

Biofuels and Wastelands: Energy Policy, Land Markets and Social Inequality in South India

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India's National Biodiesel Policy

Objective:

- “The Indian approach to biofuels . . . is somewhat different to the current international approaches which could lead to conflict with food security. It is based solely on non-food feedstocks to be raised on degraded or wastelands that are not suited to agriculture, thus avoiding a possible conflict of fuel vs. food security.”

(MNRE, 2009, pg. 3-4)

Implementation:

- “Plantations of trees bearing non-edible oilseeds will be taken up on Government/community wasteland, degraded or fallow land in forest and non- forest areas. Contract farming on private wasteland could also be taken up through the Minimum Support Price mechanism proposed in the Policy. Plantations on agricultural lands will be discouraged.”

(MNRE, 2009, pg. 7)



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Wasteland Origins, Assessments & Omissions

- Locke to Colonial Land Assessment: classify underperforming lands to “improve the value of nature lying in waste” (Gidwani, 2008)
- Assessment process continues
 - Multiple assessments (ie. Wasteland Atlas, 9-Fold Classification)
 - Different methodologies
 - Different results
- Three angles of assessments: public v. private, irrigated v. non-irrigated, soil class
- Socio-economic, socio-cultural dimensions absent



Jatropha Case Study

- Emerged in mid-2000s as an improved substitute to edible biodiesel feedstocks

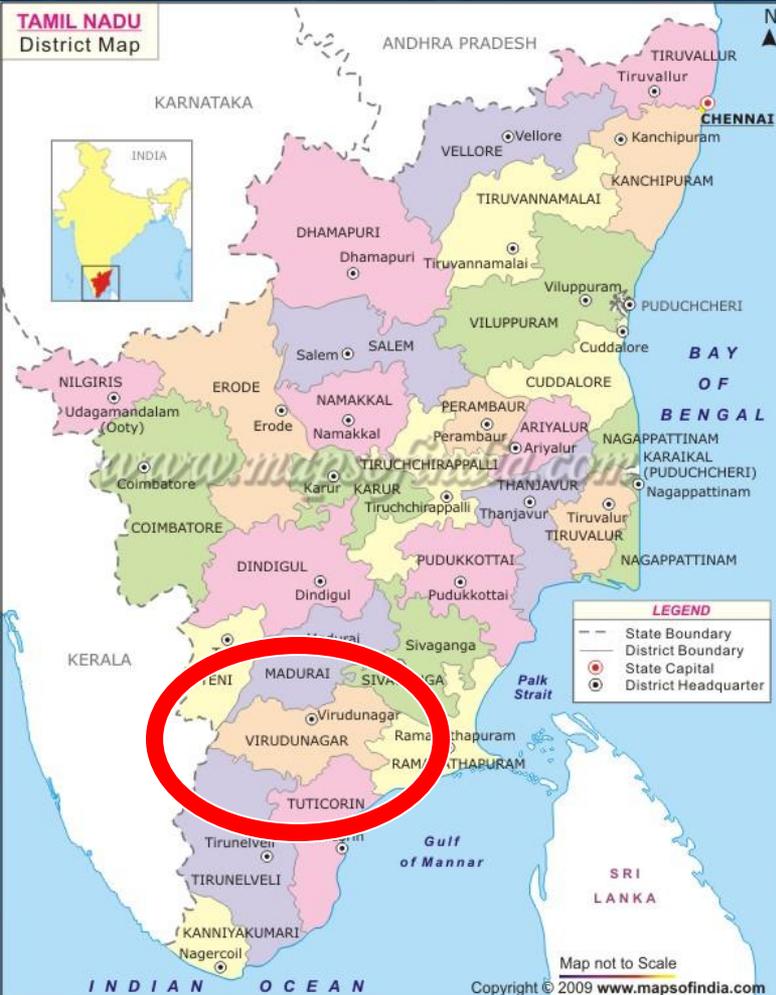
- Ability grow on marginal lands
- Rainfed conditions
- Rural-welfare enhancing, particularly in developing countries

