Ethiopia is an unlikely setting for a revived "food versus fuel" debate. As a country once overwhelmed by famine, it may seem odd that the Ethiopian government would be in favour of anything associated with food security risk. But the case for biofuels in Ethiopia is strong and it's growing stronger.

Like many countries, the Ethiopian government was eager to realise the potential of jatropha, a biofuel crop with "green gold" credentials, ten years ago. Opinions soured in 2007 and 2008 when the global food price crisis struck and biofuel production was identified as one of the root causes. This, coupled with disappointing jatropha harvests, prompted a swift exit by Ethiopia's biodiesel developers.

The government is keen to revive interest in biofuels and is pinning its hopes on the private sector to finance new projects. It is offering tax holidays and free land leases for up to seven years to biofuels developers. According to Nadew Tadelle who runs the recently created biofuels private enterprise unit at the Ministry of Water and Energy, the government hopes biodiesel production may reach 450m litres a year within the next five years, up from virtually zero currently.

A 15,000 litre-per-day biodiesel processing facility was scheduled to be commissioned in February. It's the first of several planned processing units by African Power Initiative (API), with backing from Saudi Arabia's Al Romaizan family and Pegasus Capital in the US. It plans to reach a total processing capacity of 2m litres per day by 2020.

Already, the project covers 1m acres of degraded land, which will be extended to 4m acres in the future. "We will buy seeds from the people," says API's Marcos Bitew. "This project is bringing together everyone – capitalists, the Ethiopian government, the development people." The company will pay farmers for seeds at a fee determined by the price of diesel.

Ethiopia is particularly keen to substitute biofuels for imported diesel. "Every fuel is imported and so currently around 75 per cent of our export earning goes towards the import of oil," says Tadelle. Ethiopia's fuel bill weighs heavily on its current account and foreign currency reserves. It currently has reserves to cover only 2.2 months' worth of imports – almost half the 4.3 months it had in 2010-11.

The Ethiopian government is carrying out demonstration projects in the hope of attracting international investment. According to Michael Tesama, head of projects at Ethiopia's biofuel directorate, 24m jatropha seeds have been distributed this year and there are already around 100m jatropha trees in Ethiopia. "We want to show the farmers how they can collect the product and at some point we will show this to private investors," says Tesama.

It is well established that jatropha can grow in Ethiopia, even in arid areas. It's been grown for non-biodiesel purposes for many years and is referred to locally as "ayderkie" and "yedinber shimagilie", meaning "drought resistant" and "border mediator", indicating its use as a hedge.

However, biofuel crop cultivation is only allowed on "marginal land", which tends to be very arid. While jatropha can grow in arid areas, yield and the oilyness of seeds can be badly affected. Indian biofuel company Emami Biotech found that while its jatropha trees planted in Ethiopia's Oromia region in 2009 survived, they grew very slowly. The company was allocated 11,000 hectares and planned to invest $83m in jatropha plantations, but the project was abandoned in 2011.

The UK's Sun Biofuels had a similar experience in the Benishangul Gumz region. It was granted 80,000 hectares in 2006 to grow jatropha but abandoned its plans three years later citing low rainfall and poor soil quality as the main reasons for bad harvests.

API is confident that biofuel yields will be sufficiently high for its biodiesel project. "Our yields are very high. Even if we got small yields per tree, the sheer scale [of the project] will make up the difference," says Marcos Bitew. The project's partners are working with Yale University Green Chemistry Department on research and development.

The government insists that only marginal land is used for biofuels cultivation so that it does not compete with agriculture. However, the definition of "marginal" is far from exact.

"They do not have a stated criteria for what is marginal land," says Brigitte Portner from the Centre for Development and Environment at the University of Bern. "Marginal land in their sense is just land that is not being used agriculturally but in most cases it is used – it's just that it's being used by pastoralists to graze cattle or the local people use it to collect firewood. It's just that it's not intensive agriculture there."

It's also difficult to enforce rules on where biofuels can be cultivated. Food crops tend to take precedence over biofuels as they command a higher price, but research by the Environment for Development initiative found that cash crop production can be negatively affected by biofuel crops as growers allocate up to a third of their land to biofuels.

This can wipe out the trade balance benefits of biofuels as cash crops are targeted at the export market. The researchers found that "although both exports and imports show a decreasing trend following biofuel expansion, the decline in exports is greater than imports, indicating worsening of the trade balance".

This may pose a national policy dilemma, but for individual farmers biofuels may help food security. Research has found that calorie intake is higher in households that also produce castor beans, a biodiesel crop. These households also experience 25 per cent shorter periods of food shortage between harvests, as biofuels can be grown when food crops cannot. At a micro level at least, biofuel crop cultivation may be a complement, rather than competitor to food in Ethiopia.

The full article can be found at: http://blogs.ft.com/beyond-brics/2015/02/24/ethiopia-plans-to-revive-to-biodiesel-production/