

Extract on Indian agrofuels

Seedling



Biodiversity, Rights and Livelihood

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Girona 25, pral., Barcelona E-08010, Spain
Tel: +34 933 011 381
Fax: +34 933 011 627
Email: seedling@grain.org
Web: www.grain.org

GRAIN is an international non-profit organisation which promotes the sustainable management and use of agricultural biodiversity based on people's control over genetic resources and local knowledge. To find out more about GRAIN, visit www.grain.org.

Seedling

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Jatropha curcus seeds, within and without their black shells
Photo by GRAIN

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Local jatropha variety, Bolangir district, western Orissa, India
Photo by GRAIN

Responding enthusiastically to the world agrofuel frenzy, the Indian government has promised a flurry of initiatives to encourage the large-scale planting of agrofuel crops, particularly jatropha. Without waiting for the government support to be spelt out, corporations are already moving in, taking over resources that have traditionally been used by rural communities. As a result, local people will find it harder to satisfy their food and fuel needs. Once again, it is the rural poor who will bear the cost of the agrofuel boom, while reaping few of the benefits.

Agrofuels in India, private unlimited

GRAIN

Today India is seen as an energy-hungry giant whose needs are growing as fast as its population. But an important qualification is needed: not everyone in the country makes the same demand on the formal energy sector. People's needs are as diverse as their situations, and energy use per person varies vastly. If you visit a rural community in India, two things would strike you. One is people's self-reliance and creativity in using available resources to meet their everyday needs. A large proportion of rural households – and even some urban ones – still rely on biomass-based fuels such as wood, crop residues and cow dung to meet their fuel requirements. The second is the sheer number of those leading an off-the-grid life. Despite the difficulty in getting reliable data, it seems that basic energy needs – that is, for cooking and for light – are still not being met by the state for about 86 per cent of rural households.¹ Clearly, it is important to take measures to satisfy these

needs, but it is quite another thing to use these statistics as a rationale for giving incentives to corporations to produce biofuels, which is what the government is doing. In fact, as we shall see, this policy will only widen the disparities.

The bulk of the fuel crops is intended to replace petrol, and it is not people in rural communities who are driving the large cars that need the fuel blends or biodiesel. The new fuels will not be used by "captive pedestrians", a term coined for very poor people in cities such as Delhi, who have to travel by foot or bicycle since they cannot even afford bus fares.² Indeed, the urban poor throughout India mostly use non-motorised transport. These people simply don't figure in the current debate on alternative fuels, which is heavily geared towards motor transport and industry. So for whom is India striving to produce massive crops for bio-energy?³ Will these new fuels improve the lives of the disadvantaged majority?



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1 National Sample Survey of the Government of India 1999–2000.

2 Geetam Tiwari, "Transport and land-use policies in Delhi", <http://tinyurl.com/2a7nsh>

3 K. P. Prabhakaran Nair, "Bio-fuelling the world's hunger", *The Hindu Business Line* 4 January 2008, <http://tinyurl.com/2bzg62>

There is little indication that they will. Daimler-Chrysler encourages the production of bio-diesel for its Mercedes and other “modern vehicles”;⁴ Indian Railways leases its land to Indian Oil Corporation for agrofuel plantations to fuel its trains; the leading cement company, ACC, sets up jatropha (*Jatropha curcas*) and castor tree plantations for energy to run its captive power plants;⁵ the real beneficiaries of new fuels are the big corporations, which are using them to increase profits and to drive their assault on rural populations. These large private operations, which use huge amounts of resources (crops, land, water), could deliver a severe blow to community plans to achieve self-sufficiency in food and fuel. There is talk of government schemes for rural energy and “family type” bio-gas plants to provide energy security at the village level,⁶ but these projects are dwarfed by the state’s support for huge corporate agrofuel refineries and large-scale plantations. The magnitude of these operations contrasts starkly with the smallness of what a local community would need to make its own fuel from bio-resources.

As regards the source for these fuels, the attention today in India is heavily focused on deriving ethanol from biomass, particularly sugar sources, and even more on developing biodiesel from jatropha, pongamia (*Pongamia pinnata*, an Asian tree), and other trees that bear oils. Together these are loosely termed “biofuels”. (This term is highly contested by NGOs and activists, who tend to call them “agrofuels”). The concept is not new, for the energy that rural communities have long used is biomass-based, but now companies and governments are planning very big plantations and industries, with complete disregard for their impact on local communities and ecosystems. Despite the corporate hype, these new fuels are not “eco-friendly”.⁷ Another term floated is “corp-fuels”, because they are being promoted by corporations and are turning small-farm agriculture into a corpse!⁸

A flurry of government initiatives

At a rhetorical level, the government has been enthusiastic in its support of biofuels as India’s response to both climate change and its rising petrol import bills. It is using all possible state machinery, from the highest office of the President to the district level Panchayat, to promote them. There has been a flurry of initiatives. In 2003 a National Biodiesel Mission was launched. That year’s report of the Planning Commission’s Committee on Development of Biofuel proposed that the proportion of agrofuels to be mixed with petroleum should be increased from 5 per cent



Photo: GRAIN

Jatropha fence round a wheatfield, Orissa, India

to 20 per cent by 2012. Other reports by the government’s Planning Commission (particularly the “Integrated Energy Policy Report, 2006”⁹) speak of new economic policies in support of biofuels. Even so, specific policies have not yet been formulated: clear guidelines on rural credit for biofuels have still to be issued by the National Bank for Agriculture and Rural Development (NABARD); and, although a national biodiesel policy was promised by early 2008, the draft text has not yet been made available for public comment. In 2005 the Indian Government actually announced a Biodiesel Purchase Policy. Though few are aware of it, this policy was withdrawn, owing to the high cost of ethanol and an inadequate supply of raw material.