- India & Tamil Nadu leading promoters

- 2008 estimate: 409,000 ha cultivated in India (45% of global cultivation; #1 globally); 20,000 ha in Tamil Nadu (GEXSI, 2008)
- 2003: GOI recommended planting 17.4 mha of degraded lands with Jatropha to meet 20% biodiesel blending target by 2012 (Planning Commission, 2003)

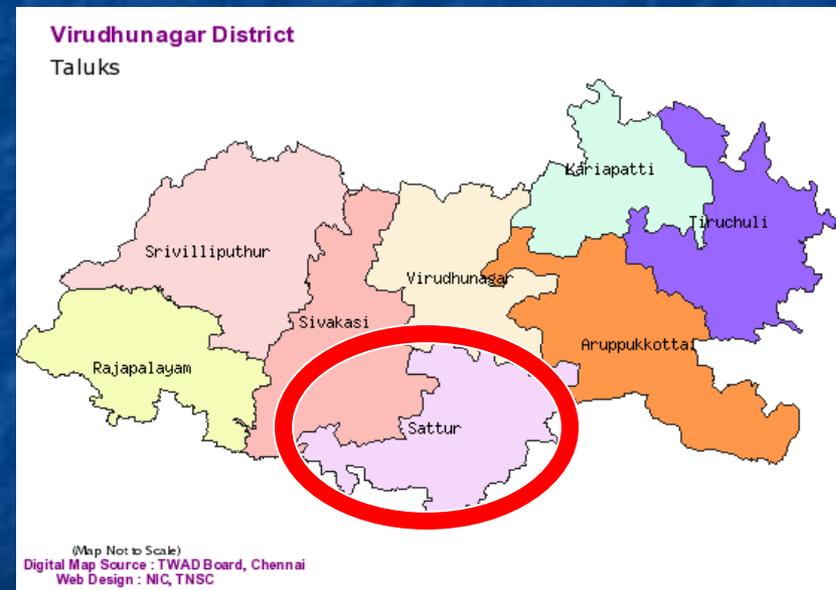


Fieldsite & Methods



METHODS:

- Semi-structured interviews with 13 affected farmers, 48 key stakeholders
- Land records analysis



Land Acquisition Timeline: Farmer Narratives

2005-06: Farmer Acquisitions

- Land broker acquisitions:
 - Paid some farmers Rs. 3,500-5000/acre for a portion of land
- Targeted privately-owned wastelands
- Re-registered farmers' entire land portfolio and neighboring lands
- Acquired approximately 800 acres

2007-09: Jatropha plantation

- Company planted Jatropha on ~ 400 acres of land
- Abandoned plantation after 2 yrs
 - No seeds harvested
- Sharp increases in land prices

