



Can economic incentives help reduce wildfire risk?

Cecilia Fraccaroli

cecilia.fraccaroli@efi.int

Co-authors: Sven Wunder, Elena Górriz Mifsud, Elsa Varela

Towards a fire resilient Europe: can we do better? 24/10/2023 European Parliament, Brussels



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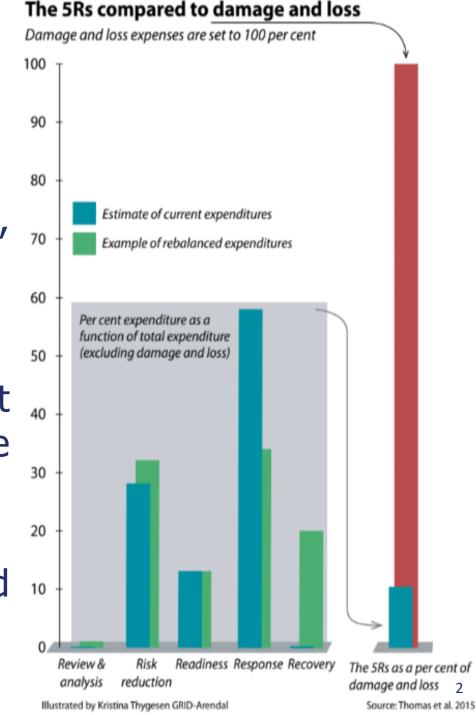


Managing wildfire risk: a wicked problem

 Nexus of climate change, rural exodus, urban sprawl → game changers coming Wunder et al. (2021)

• *Fire paradox*: the more effective we are at suppressing (small) wildfires, the worse fires eventually become → 'let it burn'?

 Wildfire are a public bad → shared mitigation strategies needed



Why do land stewards not self-mitigate enough?

Land abandonment



credit: Staffan Widstrand

Responsibilities not well-organized

Lack of knowledge





Low risk perception

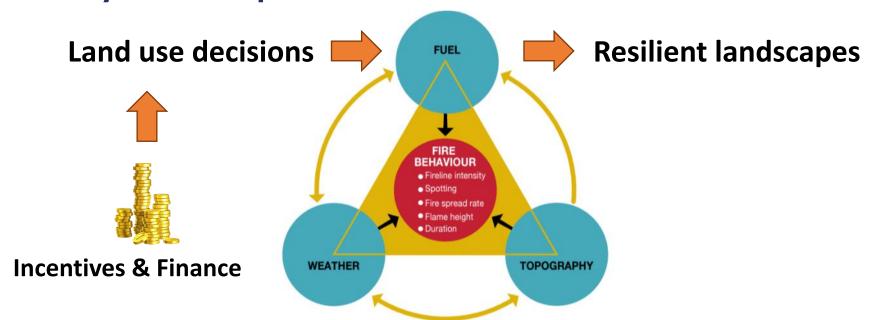


Source: legacy.climatecentral.org



Key questions

- 1. What economic incentives for wildfire risk mitigation are currently in use?
- 2. What is their record of success, and (how) could it possibly be improved?



Incentive **Commodity markets** Price premium typology Fire resilience-labelled products **Public sector** Risk reduction Higher revenue **Insurance** market House & Land Risk reduction Risk reduction Differentiated Liability premiums Lower premium Fee Risk reduction **Productive LANDOWNERS** infrastructure **Debt market** & STEWARDS Investment Risk reduction **Environmental** impact bond Investment States & Regions **Risk Reduction Payment Environmental services Funding** CO, mitigation Investment **Funding** Carbon credits **PES-like Subsidies** Return / CSR **Payment** benefits flow flow incentives



