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Madrid, 7 & 8 November 2019





GS9 — Combining forces: building the bridge between natural capital approaches

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Introduction to Ecosystem Accounting and the MAIA project

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This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 817527

MAIA project: partners

- Wageningen University, The Netherlands
- <u>Leibniz Universität Hannover</u>, Germany
- <u>National Institute of Geophysics, Geodesy and Geography Bulgarian Academy of Sciences,</u> Bulgaria
- Finnish Environment Institute, Finland
- <u>Universidad Rey Juan Carlos</u>, Spain
- <u>University of Patras</u>, Greece
- National Statistical Institute of Bulgaria, Bulgaria
- <u>Norwegian Institute for Nature Research</u>, Norway
- INBO Research institute Nature and Forest, Belgium
- Agencia Estatal Consejo Superior de Investigaciones Científicas, Spain
- <u>UVGZ|Global Change Research Institute CAS (part of The Czech Academy of Sciences | AVCR)</u>, Czech
- <u>CBS Statistics the Netherlands</u>, The Netherlands
- WCMC LBG, United Kingdom
- Paris Institute of Technology for Life, Food and Environmental Sciences, France
- <u>VITO</u>, Belgium
- <u>Executive Environmental Agency (ExEA) at the Bulgarian Ministry of Environment and Waters</u>, Bulgaria
- <u>SarVision</u>, The Netherlands
- <u>SSB Statistics Norway</u>, Norway
- <u>BFN</u>, Germany

Mapping and Assessment for Integrated ecosystem Accounting (MAIA)





THE SEEA FRAMEWORK: Integrating environmental & economic information

- SEEA = System of Environmental Economic Accounts to measure the contributions of ecosystems to economic activity;
- Connected to the System of National Accounts: economic statistics
- Includes physical and monetary information
 - DEM, soils, hydrology, land cover, vegetation type, crop production, ecosystem use, values of services and assets, ecosystem users
- Information in the form of maps and tables



THE ECOSYSTEM ACCOUNTS

Core accounts

- Ecosystem extent;
- Condition;
- Ecosystem services supply and use;
- Monetary ecosystem assets

Thematic accounts

 Dealing with aspects such as land, water, carbon and biodiversity

Framework and detailed guidelines ('Technical Recommendations for SEEA EEA') are available



PHYSICAL AND MONETARY MODELS FOR ECOSYSTEM SERVICES Supply and use (physical)



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Filysical supply, totals														
		1	2	4	5	21	22	23	24	26	27	28	31	
Ecosystem services	Ecosystem Units	Non-perennial plants	Perennial plants	Meadows (for grazing	Hedgerows	Deciduous forest	Coniferous forest	Mixed forest	Heath land	Fresh water wetlands	Natural grassland	Public green space	River flood basin	Totals
	extent (ha)	53.600	8.100	27.100	2.900	11.400	7.100	10.400	2.100	900	3.100	4.800	14.100	220.900
Crops	tonnes/yr	1.427.300	65.000	-	-	-	-	-	-				-	1.492.400
Fodder	tonnes/yr	140.800	4.700	328.700	-	-	-	-	-	-	-	-	66.900	541.100
Meat (from game)	kg/yr	11.500	1.500	5.900	800	2.500	1.700	2.900	600	200	800	900	2.400	36.800
Ground water (drinking water												I		
only)	in 1000 m3/yr	9.000	1.400	4.200	500	1.900	100	500	100	-	700	400	1.300	27.000
capture of PM10	tonnes/yr	400	100	200	-	300	400	500	-	-	-	100	100	2.300
Carbon sequestration	tonnes C/yr	-	2.400	4.900	500	16.500	10.300	15.100	400	200	600	1.200	2.800	59.000
Recreation (cycling)	1000s of bike trips/yr	1.800	300	1.000	100	600	200	400	-	-	100	200	600	9.100
Nature tourism	# tourists/yr	94.000	22.000	136.800	57.000	160.300	93.800	147.400	22.700	11.600	55.400	11.800	94.500	974.300