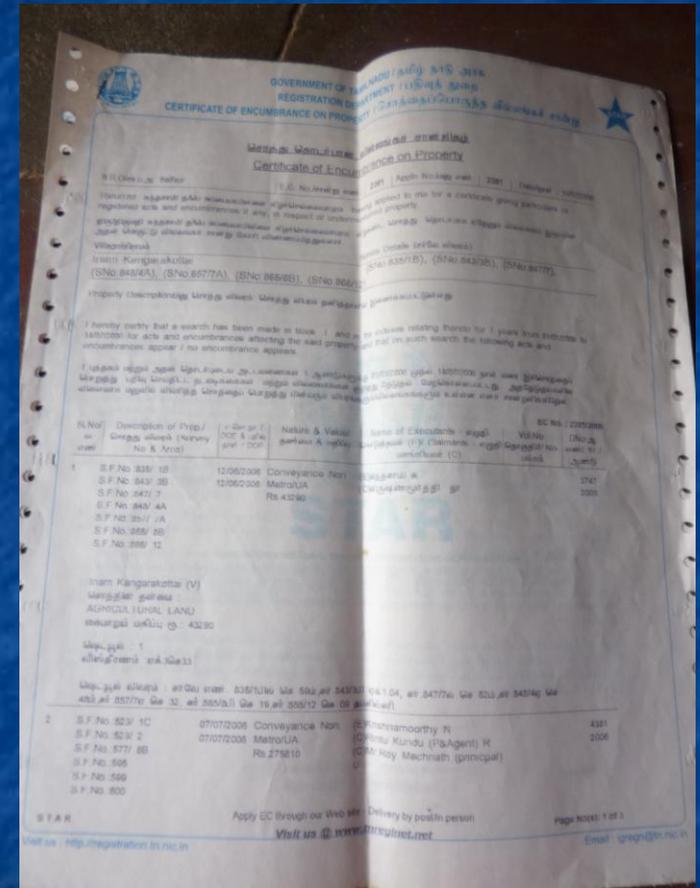
2009-Present: Sale to Real Estate

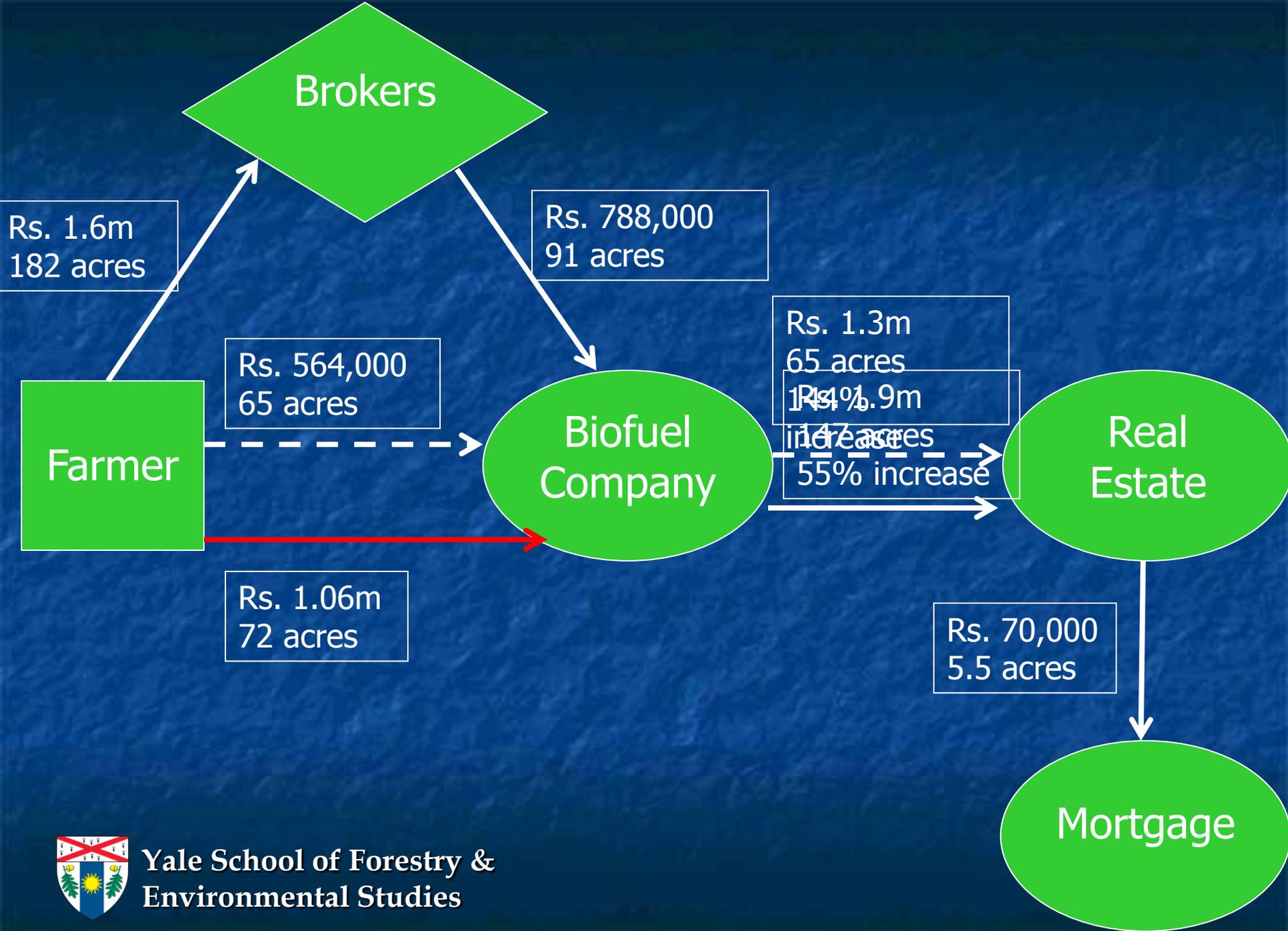
- Portions of the plantation are being sold to real estate companies "Bombay Company"
- Current market land prices Rs. 50,000 per acre