Provincial governments have been moving into the vacuum left by the national government. Several states in India have established a variety of incentives to promote biofuel cultivation in their states, particularly in association with corporations (see Box 1). Even so, the companies want more support, particularly at the national level. In 2006 biodiesel suppliers and others formed the Biodiesel Association of India (BDAI).¹⁰ It has become the main group lobbying for legal and policy changes to create a more industry-friendly environment. BDAI’s main demands are for more land on which to grow the raw material, easy conditions for importing ample volumes of biofuels until the home plantations deliver,¹¹ a guaranteed price for biodiesel (to be raised from Rs 26.50 [US\$0.66] to at least Rs 33.00 per litre [US\$0.83]), tax exemptions and the creation of a national Biofuels Board, headed by the Prime Minister, to deal with all the key policy

4 CSIR’s Central Salt and Marine Chemicals Research Institute laboratories in Bhavnagar, Gujarat, is the research partner. Technical inputs have come from the University of Hohenheim in Germany. DaimlerChrysler is spending Rs 33 million (US\$0.69 million) on the project. “Daimler to set up co-op to source biodiesel”, <http://tinyurl.com/26fnkl>; see also <http://tinyurl.com/2br5y9>

5 See <http://tinyurl.com/5pfjlb>; <http://tinyurl.com/4ojnag>; <http://tinyurl.com/5yp8eb>

6 See <http://tinyurl.com/3oehas>

7 The case of the state-owned company, Rajasthan State Mines and Minerals Limited (RSMML), is telling. According to a Rajasthan government report, “45,000 litres of very high quality bio-diesel conforming to European standards have been produced and are being used as blended diesel in heavy mining equipments. RSMML is the only mining company in India using biodiesel in mining machineries...” By using an “eco-friendly” fuel, this company is able to give a “green” label to its mining activities, which in reality harm the environment and bring no benefits to the local community.

8 This term was suggested at an Indian national workshop on biofuels. <http://www.grain.org/agrofuels/?india2007>

9 See <http://tinyurl.com/yonbhb>

10 BDAI’s website is at <http://www.bdai.org.in/>

11 See <http://tinyurl.com/26ko3w>



Box 1: Provincial governments have caught the jatropha fever

In Uttarakhand, the state's Biofuel Board is promoting plantations under its joint forest management programmes. In Punjab's Agriculture University, the Department of Forestry and Natural Resources is evaluating 35 different source varieties of jatropha while "training" farmers in jatropha cultivation. In Central India the Chhattisgarh Biofuel Authority was set up by the state government in 2005 with a single-minded focus on jatropha and ambitious targets to convert all state-owned vehicles to jatropha-derived oil. This was followed by the creation of a Chhattisgarh Renewable Energy Development Authority¹ which claims that by August 2007 it had sponsored jatropha plants to the tune of Rs 40 million (about US\$1 million) in the state. In neighbouring Madhya Pradesh, the government has its own Biofuel Mission,² with a view to bringing one million hectares of land under jatropha cultivation in 20 years. With 70 per cent of the population relying on agriculture for their livelihoods, and many of them already using jatropha as a "live fence", the government believes that it can convince them to change over to jatropha monoculture, with the state supporting them through training and high-yielding varieties.³

Some provincial governments have set up biodiesel plantations in association with corporations. This is the case in Andhra Pradesh, where the Rain Shadow Areas Development (RSAD) Department has asked Sagar Sugars & Allied Products Ltd to be responsible for the jatropha nurseries.⁴ There is also a new model of partnership between the state, private companies and the panchayat (body of elected representatives at the village level). Called Rural Business Hubs (RBHs), these are being tried out in selected locations across the country.⁵ The idea is to link the industry directly with the village groups. D1 Oils plc, which is now controlled by the multinational oil giant British Petroleum (BP), is setting up three jatropha biodiesel hubs in Haryana.⁶ Many state governments are vying to provide the most conducive environment to attract investors, and companies are responding: IKF Ltd,⁷ an IT company that has diversified into biofuels, has expanded into 14 states, including Meghalaya and the north-east, with help from the Indian Council of Agricultural Research (ICAR),⁸ and has now moved into Thailand.⁹ In Andhra Pradesh the state government has agreed to cover total costs for small and marginal farmers to convert their land to biodiesel plantations, particularly of pongamia and jatropha.¹⁰ Under the Andhra Pradesh Rural Employment Guarantee Scheme (APREGS), public-private partnerships have been forged, paving the way for the expansion of 14 private companies¹¹ (which include Nandan Biomatrix Ltd [which, incidentally, has a joint venture with D1 Oils], Titagarh Bio-Tech (P) Ltd. and Jatropha Growers and Bio-Fuel Development Cooperative Ltd).

