SPARD

Spatial Analysis of Rural Development Measures
Contract No. 244944

Work Package No. 2

October 2011

D2.2

RDP Indicator base & utilities (month 18)

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Document status

Public use	x
Confidential use	
Draft No. 2	01.10.2011
Final	28.03.2013
Submitted for internal review	15.10.2011

COOPERATION

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Summary

The SPARD project aims at analyzing to what extent EU rural development measures impact a number of economic, social and environmental objectives that they are designed to target. The foremost important obstacle to the proposed spatial econometric analysis is data availability. This is due to two aspects: The first obstacle applies to all impact assessment problems, the difficulty to construct a counterfactual situation (what would have happened without the policy). The second obstacle is related to the Common Monitoring and Evaluation Framework (CMEF), which SPARD is supposed to base its analyses on. The CMEF is a relatively new instrument and still under development. Following types of indicators are included: baseline indicators (objective and context-related), input indicators (expenditures), output (physical), result (physical and successful) and impact. Baseline indicators describe the socio-economic, environmental and farm structure related situation of a region, while the other indicators are related to budget, implementation and impact of rural development measures. There are still many data gaps and the data delivered by the authorities in the member states has not been sufficiently checked yet. In addition, the indicators gathered by the framework refer to different spatial units. Baseline indicators, for example, are available at NUTS2 level (for NUTS3, the data availability is poor), while input, output, result and impact indicators are measured at the programming level. Input, output, and result indicators are available for the single RDP measures, while impact indicators measure the outcome of an entire program (consisting of a number of RDP measures).

This report on deliverable D2.2 refers to task 2.2 “Design and development of an indicator data base” and aims at describing the software development, the software as a product and the application to explore data gaps of selected CMEF indicators and the spatial coverage of the RDP measures

This report aims to present the results of the software development. the tool application and some data exploration and data gap analysis. Following WP –tasks are addressed:

The current deliverable version refers to :

- Design and development of the structured indicator base, being consistent with the CMEF guidelines regarding indicators for RDP performance evaluation
- Design and development of a generic CMEF-RDP indicator base interface providing remote access to the database for evaluation programs

An additional task was the

- development and application of a procedure to explore extent and intensity of the spatial coverage of RDP measures during the reporting years starting with 2007 in order to allow assessing the capability to spatially relate CMEF RDP indicators to certain measure indicators provided through the CATS data base.

1 Introduction

Rural development is one of the core elements of the European Common Agricultural Policy (CAP), which finances market interventions (taxes, export subsidies, quotas), direct payments and rural development measures.

The rural development pillar embodies a more targeted and programmed approach than market support measures and direct payments, the so-called first pillar of the CAP and is financed through the European Agricultural Fund for Rural Development (EAFRD).

The EAFRD has a clear set of objectives, beneath which sit a suite of more detailed measures, focused on achieving specific outcomes, with detailed criteria for their use. Based on the principle of subsidiarity, Member States are given the flexibility to use the measures, within the context of the overarching objectives, to meet the needs of their national or regional circumstances.

Measures are grouped into Axes focusing upon

- improving the competitiveness of the agriculture and forestry (Axis 1),
- improving environment and countryside (Axis 2),
- improving quality of life in rural areas (Axis 3),
- and the LEADER program supporting local community initiatives (Axis 4).

As building blocks for each thematic axis a range of pre-defined rural development measures is available Table 1. For these development measures certain CMEF indicators are defined which have to be related for RDP impact analysis conducted by spatial econometrics.

Table 1: Overview of the rural development measures in the EU (period 2007-2013)