Land Document Analysis

- Encumbrance Certificates obtained for 238 acres of the plantation (30%)
 - Show transaction dates, types, registration values for 24 years of a given survey
- 40 “complete” transactions found that correspond to farmers’ narratives:
 - Acquisitions → Jatropha Company → Real Estate → Mortgages

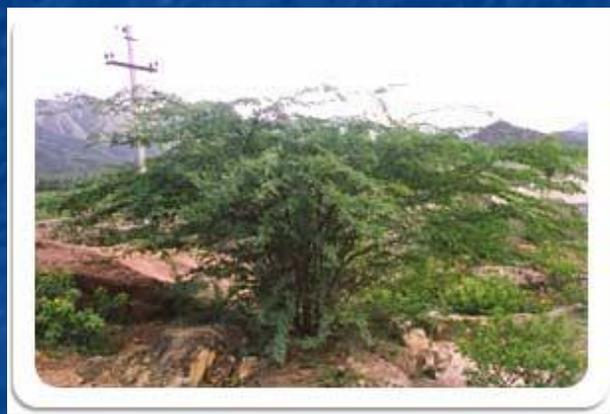




Why This Area?

- Ongoing process of agrarian transition
- Continued adverse climatic conditions
- Rising cost of maintaining agricultural lands
- Labor shortages
- Low land prices
- Result: farmers have been abandoning rainfed lands over the past 20 yrs
- Result: *Prosopis juliflora* invades and lands become wastelands





Role of Biofuels in Acquisitions

- Company's intent to cultivate Jatropha questionable as plantation was abandoned before maturity
- Government subsidies to support
 - Land clearance
 - Seedling costs
 - Labor costs
 - Land re-distribution



Biofuels ↔ Agrarian Change

- Transactions of these sorts are not new to rural India
- How might biofuels exacerbate existing trends?
- What distortions to land markets and agrarian livelihoods does biofuels create?



Conclusions: Policy

- Doubtful whether wasteland-centered biofuel policy can offer rural development benefits
 - Increasing risk of dispossession in marginalized communities
 - Affected communities lack the political capacity to resist
- Indian case is more subtle, obscured and smaller scale than African cases
 - But poses equal risks to the rural poor
 - Increase monitoring of processes at the village level
- Food security a problematic scope?
 - Land was abandoned; no food production
 - More comprehensive of food production system needed



Conclusions: Theory

- Restructuring caste and class relations
 - Land broker class emergence
 - Dispersed power networks
- Rationalizing discourses
 - Improving land efficiency is for the betterment of all
 - How this discourse disempowers affected farmers
- Embed land transactions within ongoing processes of agrarian change
- The role of temporal and spatial asymmetries and their relations to power dynamics
- Transparency: a necessary but not sufficient condition



Questions?

