

Energy from Animals

The development of the human race was possible only by the domestication of the animals living adjacent to particular groups of people who used their energy to replace and supplement that of humans.

For thousands of years they have operated as a source of renewable energy on a wide variety of tasks unaffected by the cost of a barrel of oil or the value of the shilling.

Their value may not be fully and officially recognised yet it is a form of energy accepted and needed by many hundreds of thousands of urban and rural inhabitants who depend on animal energy for their livelihood.

Animal Transport

During this particular dry period the human being (alas, too often a woman), can be seen carrying some 20 litres of water on her back, yet a donkey can carry 80 litres and equipped with a cart can carry 100 -200m litres depending on the topography.

Transport is the one of the main opportunities offered by animals yet one of the practical problems is the speed differential between animal drawn and motorised vehicles on busy roads due to motorists who object but have little knowledge of the valuable place in society these carts and their contents play.

Land Preparation

In semi-arid areas, where yields tend to be low and farm sizes larger, animal energy for land preparation is the only economic means of crop production during the limited period for land preparation after the first rains.

Many thousands of pairs or foursomes of oxen can be seen ploughing and planting after the rains as this is the only means of cultivating and planting possible with the currently available equipment.

These systems depend on equipment imported from Europe, often by missionaries, at the beginning of the last century and quite unsuited to the current needs of being able to 'dry plant' that is before the rains fall.

Currently The Kenya Agricultural Research Institute (KARI) and other NGO's are attempting to develop improved equipment which can dry plant and at the same time be locally fabricated by jua kali artisans using locally available materials.

In drier areas donkeys are replacing oxen due to their hardiness and resistance to disease but little equipment has been designed specifically for their use so farmers, not having a choice, tend to use that for oxen which is too heavy and lacks a suitable yoking system which can cause injury.

Water Harvesting and Storage

The problem of water supply does not need to be mentioned in the current climate. Yet there are many thousands of small dams and water pans which no longer store water due to their being silted up.

Some communities are so desperate to increase the capacity of their dam that they organise themselves to remove the silt by hand using wheelbarrows and sacks. Some of these groups are pastorilists and have many animals but lack the tools and knowledge to utilise their energy potential.

Registered Community Based Organisations can apply for loans for equipment and training for their class of animal. Their responsibility is to organise the members who depend on that source to remove silt twice a year when conditions of the animal are good and the soil not too hard.

Characteristics of Animals

All large domesticated animals found in Kenya, donkeys, oxen and camels can be used for either making or preferably desilting existing dams so increasing water storage capacity.

However much depends on the state of the animals and the communities traditions'. Oxen are often too thin for pulling tools and there is resistance to their use while camels, the strongest and most intelligent may be considered too noble for menial tasks.

So the humble donkey is the animal which is often used and accepted by women. While its energy is limited it is always willing if looked after with kindness, fed, rested and watered at frequent intervals.

Energy from Animals Walking in a Circle

Other tasks which animals can carry out are grain grinding and the extraction of oil from oil seeds by animals walking in a circle. In remote areas these chores are carried out by women as there is no suitable equipment available.

The development of small scale irrigation schemes has shown they can raise the quality of life. Many schemes are gravity fed but those which require water to be raised can employ animals to

do this as has been happening for thousand of years on the Nile.

However the total distance the water must be raised is often greater than these antique machines are capable thus new machines must be designed and produced to suit the requirements of small scale growers.

Conclusion

Draught animal use has a large untapped potential particularly in the semi-arid and arid areas of the Republic. The development of this renewable form of energy could offer major improvements to the inhabitants of these areas.

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