1 The authority is also a member of the Renewable Energy and Energy Efficiency Partnership (REEEP), an international organisation. See <http://credacg.com/>

2 See <http://biofuelmissionmp.com/>

3 See http://www.destinationmadhyapadesh.com/state-profile/Short-project-profiles/13-Jatropha_Plantation.pdf

4 See <http://www.rd.ap.gov.in/CRDAction%20plans/actionplans/nellore.htm>

5 See <http://www.thehindubusinessline.com/bline/2006/12/26/stories/2006122603480100.htm>

6 See <http://www.d1plc.com/>

7 See <http://ikf-technologies.com/>

8 See <http://myiris.com/shares/company/writeDet.php?icode=ikfsoftw>

9 See <http://tinyurl.com/4z692p>

10 Andhra Pradesh Government Memo 478, 6 November 2006, http://www.rd.ap.gov.in/EGS/EGS_GO_478.htm

11 Andhra Pradesh Government Memo 23153, 8 December 2006, http://www.rd.ap.gov.in/EGS/BIO_Diesels_Memo_23153.htm

issues.¹² The Core Group on Biofuels, from the Federation of Indian Chambers of Commerce and Industry (FICCI), has made recommendations to the Agriculture Ministry for a 10-year tax holiday for large-scale corporate jatropha farming.¹³ FICCI also called on the government to use the National Rural Employment Guarantee (NREG) Scheme¹⁴ (under which the government has to provide 100 days of guaranteed waged employment per financial year to every rural household) to make villagers plant crops like jatropha. The sugar industry lobby – Indian Sugar Mills Association – is using the ethanol boom to bargain for more deregulation of the sugar industry. It is calling for the percentage of ethanol to be added to fuel to be increased from

5 per cent to 10 per cent, and this is expected to be made mandatory later in 2008.

Not surprisingly, social movements have been complaining about the level of government support for the corporates. A newly-formed People's Coalition on Biofuels is demanding a "pro-people energy policy" from the government and has asked for the policy process "dominated by the corporate sector, business associations, energy entrepreneurs, industrial houses, private firms, government agencies and large PSUs (public sector units)" to be opened up to the public.¹⁵ Social action groups have been protesting against the use of NREG to promote the "corporatisation" of land.

12 "Biodiesel body seeks more subsidy for jatropha farmers" <http://tinyurl.com/y9py9jw>

13 See <http://tinyurl.com/yu425d>

14 See <http://nrega.nic.in/>

15 "Open letter to minister for new and renewable energy"; Deccan Development Society, <http://tinyurl.com/6bjs6q>



Box 2: India's biofuel equipment manufacturers go global

Praj has spread across the globe: it has a 60 per cent share in a joint venture with a European company¹ and a 54 per cent stake in a Brazilian company² for ethanol production; it provided the equipment for the UK's first ethanol plant, commissioned by British Sugar; it was awarded machinery contracts for cassava-to-ethanol plants in Thailand; it owns an engineering firm in the US; and it has a presence in another 40 countries. The Indian-American venture-capitalist billionaire Vinod Khosla, who promotes ethanol fuel worldwide, has bought a 10 per cent share in Praj. The Japanese Marubeni Corporation also has a share in the company. Back home, the Praj Chairman heads the Confederation of Indian Industry's National Committee on Biofuels. The company is also reaping the benefits of the Government's Special Economic Zones (SEZ), setting up a new production unit by the port in Kandla SEZ in Gujarat.³ The seaside location facilitates the transportation of the equipment to foreign markets. The impact on local people is much wider: as one local said, these large plants and plantations are themselves becoming like giant new SEZs.

Many other companies are also looking overseas.⁴ In Andhra Pradesh's port city of Kakinada, three or four biodiesel plants are planned. One of them – Naturol Bio Energy Limited, set up in collaboration with an Austrian energy company and a US investment firm – is the first integrated oleo-chemical biodiesel facility in India.⁵ Established in 2003, it commenced operations in 2007. It will produce biodiesel and glycerin from palm oil, jatropha and pongamia feedstocks. Most of its production will be exported, its main markets being North America and East Asia. The state government is working to finalise its draft biodiesel policy to accommodate the requirements of such projects.⁶

1 The company BioEnergy Europa B.V. based in the Netherlands will supply to the European biofuels market. www.biocenergy.eu

2 Jaragua Equipamentos Industriais Ltda.

3 See <http://www.kasez.com/index.asp>

4 "Indian firms scout for farms overseas", <http://www.thehindubusinessline.com/2007/12/03/stories/2007120350860500.htm>