Database

Database of economic mechanisms for wildfire mitigation

Authors: Fraccaroli, C., Wunder, S., Górriz-Mifsud, E., Varela, E., 2023

	Parameter day							5.61										
	ntification				C	Fire Risk management Intervention type Risk Risk management Risk				D	land type Fund source Name of Lo							
No.	Study type	Key word	me of the Programme of the incent	the programme	the	Region	Country	Intervention type	Management_	measure	phase	Programme implementer	Description programme	Type of incentive	Land type	Fund source		Legal Framewo
-	-	-	-	trie programme	programm	-	-	-	measure *	description	(5R) ¥	implementer -	-	-	-	-	- under	k v
1	Case study	BAPCA	RAPCA - Network of Pasture Firebreak A	2005	-	Andalusia	A Spain	Landsoano Managom				Equiropment and Water Ages 1	220 local shepherds are to maintain low	DES	Public	Public	Regional Departm	
2	Case study	RDP subsidies	Bural Development Program subsidies fo		2011	Catalonia		Landscape Managem					Grants are restricted to forest owners wi				FII	FEADER E
3	Case study	Fire Flocks	Bamats de Foc		-	Catalonia							Ramats de Foc brings together public a				Nina Carasso, Ca	
4	Case study	DIBA WUI PPU	Programa de Prevenció d'Incendis Fore:		_	Catalonia							The programme supports communities i				Diputación de Ba	
5	Case study	WUI Catalonia			_	Catalonia				prevention plan dratfin			Annual subsidies to municipalities, or fo		public, private		Diputació de Giro	
6	Case study	FECOC - pre RDP	Perímetro de Protección Prioritaria BT-2		2016	Catalonia (Landscape Managem					Pilot project started in 2001 in Montmell.		Private and Public		Department de Mo	
7	Case study	Monserrat - pre RDP			2019	Catalonia							.IFE Montserrat is a European Life+proi		Private and Public		Life Programme E	
8	Case study	Regional Catalan			-	Catalonia							he program started in 2016 within the s				Rural developmen	
9	Case study	Monserrat DIBA	Agreement for the prevention of forest fir		-	Catalonia							The Agreement for the prevention of for				DIBA	Convenipe
10	Case study	ZIF Portugal			_		Portugal						IFs are continuous forest areas betwee		Private, public, co			institutional
11	Case study	Lebanon DIBA	Association for Forests Development and		_		Lebanon	Awareness and Educa					he aim is to increase local level capac		Private, public, co			LEBANON
12	Case study	Indonesian free village			-		ndonesia	Awareness and Educa		Avoid land burned	-		s a community engagement scheme.		Private, public, or		APRIL group	Presidentia
13	Case study	RDP	EU Rural Development Programme (RDP	2007	-	National				Support rural develops	n Risk Reduct	RDP-EU F	RDP measures are not designed to prev		Private, public, or		EU	European U
14	Case study	RDP - Brandenburg	EU Rural Development Programme (RDP	2014	2017		a Germany	Landscape Managem					he support from the Rural Developmen				EU	European U
15	Case study	Valencian grazing	Plan de Silvicultura Preventiva de la Com	1996	2009	Comunitat	∄a Spain	Landscape Managem	Fuelmanagement	Targeted grazing	Risk Reduct	Valencian Community - Cons (Compensatory schemes for herders hel	PES	Public, Comunal	Public	Valencian Commi	DOGV (200
16	Case study	Valencian grazing - 2	Aid for the control of natural vegetation E	2022	-	Comunitat		Landscape Managem	Fuelmanagement	Targeted grazing	Risk Reduct	Valencian Community (Continuation of the other Valencian Sci	PES	Private	Public	Valencian Commi	Resolución
17	Case study	PSC Spain	Plan for Shrub Clearing (PSC)		-	La Rioja	a Spain	Landscape Managem	Fuelmanagement	Shrub clearing and live	e Risk Reduct	Regional Government La Rio	he programme combines shrub clearin	PES	Private, public, co	Public	38.8 % Spanish C	European A
18	Case study	Saint Tropez water use	SIVOM federation		2014	Gulf of Sair	a France	Landscape Managem	Fuelmanagement	Maintainance of fire br	r Risk Reduct	SIDECM dam manager agenc	he group of municipalities (SIVOM) of F	Subsidies	Private, public	Private	SIVOM & SIDECM	1 County Plan
19	Case study	proyecto Mosaico	Proyecto Mosaico	2016	2021	Extremadu	Spain	Landscape Managem	Productive firebrea	Agroforestal mosaic: w	w Risk Reduct	University of Extremadura	he Mosaic project is funded by the Re	Value chain	Public	Public	Junta de Extrema	Rural Devel
20	Case study	Incendios Zero	Incendios Zero	2017	NA	Soria	Spain	Landscape Managem	Fuelmanagement	clearing of vegetation,	, Risk Reduct	Forest Onwers Association o	Recovering Spain's abandoned woodla	Subsidies	Private, public	Donors (public, co	Diputación Provin	- NA
21	Case study	Canary islands		2022	-	Canary isla	Spain	Landscape Managem	Fuelmanagement	targeted grazing	Risk Reduct	Cabildo de Gran Canaria 💎 🔻	ery similar to RAPCA. Thanks to the Fo	PES	Public	Public	Fondo Verde Fore	e -
22	Case study	Guardabosc			2010	Catalonia	🟝 Spain	Landscape Managem					t's a direct agreeement between forest				Fundació Caixa C	1-