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- Social Science Research Council (SSRC)
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- Yale South Asian Studies Program
- Sustainable Aviation Fuel Users Group (SAFUG)



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Demographics of Fieldsite

- Avg. land holding: 2.4 acres (Virudhunagar District)
- Main rainfed crops: corn, cotton, grams
- Avg. monthly income: Rs. 10-15,000/month (\$222-\$333)

2009-10	Virudhunagar District	Sattur Taluk	Sattur/Vir. %
Cultivable Wastes (acres)	23,573	3,493	15%
Cultivated (area)	294,164	18,316	6%
Wasteland %	8%	19%	



Outcomes: Land Prices

Village	Sample Size	GLVs			% Increases		T-tests for Diffs in Means	
		Current	2003-July 2007	2002-March 2003	2003-07-Current	2002-03-2003-07	2003-07-Current	2002-03-2003-07
	#	Rs	Rs	Rs	%	%	p-value	p-value
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Ayan Kongarakottai ²	103	11,106.80	7,470.87	6,962.14	48.67%	7.31%	0.0000*	0.0693**
Inam Kongarakottai	43	12,302.33	8,825.58	8,074.42	39.39%	9.30%	0.0003*	0.3016
Karasilpatti	14	17,521.43	10,321.43	9,042.86	69.76%	14.14%	0.0008*	0.4359
Soorangudi	41	21,000.00	8,317.07	7,536.59	152.49%	10.36%	0.0000*	0.0706**
TOTAL	201							



Land Documents: Acquisitions by Company not Sold to Real Estate

Village	Transactions	Value	Derived area	Date Range
	#	Rs	acres	date
Ayan Kongarakottai	13	424,785	48.02	Mar-06 - Jul-07
Inam Kongarakottai	1	43,290	7.05	Jun-06
Karasilpatti	8	567,275	15.16	Jan-07 - Mar-07
Soorangudi	1	22,375	1.61	Jun-07
TOTAL	23	1,057,725	71.84	



Status of Affected Farmers Interviewed

Farmer Type	Count	Area Involved			
		Sold	Acquired	TOTAL	TOTAL
	#	acres	acres	acres	%
sold without dispute	3	12.50		12.50	19.1%
land acquired without knowledge or consent	6		22.28	22.28	34.0%
land acquired without knowledge or consent after initial land sales	4	13.52	17.27	30.79	47.0%
TOTAL	13	26.02	39.55	65.57	100.0%



Future Research

- Land acquisitions
- Jatropha farmer survey data
 - Cultivation practices
 - N=563 in 5 southern districts in Tamil Nadu
- Prosopis economy mapping
- Wasteland policy/assessment ambiguity
 - How do various stakeholders benefit/lose from current status?
 - How would this change with greater degree of policy clarity?



	Wasteland Atlas	9-Fold Classification
Methodology	Top-down; remote sensing	Bottom up; agricultural land use statistics (Village A Register)
Agency	National Remote Sensing Centre, Ministry of Rural Development	Director of Economics & Statistics, Ministry of Agriculture
Frequency	5-years	Annually*
Last update	2010, using 2005 data	2007-08 latest year available online
Scope	National; data reported at district level for each state	National; data reported at district level for each state; data for only 13 states available online for 2007-08
Classification	23 categories; glaciers/deserts, waterlogged areas, rocky/barren lands, degraded pastures/scrublands	Relevant wasteland categories: <ul style="list-style-type: none"> •Cultivable wastes •Uncultivable wastes
Wasteland area for 2005-06	All states (316.6 mha): <ul style="list-style-type: none"> •47.2 mha total wastelands (14.91% area) •27.8 mha (8.8%) for scrublands and degraded pastures 	22 reporting States (216.8 mha) <ul style="list-style-type: none"> •9.7 mha cultivable wastes (4.5% area) •10.4 mha uncultivable wastes (4.8%)

Wasteland Assessment Summary

- Challenging to compare the assessments
- Agencies to do not cross-reference with each other
- 9-Fold Assessment more commonly used in land use policy decisions
 - Uncertainty as to update frequency
 - No monitoring/auditing
 - “Wastelands are whatever government says they are”
- No guidance in biofuel policies as to which assessment will be used
- No consideration of livelihood significance of wastelands