5 See <http://tinyurl.com/6zg4g4>

6 See <http://greenbusinesscentre.com/images/Photos/ads53.pdf>

Many of the industry's demands have found favour with the Planning Commission of India, which is guaranteeing full support for renewable energy and favours the granting of tax incentives to make biofuels economically feasible. But, as was mentioned earlier, the government has been slow to take concrete measures. One of the reasons for the delay is that several government ministries are involved in one way or another and, though none of them is against biofuels per se, there are inter-ministerial turf wars. For instance, while one group of ministers, headed by the agriculture minister, is working on the proposed policy document, renewable energy minister Vilas Muttemwar, while in Europe, publicly welcomed 100 per cent foreign direct investment in the sector.¹⁶ The BDAI is openly unhappy at the delays, particularly the indecision over government subsidies.¹⁷

Private operations forge ahead

What is astounding is the extent to which private industry has bounded ahead, in the absence of a coherent government policy.¹⁸ There are many reasons for this: the "opening up" of the Indian economy to large enterprises, including foreign companies; cheap production costs; plentiful natural resources; affordable human labour; lax environmental regulation; and generous incentives (encouraged by the competition between the

provincial governments to attract the investment). By contrast, in China foreign stakes in biofuel companies have been limited by law to 49 per cent since 2007. All this means that it makes business sense for the big foreign players to have operations in India for their global production. Those moving in include BP (which owns D1 Oils) and Daimler (tied up with ADM and Bayer). Some of the home-bred corporates, such as Praj, which deals with ethanol processing machinery, have also gone beyond the Indian shores and become transnational corporations (TNCs) themselves. Many have criss-crossing links with foreign companies (*see* Box 2).

Sugar back in favour

While many of the first projects have concentrated on jatropha, palm oil and pongamia for biodiesel production, biofuel fever is also kindling an interest in producing ethanol from sugar. India is expected to overtake Brazil this year as the world's largest producer of sugar, and its sugar-cane production is chemical-heavy, water-intensive monoculture. Today, the planners want to develop sugar cane as a multi-product crop, that is, one that can be used to produce other things apart from sugar.¹⁹ This would hitch the crop forever to the export market, as well as orienting agricultural research towards varieties for "non-traditional" uses, such as ethanol production. India is also seeking to

16 "India seeking 100% FDI on biofuels: Minister" <http://tinyurl.com/297ej4>

17 India in slow lane in drive for greener fuels, <http://tinyurl.com/244mxn>

18 According to Rabobank's Report, <http://tinyurl.com/24u6hs>

19 Sugarcane Vision 2025 of the Sugarcane Breeding Institute, ICAR, Coimbatore in South India <http://tinyurl.com/22n8b9>



Box 3: Agribusiness firms riding high on the “biofuel” wave

Agribusiness firms are cashing in on the “renewable” energy subsidies. For instance, Adi Biotech, which includes a former Vice President of Syngenta India in its management team, is moving into the export of jatropha seeds. Nuziveedu Seeds Pvt. Ltd., a hybrid seed firm, is working with General Electric to set up this US company’s first wind project in India, in the Davengere District of Karnataka, for which it has also received support from the Ministry of Renewable Energy, through the Indian Renewable Energy Development Agency (IREDA). Labland Biotech Pvt. Ltd, a plant biotechnology company from Mysore in Karnataka, is producing tissue-culture-derived jatropha plants for distribution in India, Africa and Latin America through the global major D1 Oils plc. The government of Sarawak in Malaysia has invited the Indian company Labland Biotech to establish a bio-energy park there. The company has also been shortlisted to partner a Portugal-based company to develop about 10 lakh (1 million) hectares of land in Mozambique for jatropha cultivation. Gujarat State Fertilizers and Chemicals Ltd (GSFCL) has also selected Labland as one of its two service providers for its 1,100-hectare jatropha plantation being developed in the harsh, saline regions of Kutch in Gujarat.¹

1 See Seema Singh, “Mysore biotech firm takes the lead in jatropha tissue culture”, 10 January 2008, <http://www.livemint.com/Articles/2008/01/10000249/Mysore-biotech-firm-takes-the.html>

develop technology to produce ethanol from sweet sorghum and sugar beet.

The introduction of sugar beet, which comes from the temperate zones of the world, would mean accepting Syngenta’s products, particularly its proprietary Tropical Sugar Beet, developed to suit tropical conditions.²⁰ Indeed, Praj Industries is already working with Syngenta for the processing of feedstock made from this variety of sugar beet. Varieties such as these may pave the way for the development of other hi-tech bio-energy crops, including genetically modified organisms (GMOs), with all the problems that this will entail. Not for the first time, these products will probably be introduced on a wide scale without appropriate safeguards. As research is already being carried out into the next generation of genetically engineered crops and trees,²¹ the risks of contamination for local crops and local biodiversity are becoming more severe.