23	Case study	Catalan Forest Defenc	Forest Defence Groups (ADF)		-	Catalonia	Spain	Awareness and Educa					The voluntary scheme is a hybrid public	PES		Public	Regional governn	
24	Case study	ADFs grazing Girona	Subsidies for wildfire volunteers prepared		-	Catalonia				Different areas of action			Through the call for subsidies for action				Diputació de Giro	
25	Case study	Aldeas Modelo			-		🖺 Spain						^o ublic investments in land consolidation				Medio Rural XUN	
26	Case study	RDP Aquitaine	Defense des Forests Contre l'Incendie ([-	Aquitaine				firebreaks construction			unding to the DFCI for fire prevention p				FEADER 38%; Sta	
27	Case study	AES Languedoc	Local Agro Environmental Operations; O		2005	Languedo		Landscape Managem					After a first experimental phase from 198				Initially stockbread	
28	Case study	RDP Lithuania	EU Rural Development Programme (RDP		2011		Lithuania	Landscape Managem		Firebreaks in plantatio			AFRD has helped to restore a busines:				EU	RDP - EAFR
29	Case study	Forest Resilience Bond			2022		🟝 United State:	Landscape Managem					t's a Forest Resilience Bond. The State				Yuba Water Ager	
30	Case study	Brush production		2016	2022		Italy			Conservation interven			Public funds are used to invest in logisti		Private	Private and Public	Life Programme E	Directive 20
31	Case study	Firewise USA	Firewise Communities/USA Firewise communities/Comunità antincer		-								Steps: 1. Complete a community assess				Municipal funding	
32	Case study	Firewise Toscany			2025	Tuscany Algarye- M	ltaly			Forest operators and A			he region provides the funding reaching				Regione Toscana	a Legge Heg
33	Case study Case study	Ryanair funder Collserola		2019 2022		Catalonia		Landscape Managem		They recover the land			The enviornmental NGO contacts land of The Collserola Agricultural Contract is a			Private Public	Ryanair Barcelona City Co	c - Oiute alak
35	Case study		Realização de Gestão de Combustível o	2018	2023	-	a Portugal						The Colliserola Agricultural Contract is a The Parish Council of São Miquel de Po				ICNF (Portuguese	
36	Case study	Friuli grazing RDP value			-	Friuli Vene:				Use of local cows to re			The program aims at reducing fuel load					RDP & legg
37	Case study		RDP Measure 4.4.1. Non-productive inve		-	Friuli Vene:							Abandoned lands are committed to a n			Public	BDP	BDP
38	Case study	DOP Montsant	DOP Montsant		-	Catalonia		Landscape Managem					The wine is sold including information or				DOP Montsant or	
39	Case study	Vifumat		2012	_	Catalonia		Landscape Managem					The wine is sold including information or			Private	DOP Montsant or	-
40	Case study	LifeClimark Credits		2017	2021	Catalonia				In areas with a high risk			he basic idea is for companies to buy?				Life Programme E	
41	Case study	PRGP	PRGP: Landscape planning and manag	2020	2025	-	Portugal	Landscape Managem	Fuel Management	Promoting agricultural	I, Risk Reduct	Dg Territorio Portugal	Ferritorial Sectoral Programmes (part of	PES	Private	Public	DG territorio Portu	Landscape
42	Case study	Condominio De Aldeia	Condomio de Aldeia within the	2020	2025	-	Portugal	Landscape Managem	Fuel Management	The area intervention	c Risk Reduct	Dg Territorio Portugal	Aultifund financing (PDR, FA, FFP). Mu	Subsidies	Private and Public	Public	DG territorio Portu	Landscape
43	Case study	PEO Portugal - PrGP	PEO - Programa Emparcelar para orden-	2020	2025		Portugal	Landscape Managem	Fuel Management	Avoid abandoned land	c Risk Reduct	Dg Territorio Portugal	Multifund financing (PDR, FA, FFP). 1st I	Subsidies	Private	Public	DG territorio Portu	Landscape
44	Case study	Valle Sagrado		2022	-	Cuzco	Peru	Awareness and Educa	Training	Training on prescribed	d Risk Reduct	Valle Sagrado Verde NGO 🔞	et up of 13 brigades staffed by local pe	Compliance subsidy	Public	NA	NA	-
45	Case study	Working on Fires South			-		South Africa					FFA Group of Companies (le: 1	he Programme was initially funded by t	PES	Private and Public		The Programme w	
46	Case study	Castilla y leon			2011	Castilla y Le	a Spain						he amount to be received is in function		Private and Public		Regional develop	
47	Case study	Cork-rdp italy			2015	Sardinia	Italy						unding (EUR) Total budget 986 4734 E			Public	RDP	RDP
48	Case study	Colorado grant			2016			Landscape managem	Fuel Management	Governance strategy	d Risk Reduct	Citizens and authorities (Grants ranging between 2,400 \$ to 1,75	Subsidies	Private and Public		Colorado Departn	
49	Case study	Oveja Bombera			2020	Castilla-La							he regional government supports past			Public	Junta de Castilla-	Plan Directi
50	Case study	State Farm	State Farm	2003	-	-	🗈 United State:	Landscape managem	Fuel Management	homeowners have to it	ir Risk Reduct	State Farm insurance	he insurance started providing in 2003	Insurance	Private	Private	State Farm	-
			Guidel	ines	Гиана			ription	Data	basa		_						

