISTING TANNERIES IN MODJO TO RELOCATE
- 3. EXISTING TANNERIES INCLUDED IN NEW DISTRICT
- 4. EXISTING TANNERIES CONNECTED TO THE DISTRICT

02 THE PROJECT

ESTABLISHING THE MODJO LEATHER CITY: A MODERN LEATHER DISTRICT WITH A WASTE WATER TREATMENT PLANT

UNIDO in collaboration with the Leather Industry Development Institute (LIDI) and the Addis Ababa University, prepared a Feasibility Study to setup the MLC (Modjo Leather City).

This represents an opportunity to establish an environmental friendly leather tanning district driven by a network of tanneries. The construction of a common Waste Water Treatment Plant is considered as a priority, in order to reduce the environmental impact of the leather processing.



TOTAL LEATHER DISTRICT SURFACE (including Recycling Island) - 290,00 ha

- EXISTING TANNERIES - 5%
- RELOCATED AND NEW TANNERIES - 11%
- TANNERIES FUTURE EXPANSION
- SHOES FACTORIES FUTURE EXPANSION
- AREA ASSIGNED TO FOREIGN INVESTMENT - 19%
- SERVICE CENTER - Bank, Post Office, Leather School training center - 3%
- MAINTENANCES SHOPS - Chemical storage - 3%
- MAIN SQUARE
- PROCESSING BY PRODUCTS - 1%
- CHROME RECOVERY PLANT - 0,35%
- LANDFILL LOTS - 3,5%
- 1st PHASE LIMIT
- CETP COMMON EFFLUENT TREATMENT PLANT - 3,5%
- GREEN AREAS - 25%

04

THE PROJECT

PROJECT FRAMEWORK

The industrial district is divided by sectorial activities, connected together with a simple and efficient road network that divides the district into compartments. Within this framework, it will be possible to have a phased implementation of the district, according to the requirements of new factories.

The area occupied by the new tanneries will be in the heart of the district, surrounded by services and ancillary activities. The facilities will be large enough to accommodate the needs of the tanneries, according to an evaluation based on the experience of other industrial districts such as: Santa Croce sull'Arno (Italy), Robaiki area (Egypt), Buenos Aires (Argentina).

The main parts of the organized leather industrial district are represented by the common Waste Water Treatment Plant and centralized services for chrome recovery and by-products processing.



05 THE PROJECT

THE WASTE WATER TREATMENT PLANT

The eco-friendly oriented MLC is giving due attention to the existing tanning facilities, connecting them to a common waste water treatment plant. Based on the “polluter pays” principle, the tannery effluent will be pumped in the industrial sewage network collecting other industrial discharges in a unique pumping station, linked to the waste water treatment plan, constructed in line with the recognized international standards. This common waste water treatment plant represents the main component of the MLC. The expected quality of the output effluent is in line with the Ethiopian and international environmental standards. The table shows the estimated yearly MLC waste water outflow from the beginning up to the maximum expansion.

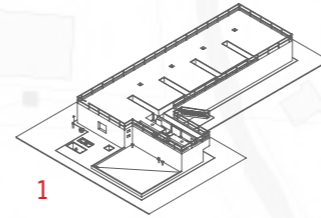
TREATMENT PLANT AND CHROME RECOVERY - GENERAL LAYOUT



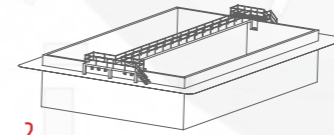
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Timeline 300 days - 1 year

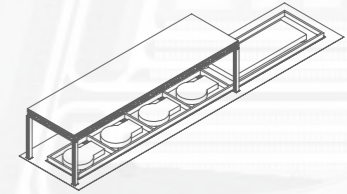
ACTIVITY	UNITS	EXISTING CLUSTER	MLC PHASE 1	MLC PHASE 2
Raw H/S Tanning	Tons	39.000	78.000	133.500
Waste Water	m ³	1.380.000	2.760.000	4.272.000