Jatropha fever nationwide

Although there is some interest in producing ethanol from sugar, many companies appear to be more interested in importing sugar from Brazil.²² But this is not the case with jatropha (locally termed “ratanjyot”, “jungle erandi”, “kadaharalu” or “jepal”, depending on the region), which is used to produce biodiesel and is being promoted on a war footing all across India. Many different government bodies are involved. In 2005–6 the Ministry of Rural Development provided financial support to nine states for the production of about 180 million seedlings of jatropha.²³ In 2006 the India Council of Agricultural Research identified

for commercial cultivation in the semi-arid and arid regions a jatropha variety – SDAUJ I – which has seeds with a particularly high oil content (49.2 per cent). An exercise is currently under way at the Department of Biotechnology to discover which varieties of jatropha are best suited for biodiesel production, and to develop these varieties.²⁴ The National Oil Seeds and Vegetable Oils Development Board (NOVOD) at the Ministry of Agriculture is also overseeing a countrywide project for the identification and development of elite jatropha planting material. The Uttarakhand Biofuel Board has established a jatropha gene bank to preserve high-yielding seed varieties. Not surprisingly, the big corporations are showing great interest in the varieties of jatropha that are being discovered. D1 Oils has already been accused of biopiracy in its quest to acquire high-yielding jatropha varieties.²⁵

There is also considerable discussion about where jatropha should be grown. The first areas being targeted are the so-called “waste lands”, which gives the idea that the country will put to good use something that produces nothing at the moment. In 2005 the Ministry of Rural Development produced a “Wasteland Atlas of India”.²⁶ And a study from the Energy and Resources Institute (TERI) identified six categories of waste land as suitable for jatropha plantation.²⁷ The Indian Space Research Organisation also has an ongoing remote-sensing project to identify waste-land sites for plantations.²⁸ But what may look like barren, “waste” pieces of land to outsiders provide sustenance for millions of people. They are the “commons” and the pasture lands of many communities. Just as people need food and land, so cattle need fodder and ground. As well as traditional pastoralists, who use these lands

20 See <http://tinyurl.com/ypowv6>

21 See <http://www.forestbiotech.org/>

22 Big Indian sugar companies (Bajaj Hindustan) seem to be investing in Brazilian sugar and ethanol. Bharat Petroleum too has made big investments in Brazilian biofuels. It appears that they plan to export to India.

23 Indian government press release, 3 December 2007 <http://tinyurl.com/ypadgm>

24 Presentation at discussion on “Energy Biosciences Strategy for India”, 10–11 September 2007, <http://tinyurl.com/28ovyl>

25 Kanchi Kohli, “Who decides on bio-security?”, The Hindu Business Line, 10 October 2007, <http://tinyurl.com/yvqmlz>

26 This “atlas” is a series of snapshots of “waste land”, and can be seen at <http://tinyurl.com/2crtc5>

27 Varun Jaitly and Anupama Airy “Many miles to go for bio-fuel”, *Financial Express*, 27 August 2007, <http://tinyurl.com/2bh4yk>

28 Government of India, Department of Science and Technology press release, 22 November 2006, <http://tinyurl.com/292t49>



BOX 4: ICRISAT'S Sweet Sorghum Ethanol consortium – how sweet?

Many companies have become part of the Sweet Sorghum Ethanol Consortium (SSERC), set up by the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), which is yet another public-private partnership established by a Consultative Group on International Agricultural Research (CGIAR) centre. ICRISAT is behind the world's first sweet sorghum ethanol. About five years ago in its campus in India, it began a two-pronged approach to this end, developing hybrid varieties which, it claims, have higher sugar content than conventional sorghum, and supporting the development of the process technology. This has now lured large companies to join the Consortium, first Tata, quickly followed by Praj. Tata Chemicals is in the process of setting up a pilot biofuel manufacturing unit in Nanded in Maharashtra, which will be operational in 2008–9. In January 2008 the ICRISAT-NAIP Sweet sorghum ethanol value chain development project was started,¹ which, with Rusni Distilleries Pvt Ltd as part of the team, yet again shows the growing cosiness amongst International Agricultural Research Centres, National Agricultural Research Systems and the private sector. Rusni erected its first distillery in the town of Rosales in the Philippines in January 2007.² The company holds a patent for the production of ethanol from sweet sorghum stalk. A project has also been initiated in Kampala, Uganda, by a private sector company, J N Agritech International Ltd. The partnership with the Ugandan company was built by the Rusni Distillery with the support of the Agri-Business Incubator at ICRISAT.³ ICRISAT is also involved in another public-private partnership which, along with the German government's GTZ, the World Bank's IFC and the USA's Rabobank group, supports Southern Online Biotechnologies Ltd. with biodiesel expansion projects in alliance with the German Lurgi Life Science company.

1 See *Icrisat happenings* No. 1294, 25 January 2008, <http://www.icrisat.org/Flashline/1294.pdf>

2 See *Sun Star Pangasinan*, 25 January 2007, <http://tinyurl.com/6kq3x9>

3 See "ICRISAT sorghum for ethanol now a sweet reality", CGIAR news release, 11 October 2006, <http://tinyurl.com/6hpn6j>

29 Rajasthan Land Revenue (Allotment of waste land for bio-fuel plantation and bio-fuel based Industrial and processing unit) Rules, 2007.

