

# IRRIGATION MODERNIZATION THE VALENCIAN EXPERIENCE

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# Irrigation modernization in Valencia Region

- ▶ Smallholding, citriculture, collective management (irrigators' communities, IC)
- ▶ Public support as a water saving strategy, after 1994-95 drought and 1993 NHP failure
- ▶ Drip synonymous of modernization
- ▶ Centralized fertigation systems at IC scale

Irrigation system	Crops	1998 (m <sup>3</sup> /ha)	2009 (m <sup>3</sup> /ha)	Change (%) 1998-2009
Modernized (Drip irrigation)	Citrus	8,305	3,835	-54
	Citrus-Loquat	5,228	2,963	-43
	Mixed	6,060	3,382	-44
	Table grapes	7,375	3,323	-55
	<b>Average</b>	<b>7,919</b>	<b>3,710</b>	<b>-53</b>
Not modernized (Gravity irrigation)	Citrus	10,673	7,576	-29
	Citrus-Loquat	10,715	8,148	-24
	Mixed	8,121	6,573	-19
	<b>Average</b>	<b>10,225</b>	<b>7,433</b>	<b>-27</b>

# Rebound effect ?

- ▶ Estimated net water savings = 8% (?)
- ▶ No relevant changes in crops and varieties
- ▶ No expansion of irrigated lands
- ▶ No improvement of ecological flows (not desirable ?)

Table 4. Annual costs and tariffs (€/ha) of drip irrigation.

	Drip irrigation (2009 averages)			Mean increase after modernization (%)		
	Operating Costs	Irrigation Tariff	Real Cost of Irrigation	Operating Costs	Irrigation Tariff	Real Cost of Irrigation
Surface	475	788	954	33	62	81
Transfer	872	1,131	1,379	-2	27	54
Mixed	678	808	922	-45	-23	-1
Groundwater	733	813	924	-8	0	10
Average	666	805	927	-13	4	20

# And the farmers... Had they water saving as an objective?

- ▶ 50% admitted to have adopted drip irrigation (and centralized fertigation) because they were obliged.....

...but the majority of them feel satisfied with the change.

- ▶ Comfort is determinant in an aged part-time workforce
- ▶ Labour cost reduction is appreciated
- ▶ Slight increased production

Technology is not only hardware

CENTRALIZATION

+

ADAPTATION

+

PRIVATIZATION

# CENTRALIZATION

- ▶ Integration of irrigators' communities. A lost opportunity
- ▶ Changes in decision making scale level and territorial organization
- ▶ Changes in the staff
- ▶ Problems for organic farming and new crops caused by centralized fertigation. Water rights ?



# ADAPTATION

- ▶ Alternative network connections / Alternative irrigation turns
  - ▶ Systems design: flaws and weaknesses
    - ▶ Filters
    - ▶ Pumping systems
    - ▶ NPK
    - ▶ Pressures and sectorizations
- ⇒ **Re-design**

# PRIVATIZATION

- ▶ Water supply companies using drip as Trojan horse
- ▶ Lack of transparency, increased costs, broken confidence
- ▶ Cases of reversion and insurrection

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