Guidelines Fra

Framework description

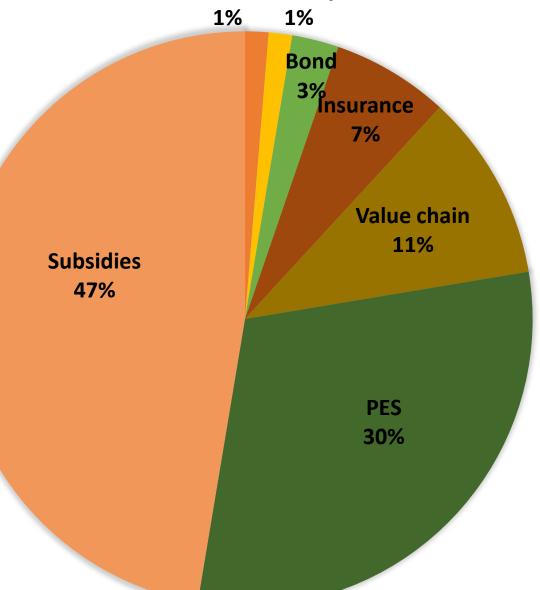
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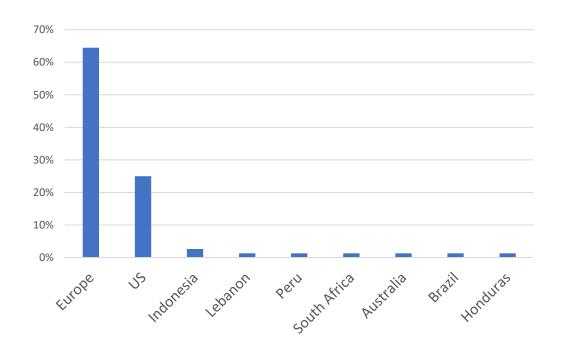
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Distribution of incentive cases

CSR Liability







A. Subsidized productive investments

- a) One-time public investment in infrastructure promoting farming and/or active forest management
- b) Agric. production keeps land open
- c) Counteracting problem from inactive/ absentee small landowners
- d) Examples: Galicia, Catalunya



B. PES-like targeted grazing

- a) Paying shepherds periodically for targeted livestock grazing (sheep, goat, cattle) in key fire risk areas (conditional incentive)
- b) Agric. production keeps land open
- c) Public administration needs longterm commitment
- d) Examples: Gran Canaria, Andalusia





Strategy recommendations

- Mixed governance strategies (e.g., combining carrots & sticks) increase flexibility; improving vis-à-vis pure command & control
- 2. Spatial targeting of high-risk areas: focus on strategic priority areas
- 3. Assess opportunity costs to find the right payment type and level, to effectively incentivize land managers
- 4. Scaling-out & adapting to local conditions replicate initiatives at a similarly sized, customized scale rather than the usual 'scaling-up'
- 5. Impact evaluation needed to know better what tools work best

MAY 2023

POLICY BRIEF

Can economic incentives help reducing wildfire risk?

Reviewing economic tools to motivate more fire-resilient land management





Wunder, Fraccaroli, Górriz-Mifsud, Varela (2023). Policy Brief - Can economic incentives help reducing wildfire risk? Zenodo.

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Fraccaroli, Wunder, Górriz-Mifsud, Varela (2023). **Database of economic mechanisms for wildfire mitigation** [Data set]. Zenodo.

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Thank you!

cecilia.fraccaroli@efi.int



Partners