30 "DMC to buy land in Rajasthan for agri-farming", *Business Standard*, 27 December 2007, <http://tinyurl.com/2yob6b>

31 See Workshop Report, "Sheep pastoralism in Rajasthan: still a viable livelihood option?" 31 January–1 February 2005, <http://tinyurl.com/2dzjnc>

32 See "Protests against unfair land allotment in Rajasthan", *Down to Earth*, 15 September 2007, <http://tinyurl.com/yv3It2>
Aseem Shrivastava, "Rajasthan padyatra highlights pressing rural problems", *InfoChange News & Features*, September 2007, <http://tinyurl.com/25rw2j>
and the invitation to support the Jan Adhikar Yatra in Rajasthan, August 2007, <http://tinyurl.com/29r9y7>

33 Navdanya press release, "Biofuel hoax: Jatropha and land grab" 5 December 2007, <http://tinyurl.com/39sqjw>

on a permanent basis, refugees from development projects, displaced persons, jobless labourers and small farmers facing crop failure often rely on these lands as places where they can put their cattle during an emergency. If these lands are enclosed, the lifelines of many already disadvantaged people will be jeopardised.

"Culturable wastelands"

One of the states in which biofuels has emerged as a contentious land-use issue is Rajasthan. There the state government has designed a "green patta" policy, which permits waste land to be leased out to private companies and government enterprises for up to 20 years.²⁹ Though 70 per cent of these "culturable wastelands", as they are called, are to be allotted to farmers' groups and only 30 per cent to companies, there is concern that, in collusion with administrative agencies, companies may take over more than their permitted amount. This is a real risk, as companies do not find it convenient to collect from scattered plots. There have been other changes that endanger local communities, such as the abolition of both the maximum size of a plot that can be held by an individual or company and the ban on the sale of tribal lands. It is now possible for a special government committee to approve up to 1,000 hectares of land to be given to private companies for jatropha plantations. Such relaxing of the controls makes land investment a far more

attractive proposal for large companies like DMC International, a real estate developer.³⁰ Activists believe that *sarpanches* (village leaders) have very often had their arms twisted not to oppose these changes in government policy. Even so, there is opposition. The category "culturable wasteland" covers almost all of the *orans* – traditional sacred groves – that are the lifeline of the 7.5 million pastoralists in Rajasthan. They are now demanding legal recognition of their customary grazing rights on these and *gauchars* – grazing lands.³¹ People are finding creative ways to highlight these issues.³²

Land grabs for biofuel cultivation are also occurring in Central India.³³ Orissa is one of the states where private investors have been most active in duping villagers to gain access to their land. It is clear that in this state it not just so-called "wastelands" but also farmers' lands that are being targeted. Farmers from Chouhanpali village in Luisingha Block in western Orissa, who are growing jatropha, say agents from the Majhighariani Institute of Technology and Science (MITS) have often visited their village.³⁴ Despite these visits, the farmers have not yet received the promised loan facility. Indeed, not many financial institutions have shown much interest in financing jatropha cultivation. Bankers appear to be sceptical about the much-heralded high yields, particularly from "barren" lands. And perhaps the authorities share some of the doubts. The Orissa Renewable Energy Development



Agency (OREDA) – the leading government agency handling biofuels – is treating the Orissa draft biofuels policy as a poverty alleviation programme and are planning jatropa plantations in the districts of the state (Kalahandi–Bolangir–Koraput) with the greatest food shortages.³⁵ Long-time activists who have been fighting the takeover of the state by large companies believe that it is time for those fighting poverty and land grabs and those fighting the corporations to integrate their struggles. They say that, if biofuel cultivation is to be permitted at all, the crops and oils should not leave the village: the local people should use them to satisfy their own energy needs.

Lands that have been assigned for large-scale jatropa plantations are often situated in highly impoverished rural areas where the farmers don't have the strength to protest.³⁶ Elsewhere they lack the organisation. Baiga tribes in Central India, who have long used torches at night made from bamboo stuffed with lit jatropa seeds, were not to know that this useful plant was one day to turn their lands into prize booty for the corporations. This is something new, for in the past tribal people in Madhya Pradesh have lost their land to tourism projects and large dams. Even though they are for the moment still on their lands, there are new threats. Farmers told GRAIN that they were afraid that they would be locked into jatropa for years, without being allowed to use their land for anything else. The crop takes three years to come to maturity, and until then farmers will be cultivating it at a loss. They were told that contract farming deals for jatropa would be an admirable long-term investment and bring them good economic returns, but this does not seem likely. Worse still, with all the emphasis on jatropa, farmers are not being given support for their biodiverse agriculture. Agro-biodiversity, nutritional security and food sovereignty are all in jeopardy.

