agrofuels & corporates

jatropha: money doesn't grow on trees

ten reasons why jatropha is neither a profitable nor sustainable investment

december 2010 | summary

The jatropha plant has been hailed as a panacea for the energy crisis, climate change and poverty, providing a source of biofuel that can be grown on marginal soils across swathes of Africa, Asia and Latin America. But closer analysis reveals that the claims made by investment companies promoting the crop are based on inflated returns and false promises. In reality jatropha is neither a profitable nor sustainable investment.

Although jatropha has been grown for centuries, it has only recently been planted on a large scale, so little data is available showing the true costs and returns of monoculture plantations. Scientific studies on jatropha and experience from some older projects show large-scale jatropha plantations have pointed to negative impacts on people and the environment, but provided no evidence that jatropha is economically viable.

Here are ten reasons why jatropha is neither a profitable nor sustainable investment:

Reason 1: Jatropha does not guarantee high returns

Despite the promises of high yields and easy profits made by a number of companies touting for investors, studies suggest that even when jatropha is grown under optimal conditions, yields are likely far lower than claimed. Comparison with scientific data shows that the high return expectations promoted by investment companies are far from realistic. As yet, there is no evidence showing that jatropha works on a large scale. On the contrary: all evidence indicates that jatropha gives only marginal returns even if high yields are achieved.

Reason 2: Jatropha does not thrive on marginal land

Although jatropha can survive on marginal land and in dry conditions, it does not thrive. For good yields, good soil, water and fertiliser are required. On degraded land, the expensive inputs required to achieve good yields make jatropha unprofitable – which is why plantations are often planned and established on fertile lands instead of the marginal lands that investment companies claim can be used for jatropha.

Reason 3: Jatropha needs significant amounts of water

Evidence shows that jatropha needs significant amounts of water, particularly in the early stages of its development. Experts found that jatropha does not naturally occur in arid or semi-arid regions and that any plantations in these areas will require additional irrigation. Some studies suggest that jatropha needs more water than any other bioenergy crop to produce the same amount of oil.

Right: Sun Biofuels jatropha plantation, Mozambique. Below: Jatropha pod.


© orakitty/dreamstime


© nilza matavel

agrofuels & corporates

Reason 4: Jatropha is not pest resistant

When grown on plantations, jatropha is vulnerable to common pests and diseases, requiring expensive pesticide treatments. The extensive use of pesticides not only affects biodiversity and water supplies, it also increases costs and so affects economic viability. Some projects have been abandoned because of the high costs of pesticides and the decreasing yields as a result of disease.

Reason 5: Many jatropha investment projects have failed

The fact that many jatropha projects have not been successful illustrates that jatropha is not the miracle crop it is claimed to be. Publicly listed companies such as D1 Oils (UK) and Flora EcoPower (Germany) have had disastrous share price records. BP pulled out of their joint venture with D1 Oils because of disappointing results. Swedish private company BioMassive leased land in Tanzania for jatropha plantations, but reported losses until 2009 and have not been heard of since. Dutch company BioShape, which also acquired land in Tanzania, was officially declared bankrupt in 2010.

Reason 6: Jatropha competes with food production

Because jatropha grows better on good soil, it competes with food production for arable land, undermining food security in areas where people already do not get enough to eat. In food insecure countries like Mozambique, Ghana and Tanzania, fertile arable land has been allocated for jatropha. In India, shortages of edible oil and cattle feed have been reported because of the switch to jatropha.

Reason 7: Jatropha causes displacement of local communities

Most so-called 'marginal' land is in reality used for grazing and subsistence farming by communities, so even jatropha plantations developed on marginal land destroy their livelihoods. In India and several African countries, there is evidence that people have been displaced to make way for jatropha plantations, often forcibly and without compensation.

Reason 8: Jatropha plantations are not pro-poor

Jatropha plantations, while depriving local communities of their land, do not provide enough employment opportunities to sustain those communities. Most jobs are short-term and pay poverty wages. There are also indications that companies are not creating as many jobs as forecast, and that employment is not created for people locally, but that instead labour is brought in from outside the community.

Reason 9: Jatropha plantations negatively impact biodiversity

Valuable natural forests rich in biodiversity have already been destroyed for jatropha plantations. But even marginal land can be vital for the preservation of biodiversity and may be home to endangered species. Furthermore, large-scale monoculture plantations, including jatropha, have a damaging impact on biodiversity in their own right, both because of the lack of plant variety and also because of the use of fertilisers and pesticides.

Reason 10: Jatropha will not save the climate

Investors claim that jatropha results in fewer greenhouse gas emissions than conventional diesel, but this is not necessarily true if the emissions from direct and indirect land use change are taken into account. Forests and shrublands hold vast stores of carbon dioxide which are released when the land is cleared for planting. But not only does jatropha fail to guarantee a reduction in carbon emissions, it is also unlikely to reduce global fossil fuel use significantly. The global potential for growing jatropha on degraded land will only provide enough fuel to lead to an extremely small reduction in global fossil fuel use.

Jatropha is touted as a wonder crop, but the evidence shows that it does not deliver on its promises. Developed on a small scale, inter-cropped with food production or used as hedges around fields, jatropha may generate limited income for poor communities, but evidence suggests that large scale plantations are not economically viable and in fact damage communities, biodiversity and the climate. Responsible investors are well-advised to stay away from jatropha.

"Jatropha the plant did not fail, jatropha the business model failed."

Kirk Haney, President and Chief Executive Officer of SG Biofuels, 12 January 2010.

The full report on jatropha can be found at: ***www.foeeurope.org*** and ***www.foei.org***

friends of the earth *international secretariat* P.O. Box 19199, 1000 GD Amsterdam, The Netherlands. Tel: 31 20 622 1369 Fax: 31 20 639 2181. info@foei.org **www.foei.org friends of the earth europe** Mundo-b building, Rue d-Edimbourg 26, 1050 Brussels, Belgium. Tel: 32 2 893 1000 Fax: 32 2 893 1035. info@foeeurope.org **www.foeeurope.org**

This summary has been produced with the financial assistance of the Dutch Ministry for Development and the Isvara Foundation, and is part of the project "Feeding and Fuelling Europe" with additional financial support from the European Commission. The contents of this publication are the sole responsibility of Friends of the Earth International.