Supply and use (monetary)

					Decidement									Totals
extent	ha	53.429	27.066	2.940	31.414	7.091	10.437	2.549	936	1.12	4,761	22.591	14.126	220.922
Crops	e	35.303.100	14	÷?	÷.	(ä	÷	+	24	÷	$\sim 10^{-10}$	1	\$?) \$	37.908.400
Fodder	•	1.965.900	4.587.100	÷	-	17			1	÷			342.300	7.556.200
Meat (from game)	•	817.700	223.400	÷.	186.800	192,700	261.100	35.600	12,700	32.900	14.750	211,200	136.000	2,249,400
Ground water	•	1.861.200	1.802.300	193.900	824,200	63,500	218,700	57.300	11.200	295.700	192.600	1.041.100	545.700	11.602.800
Capture of PM10	e	301.200	173.700	30,400	200.200	185-700	200.700	27.200	2.400	46.700	78.109	258.200	65.900	2.275.900
Carbon sequestration	¢	300	165.700	18.000	562.500	350.300	515.000	13.200	6.400	19.300	40.500	139.000	55.600	2.006.100
Nature tourism Recreation (cycling)	e e	4.410.000	6.349.100	2.357.700	6,930,100	3.162.500	5.441.100	917.000	192,800	2.488.900	625.900	2.870,600	3.182.100	41.816.200 NA
value per ha (excl. Amenity)	¢ ¢/ha	46.654.400 870 870	13.301.400 491 491	2.600.000 884 884	8.703.800 763 1.193	3.954.700 558 988	6.638.800 636	1.050.400	425,400 454 454	2.883.500 924 924	951.700 200 688	4.520.200 200 220	4.957.500 352 353	105.415.000 477 553



MAIA accounts to be produced

Country		Scale		Accounts						
Country	National	Regional	Local	Extent	Conditio n	ES Supply and Use	Asset	Biodiversity		
Belgium		X (Flanders)		Х	Х	Х	х	Х		
Bulgaria		X (Plovdiv)	X (Karlovo)	Х		х				
Czech	Х			Х		Х	х			
France			X (to be decided)	Х	Х		х			
Finland	Х			Х	Х	Х		Х		
Germany	Х			Х		Х				
Greece		X (Peloponnesus)		Х		Х		Х		
Netherlands	Х			Х						
Norway		X (Greater Oslo)	X (Oslo)	Х	х	х		х		
Spain	Х	X (Andalusia)		Х		Х				
Total	5	5	3	10	4	8	3	4		



MAIA: viewer



Multi lingual support



Baselayers



MAIA project: the ecosystem accounts

Priority work areas for Combining Forces Programme

Build the community

Stimulate dialogue between key stakeholders in Cabo de Gata-Níjar

Identify opportunities for collaboration between the public and private sector. **Harmonization**

Overcome differences in terminology used by developing a systematic assessment of terms used.

Data

Build on *existing data as sources for natural capital assessment* Localised spatial data is creating more positive synergies.

Case study

Understand the synergies, differences, benefits of and needs for coherence public-private sector Analyse findings and

identify gaps.

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Mapping and Assessment for Integrated ecosystem Accounting (MAIA)

APPLICATIONS OF THE ECOSYSTEM ACCOUNTING APPROACH

- Monitoring changes in natural capital and use of NC over time
- Identifying areas, ecosystem types or ecosystem services under threat
- Understanding the dependence of economic actors and activities on ecosystems
- Understanding the contribution of ecosystems to the economy and the economic implications of ecosystem change
- As a ready-to-use database for scenario analysis, designing policies, analysing policy effects, etc.



NCA in the public-private sector



- Identify state-of-play, gaps in, barriers/bottlenecks to and opportunities for enhanced private and public sector coherence on NCA.
- Gather business experience of the use of effective methodologies and datasets in NCA to stimulate use of these methodologies and datasets in business decision-making.
- Strengthen coherence between the private and public sectors on NCA and related assessments



Mapping & Assessment for Integrated ecosystem Accounting http://maiaportal.eu/

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