Water privatisation

If vast areas of waste lands are to be turned into jatropa plantations, some water will be required for irrigation, however hardy the plant is. This raises concerns that water could be diverted from legitimate local uses. The priorities of the government and the community are clearly at odds. CGIAR has already warned that the biofuels boom in India and China could worsen the water situation.³⁷ Even so, the authorities are pushing for water to be given to jatropa. Many district water agencies, such as that in Andhra Pradesh, are being told to give priority to jatropa cultivation.³⁸ Similarly in Madhya Pradesh and Maharashtra, both self-help groups and those running the



Photo: GRAIN

Small-scale farmer contemplates the jatropa saplings planted by a private company that has taken over this land in Ghumer village, Bolangir district, western Orissa, India. Mahua trees stand in the background.

government's programmes for integrated watershed management are being encouraged to promote jatropa cultivation. The governments in Punjab, Karnataka, Maharashtra and Andhra Pradesh are offering to subsidise drip irrigation for jatropa plantations. Industry representatives in Tamil Nadu are asking for a similar scheme, and the state government, claiming that it can't afford to pay this subsidy, is seeking help from the national government. However this squabble is resolved, it is clear that drip irrigation companies, such as Jain Irrigation Systems Ltd, will make a lot of money. And the message to the small grower is clear: you will get irrigation only if you agree to grow jatropa and to put your own needs second! Even if the small grower agrees to the rules of the game, it is not clear how long s/he will be able to afford the irrigation. With both the World Bank and USAID pressing for the privatisation of water resources in India, it is likely that in the future only the wealthy will be able to afford it. So it is a win-win situation for the industry: they get government support until the privatisation of water has occurred and then the big private users, who can afford their prices, will be producing the jatropa.

34 As told to GRAIN staff in December 2007. MITS has an active biotechnology department. <http://tinyurl.com/2sx889> See also "Promotion of bio-diesel plants mooted in State" *The Hindu*, 10 July 2007, <http://tinyurl.com/3afsl4>

35 Government of Orissa, Science and Technology Department, draft policy guidelines for raising of energy plantations and bio-diesel production, undated, <http://tinyurl.com/2kcjdl>

36 See, for example, Shashikant Trivedi, "MP to allot land to 11 firms for jatropa cultivation", *Business Standard*, 21 December 2007, <http://tinyurl.com/2whqxa>

37 CGIAR press release, 11 October 2007, <http://tinyurl.com/374how>

38 See G. Ravikiran, "Krishna selected for jatropa cultivation" *The Hindu*, 23 November 2005, <http://tinyurl.com/2olubv>





Jatropha curcus seeds, within and without their black shells

Jatropha fever is spreading everywhere. The Centre for Research and Application in Plant Tissue Culture in Hisar, Haryana, has provided over 100,000 jatropha plants to the farmers, and the Haryana Forest Department is creating 300 hectares of model jatropha plantations. Similarly, the Forest Department in Himachal Pradesh is itself distributing jatropha saplings for planting. Ironically, the promotion of jatropha is being carried out as part of a project to “green” the state. Meanwhile, there is growing concern about the future of ecologically sensitive areas – such as the Barnavapara National Park in Chhattisgarh – which will find themselves surrounded by a sea of jatropha.

Exacerbating famine

In north-east India, the corporate takeover is being achieved by buying up tea estates which have a ready-made plantation structure. D1 Oils signed an agreement to that effect with the Williamson Magor Group, one of the world’s largest producers of tea.³⁹ *Jhum* lands, where traditional shifting cultivation is practised, have also been penetrated by jatropha promoters. In Mizoram, the state government signed a memorandum of understanding with D1 Oils in 2005 for the supply of jatropha seeds. Godrej Agrovet Ltd, a large agroindustrial company, is already producing palm oil, and announced plans in 2007 to establish 20,000 hectares of jatropha in the state. All this is happening in a state which was declared a “disaster area” in December 2007 because of famine. The move into intensive jatropha cultivation will make the problems worse, for only traditional food crops

and their seed stock are capable of withstanding the vagaries of nature, which are only likely to increase as the climate changes. The Indian Agricultural Research Institute study has already indicated a loss of 4–5 million tonnes of wheat owing to an increase in temperature as a result of global warming.⁴⁰

Often farmers do not have access to complete information about what is going on in their regions. Take the instance of Mission India Ltd, a subsidiary of Mission Biofuels Ltd of Australia, which has signed a long-term deal with “an Indian district” for the purchase of all jatropha seeds harvested there. The company does not disclose in any of its public statements the name of the Indian district or of the state agency with which it has signed a contract. Yet its media release of September 2007 talks of its wish to replicate this deal in other districts.⁴¹ And, indeed, in January 2008 it signed a second agreement with another Indian district that granted it exclusive long-term access to jatropha seeds from already planted lands, as well as access to additional land in the district that is to be planted with jatropha over the next three years.⁴² The managing director of the company simply states that details cannot be disclosed for “confidentiality reasons”.⁴³ However, the Annual Report does reveal that his company has signed contracts with Tata Energy Research Institute (TERI) for collaboration over research and development, has an agreement with the Tamil Nadu Agricultural University’s Centre of Excellence in Biofuels for planting materials, and has reached contract farming arrangements with Kalanjium Thozilagan Limited (KTL), a farmers’ enterprise aided by the DHAN foundation.