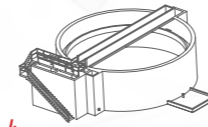
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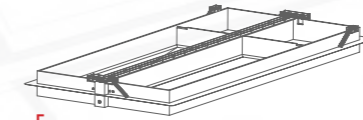
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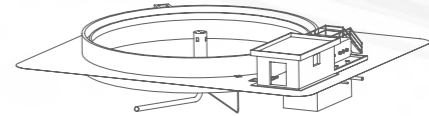
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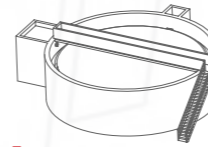
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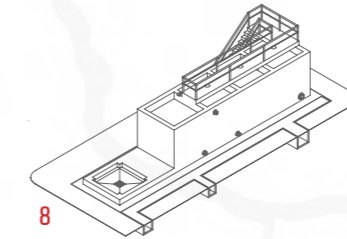
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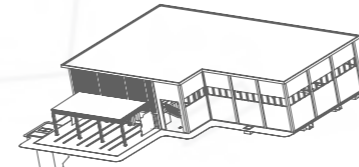
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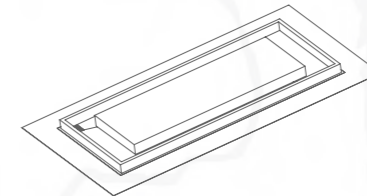
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10

1. SCREENING, SAND AND GREASE REMOVAL AREA
2. SULFIDE OX. AND HOMOGENIZATION TANK
3. WET SCRUBBER AND CHEMICALS
4. PRIMARY SETTLING
5. DENITRIFICATION AND BIOLOGICAL OXIDATION TANK
6. SECONDARY SETTLING TANK
7. THICKENING TANK
8. CHEMICAL STORAGE TANKS BASEMENT
9. SLUDGE DEWATERING, COVERED AREA AND CHEMICALS
10. WET SCRUBBER AND CHEMICALS
11. BLOWER ROOM

06 THE PROJECT

MODJO LEATHER CITY MASTERPLAN INCLUDED WITHIN THE MODJO URBAN AREA

Following an in depth study of the entire Modjo area, the new leather district has been planned taking in due consideration the existing tanneries. The project is also including recommendations on how to improve urban expansion for residential and recreational areas of the town of Modjo.

In this regard, a “green belt” has been designed between Modjo town residential areas and the new district, creating a natural park.

The creation of a protected area along the river is going to give the possibility to enhance its environmental and landscape resources like natural river banks full of flora and fauna.

Finally, this green belt aims at significantly mitigating the environmental impact of the leather district.



- LEATHER DISTRICT PERIMETER
- PARKING
- EXISTING TANNERIES INSIDE THE DISTRICT
- LANDFILL LOTS
- TANNERIES TO RELOCATE
- PROCESSING BY PRODUCTS
- LOTS FOR RELOCATION AND NEW TANNERIES
- CHROME RECOVERY PLANT
- AREA ASSIGNED TO FOREIGN INVESTMENTS
- ELECTRICAL SUBSTATION
- TANNERIES AND SHOES FACTORIES FUTURE EXPANSION AREA
- RURAL AREA
- MAINTENANCES SHOPS - CHEMICAL STORAGE
- URBAN AREA
- SERVICES AREA
- GREEN AREAS INSIDE DISTRICT
- COMMON EFFLUENT TREATMENT PLANT
- MODJO RIVER NATURAL PARK
- SUITABLE COMMERCE AND MARKET AREA
- GREEN BELT NO-BUILDING ZONE

07 THE PROJECT

DISTRICT DETAILS Environmental contest - State of art



Environmental Benefits

The MLC will enhance and support all national efforts to an efficient, equitable and sustainable utilization of the water resources in Ethiopia. This will also contribute to the socio-economic development of the Modjo area in a sustainable manner.

CONCLUSIONS

The Modjo Leather City represents a concrete opportunity to position the Ethiopian leather industry on the map of leather producing countries in the world by following a model of Inclusive and Sustainable Industrial Development.

Socio-Economic Benefits

- The MLC will boost foreign and local direct investments, economic, trade and service activities in the area.
- The MLC will have positive impact in creating job opportunities.
- The MLC offers an opportunity for the strengthening of TVET schools in the area.
- The MLC will improve the hygiene and health conditions of the local population.





MODJO
LEATHER
CITY

For more information please contact:
Agribusiness Development Branch
United Nations Industrial Development Organization
Vienna International Center. P.O. Box 300, 1400 Vienna, Austria
Telephone: (+43-1) 26026 3419
E-mail: A.Calabro@unido.org



UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION

Vienna International Centre – P.O. Box 300 – 1040 Vienna – Austria
Tel.: (+43-1) 26026-0 – unido@unido.org
www.unido.org