

Supplemental
Planned irrigation can be answer to food insecurity

IRRIGATION

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WATER constitutes a major principle constraint to increasing food production in semi-arid Kenya. The balance between the demand for water by crops and its supply by rainfall is a very delicate affair, such that even short-term dry spells often reduce production significantly. Prolonged dry spells can cause total crop failure and mass starvation. Irrigation is artificial application of water to crops that makes farming possible in absence of rain.

In the book of Genesis 2:8-20, we read the story of the first tree plantation. It was irrigated by a river, which was divided into four channels. Man was appointed the custodian of God's garden. Man soon abused that trust by becoming more of a consumer than a preserver and consuming beyond his needs. That brought fourth the curse "man and his descendants must forever suffer the consequences of this folly".

And so we must toil and labour to produce enough to feed on. These consequences come in many forms: droughts, insufficient rains, dry spells within the growing season etc. Sometimes we experience prolonged rains like the recent El Nino. Fortunately, there is the other side of the coin.

Most of the problems we encounter have solutions. This article focuses on the semi-arid Kenya where uneven rainfall distribution has caused massive

suffering of both man and his livestock. It is very pathetic to see people starving to death. Yet it is happening in Kenya and neighbouring countries of Sudan and Ethiopia. These countries share one environmental problem - poor rains.

It is a problem that is experienced in Saudi Arabia, Israel and Jordan but we never hear of anyone dying of hunger in these countries. This is because they carefully manage the little water received in form of precipitation or rainfall. In Kenya, the poor rains are generally not explained in the amounts received but the distribution of the rains received.

Rainfall in the semi-arid Kenya is experienced as heavy showers or brief storms which means a lot of rain is concentrated within a very short period. It is not unusual to find 80mm of rain recorded within one day. The soil's capacity to absorb moisture, also known as infiltration rate, is limited and therefore it does not absorb that rain whose intensity exceeds infiltration rate. That is why during the rainy season there is water moving on the surface of the soil.

This moving water, called the runoff, has always gone to waste, sometimes causing havoc as it finds its way downstream. Runoff causes erosion. In large quantities runoff can uproot trees and houses. People and livestock have been killed by runoff.

Within days, the heavy rains

We need to tap the rains that come in short periods



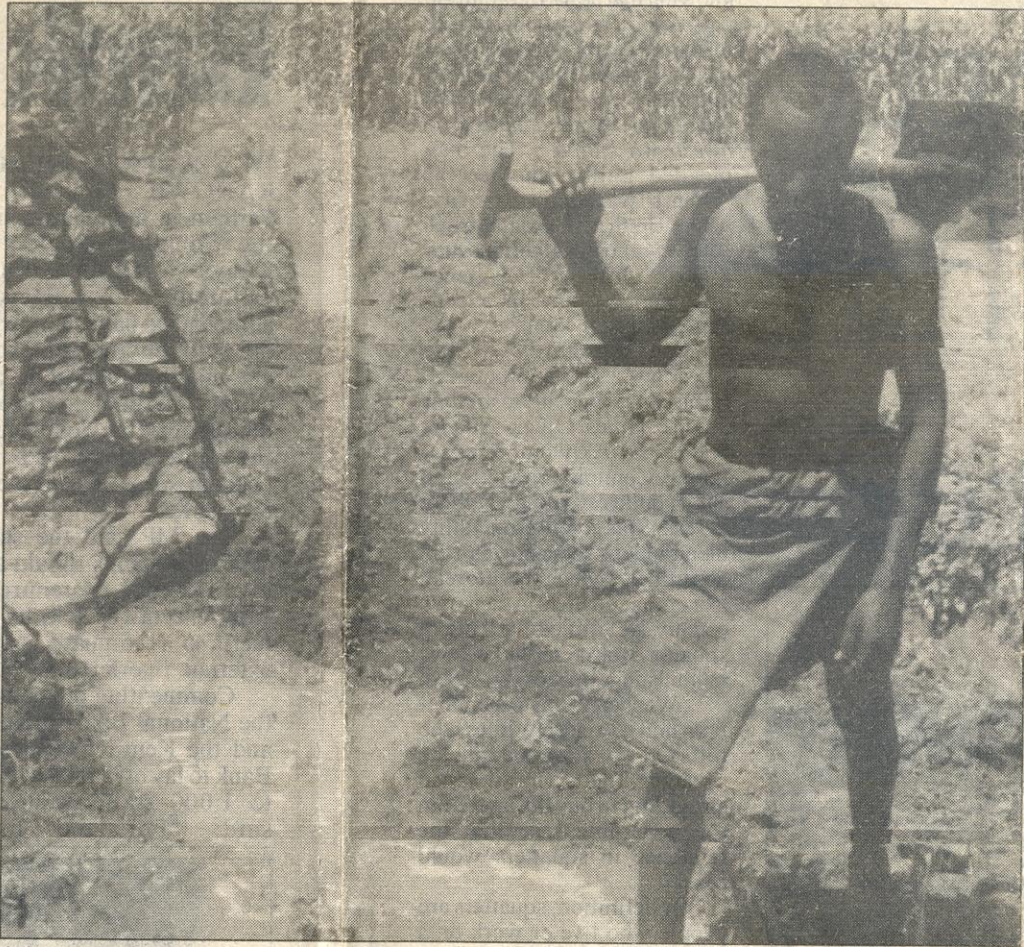
Demonstration: Women at a farmer's training workshop work on plots that use water for irrigation during the dry season

often subside in the semi-arid areas, giving way to a dry spell which can go on and on sometimes lasting for as long as two weeks before the rains come back. During the dry spell, the farmers

helplessly watch their crops wilt and dry in the same way they had watched rainwater getting lost as runoff.

Supplemental irrigation is about supplementing the rains. It

is about the farmer supplying his crop with that water the crop needs but the rains have failed to provide. It is about the farmer stepping in to supply the water during the dry spell. This way, he can save his



A farmer makes way for water to flow into his crop of maize. Water is scarce but can be harvested and used later

crop and thus rescue his family from starvation, malnutrition or even death.

Runoff water can be harvested and stored, ready to use when the crop is threatened by a dry spell. Some farmers have dug out ponds to collect runoff where it remains until it is needed. A layer of clay soil spread on the floor of the pond greatly reduces deep percolation in soils that are very porous. A lot of work is involved but it is worth every ounce spent. Other methods of rainwater conservation that are in common use include mulching, terracing and use of organic manure among others.

During the rainy season the rivers are carrying a lot of water which can be used for supplemental irrigation. Seasonal rivers do not dry up during a two-week dry spell and they too are carrying water. Crops are seen wilting a kilometre away from flowing rivers. A slight improvement of water economy may spell the difference between marginal subsistence and profitable production.

We should stop utilising our time and energy chasing after relief supplies because it will never be satisfying. Imagine the uncertainty we expose ourselves to when depending on such donations. We

make our next meal to be someone else's business and in case he fails to deliver, we have to walk home empty handed to the hungry stares of our children. There is nothing wrong with receiving famine relief food, but there is great danger when one is completely dependent on it.

Dry spells during the crop-growing season have always been there in semi-arid areas and will certainly be there in future. We have to learn to cope and whatever the source of your water, learn to supplement the rains. That way human beings and livestock dying from starvation will be a thing of the past.