Research plans and ideas for the next generation of biofuels are already in the pipeline. The Sardar Swaran Singh National Institute of Renewable Energy (SSS-NIRE) is being set up in Punjab for research on bioenergy and synthetic fuels. Along with its own research and development areas on biofuels, the Department of Biotechnology within India’s Ministry of Science and Technology has set up a Centre of Energy Biosciences in Mumbai for cutting-edge biofuels for transportation.⁴⁴ The research partnerships bring together the Mahyco Research Centre and several US research institutes. At the same time India’s Petroleum Conservation Research Association has set up a National Biofuel Centre at its corporate office and, in order to encourage the production and use of biofuels, it offers annual awards, based on credit points, to organisations for a variety of activities linked to biofuels. High numbers of points are allotted to anyone who procures a patent or suggests any new use for the biofuel byproduct glycerin.

39 Samudra Gupta Kashyap, “Goodbye tea, welcome jatropha”, *Indian Express*, 23 November 2007, <http://tinyurl.com/2kx08y>

40 Surinder Sud, “Agriculture may decline due to climate change”, *Business Standard*, 21 January 2008, <http://tinyurl.com/36y256>

41 Mission Biofuels Ltd press release, 3 September 2007, <http://tinyurl.com/2vddaz>

42 Luke Hallam, “Mission Biofuels signs second agreement for Indian Jatropha”, *Envirofuels website*, <http://tinyurl.com/3c3lvh>

43 In response to an email query from GRAIN, 9 February 2008.

44 Biopact website, “India launches first biofuels and bioenergy science centre at University of Mumbai to develop advanced fuels”, 31 January 2008, <http://tinyurl.com/2ltobw>



The government has ambitious plans. In the words of the Indian Minister for Science and Technology and Earth Sciences:

We also have about 63 million hectares of wasteland, of which about half has been earmarked for tree plantation.... But we need to do more research and development on genetically modified jatropha varieties with still higher oil content and devise optimal processing technologies.... Also, we have the ability to completely rewrite the geopolitics of oil if we ensure that the efficiency of transportation in the country – specifically diesel transportation – is improved and bio-diesel substitution takes place on a war footing.⁴⁵


Conclusion

Energy crops make their presence felt at a time of crisis in small-scale farming in India, due to problems within the agriculture sector itself, compounded by the impact of industrialisation. In such a situation crops that appear to provide an assured return, such as jatropha, become the only option rather than a preferred choice. In reality, neither plantations of biofuel crops nor the energy that results from them are really offering anything to small peasants, traditional pastoralists, indigenous peoples, tribal communities, forest dwellers or the urban poor. But the decline of multi-cropping and agrobiodiverse practices creates an environment in which such plantation crops gain easy entry. If agrobiodiverse farming and traditional crops received proper support, there would be no space for large-scale jatropha or any other plantation crop.

This is not to suggest that the crops used to produce biofuels are inherently bad. One hears of how effective jatropha can be as a fence to keep out cattle and how pongamia has traditionally been sown in paddy fields because of its nitrogen-fixing qualities and its usefulness as green manure. Likewise the story is often told of how a small village in Chhattisgarh has been electrified by jatropha.⁴⁶ But, as has been seen in relation to many other ecological problems, anything that gets big tends to upset the balance. This is the first time that these crops have been promoted for large-

scale, commercial production. India should learn from the experience of other Asian countries such as Indonesia and Malaysia, and carry out a sound social audit before embarking on such a course of action.

Instead, government is using a wide range of instruments – welfare schemes, village microfinance, poverty alleviation programmes, agricultural research systems, rural extension services and so on – to make biofuels work. But it appears that they will work for only one group: not those for whom they were originally intended but for large business interests, who, through these schemes, are able to make deeper inroads into the land and other resources that have hitherto belonged to the people. The focus is now on feedstock production. The private sector is making huge investments, and its expectations are of the same magnitude. If companies don't get the returns they hope, they are likely to move towards the vertical integration of the industry, so that they can control all stages of production, from the growing of feedstocks to the distribution of the biofuels.

As the situation deteriorates, certain things need to be said. First, no new technology will alone secure local people a better future. What is needed is that their relationship with their lands and their resources be properly respected and recognised. Unless this happens, they will always be affected for the worse, whether it be dams, wind farms or energy cropping that is introduced. With every wave of “development” the disparities and displacement will increase. Second, unbridled support for the private sector in India will have a serious impact, not only on the small and local in the country itself, but overseas as well. So this must be challenged collectively. Third, it is high time to question “development” models that create artificial energy demands that are ecologically unsustainable and socially destructive. For those private companies that are grabbing the land, “clean green energy” is only a marketing banner. While they falsely claim to be “saving the Earth”, they are actually seeking to extend their power and expand their profit. Such expansion is a threat to the survival of the planet and its many voiceless communities. 

45 From the text of the keynote address delivered by the Minister for Science and Technology and Earth Sciences, at the inauguration of the 95th Indian Science Congress, Andhra University, Visakhapatnam on 3 January 2008.

46 Showcased by WINROCK India at the 5th International Biofuels Conference in Delhi 7–8 February 2008, supported by, among others, USAID and corporates, <http://www.winrockindia.org/>



