



PILOT PROJECT “COMBATING SPREAD OF PROSOPIS JULIFLORA THROUGH CHARCOAL BRIQUETTE DEVELOPMENT”

1. Background

1.1. Description of *Prosopis juliflora*

Prosopis juliflora is an evergreen tree native to South America, Central America and the Caribbean. It is well known as mesquite. It is fast growing, nitrogen-fixing and tolerant to arid conditions and saline soils. Under the right conditions, prosopis can produce a variety of valuable goods and services: construction materials, charcoal, soil conservation and rehabilitation of degraded and saline soils.

Concern about deforestation, desertification and fuel wood shortages in the late 1970s and early 1980s prompted a wave of projects that introduced prosopis and other hardy tree species to new environments across the world. The tree has survived where other tree species have

failed and in many cases become a major nuisance. *Prosopis* has invaded, and continues to invade, millions of hectares of rangeland in South Africa, East Africa, Australia and coastal Asia (Pasiiecznik, 1999). In 2004 it was rated one of the world's top 100 least wanted species (Invasive Species Specialist Group of the IUCN, 2004).



Prosopis in Ethiopia

Prosopis juliflora was introduced into Ethiopia approximately forty years ago by Ministry of Agriculture in order to control severe soil erosion and land degradation in parts of the country and in the process support the development high quality pasturelands and irrigable areas, including important river basins in eastern and north-eastern Ethiopia (HDRA, 2005). It is evident that the local pastoralist communities, who were to play host to this invasive species, were not consulted in the decision to re-afforest denuded landscapes with *prosopis*, and were generally unaware about the invasive nature of the tree. In addition, there were no management plans that were devised by the government to control and manage the spread of the species into important farmlands and pasturelands.

Through the elements of nature (including mass movement of cattle, as well as the transport mechanisms through waterways and wind, the *prosopis* invasion reached the far reaches of eastern Ethiopia. The species is now of the most prevalent vegetation formations in the districts of Korrahay, Jarar, Liban and shabele Zones of Somali region, and has had significant impact on ecosystem services. Coupled with the current climate crises, the plant has become evident that it contributes to ecosystem degradation, prevalent diseases and frequent droughts. Eradicating this species has become a major problem for many countries. Utilization-based-eradication is

the most efficient way to stop the spread of this plant in to further farm/rangelands. One techniques, therefore, is the use of the “Briquette” development.

1.2. Briquettes

A briquette often refers to a block of highly flammable solid material used as fuel to start and maintain a fire. The common types of briquettes are charcoal briquettes and biomass briquettes. The efficacy of the charcoal produced from coal, wood or agricultural biomass in terms of combustion and handling characteristics could be greatly enhanced if the charcoal is converted to briquettes. Briquetting of charcoal is the process of converting the low density pulverized carbonaceous matter from the biomass material to high density and energy concentrated charcoal briquettes often with the aid of a suitable binder material.



Required machines for charcoal briquette production

Raw material to feed the briquette machine can be agricultural waste (elephant grass), bamboo tree, parthenium & prosopis firewood etc. They can be carbonized into charcoal directly, then briquetted into different shapes. Previously, people burning plenty of scattered coal, combustion is not complete, waste a great deal of coal resources, and serious environmental pollution. As the global energy crisis, every country pays great attention to the energy problem.

Some biomass waste materials can be carbonized into charcoal directly, this charcoal can be processed furtherly by the charcoal briquette making machine into charcoal briquette in different shapes, with nice appearance, high density, a bit of smokeless and tasteless. Some countries lack of natural coal, the local biomass can be processed into charcoal, then the output charcoal briquettes can be used as domestic fuel for cooking. The charcoal briquettes by briquette making machine can be ball shape, cubes, cylinder shape, long bars, finger shape etc. The whole charcoal powder forming and drying production line mainly contains Charcoal Crushing Machine (grinder machine), Carbonizing machine (metal kiln) and hand press jack briquettes Machine (Mold).



2. Objective;-

The general intended objective of this project is combat the widely spread of prosopis invasive tree in Somali region, and in particularly Kebridahar town of Jarar zone, and hence

making use of the invasive tree for cooking fuel alternative through processing of its raw materials into efficient and smoke free charcoal pellets/briquettes.

The invasive evergreen tree affected and covered huge lands suitable for agricultural production and pasture land and resulted environmental degradation, and attained in intensity where the pastoralist lost the life's of their domestic animals in the covered zones/areas. This project will address all the cross-cutting issues being desolated by the tree such as environmental, economic and agricultural aspects of necessary life of the community.

2.1 Specific objectives;-

- ✓ To combat and eradicate the widely spread of the invasive tree in Kebridahar town and nearby kebeles that are negatively affected through environmentally, economically and the wellbeing of the community.
- ✓ To address the cooking/fuel energy crises through adoption of efficient and smoke free product processed from the invasive tree in the form of charcoal briquette/pellets
- ✓ To establish, organize, capacitate, and legalize strong prosopis business cooperative making use of the invasive tree while assuring its eradication at Kebridahar town.
- ✓ To generate a business for locally established cooperative from the invasive tree while targeting women's who are at risk for fire-wood collection in far distances, and finally making a source of income generating scheme for the targeted business cooperative at Kebridahar.
- ✓ To rehabilitate the degraded land cleared from the invasive tree through implementation of different soil and water conservation structures including plantation of different drought resistant tree seedlings