Axis 1 Competitiveness	**Axis 2 Environment**	**Axis 3 Rural viability**	**Horizontal axis LEADER**
(111) Vocational training and information actions (112) Setting up of young farmers (113) Early retirement (114) Use of advisory services (115) Setting up of management, relief and advisory services (121) Modernisation of agricultural holdings (122) Improvement of the economic value of forests (123) Adding value to agricultural and forestry products (124) Cooperation for development of new products (125) Infrastructure related to the development and adaptation (126) Restoring agricultural production potential (131) Meeting standards based on Community legislation (132) Participation of farmers in food quality schemes (133) Information and promotion activities (141) Semi-subsistence farming (142) Producer groups	(211) Natural handicap payments to farmers in mountain areas (212) Payments to farmers in areas with handicaps, other than mountain areas (213) Natura 2000 payments and payments. linked to Directive 2000/60/EC (214) Agri-environment payments (215) Animal welfare payments (216) Non-productive investments (221) First afforestation of agricultural land (222) First establishment of agroforestry systems (223) First afforestation of non-agricultural land (224) Natura 2000 payments (225) Forest-environment payments (226) Restoring forestry potential and introducing prevention (227) Non-productive investments	(311) Diversification into non-agricultural activities (312) Support for business creation and development (313) Encouragement of tourism activities (321) Basic services for the economy and rural population (322) Village renewal and development (323) Conservation and upgrading of the rural heritage (331) Training and information (341) Skills acquisition, animation.	(411) Implementing local development strategies. Competitiveness (412) Implementing local development strategies. Environment/land (413) Implementing local development strategies. Quality of life (421) Implementing cooperation projects (431) Running the local action group, acquiring skills and ...

The analysis in SPARD is intended to be based to a large extent on the, since 2007 in place, Common Monitoring and Evaluation Framework (CMEF). The CMEF is an indicator framework for monitoring and evaluation of all rural development interventions for the programming period 2007-2013[1]. It is based on the evaluation frameworks used in previous programming periods, but will be implemented in a more systematic manner and adapted to new requirements in the RD regulation (see deliverable D3.1)

The new RD regulation requires the explicit definition of objectives. Baseline indicators have been defined and linked to both RD measures and expected impacts to allow for a better assessment of the before-program situation (assessment of needs) and develop the overall program strategy, while the aggregation of outputs, results

The measures have to be related to CMEF indicators to allow a spatial relationship investigation. Each of the measures must be linked to an individual set of CMEF indicators which shall reflect the different effects of the respective measure.

[1] http://ec.europa.eu/agriculture/rurdev/eval/index_en.htm

Figure 1 shows the general relations between measures per Axis and a specific set of CMEF indicators.

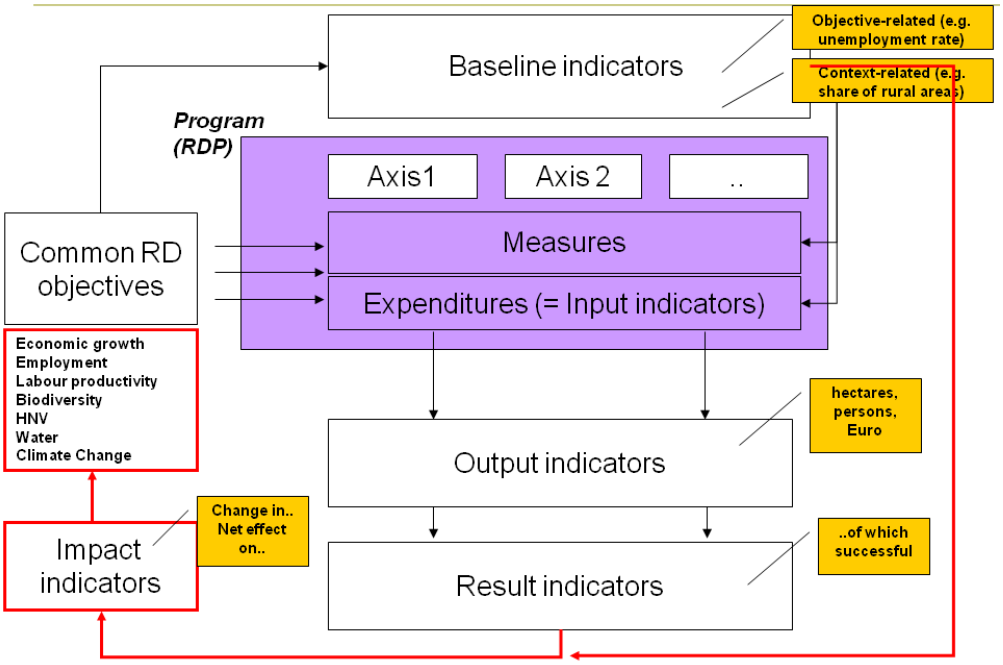


Fig. 1: Axes, measures and related indicators to reflect effects of RDP measures

The CMEF indicators are (at least partly) defined in a generic way, so there is some freedom the select data which are able to represent the respective indicators. The following fig. 2 shows the hierarchy of indicators for measure 111 (vocational training).

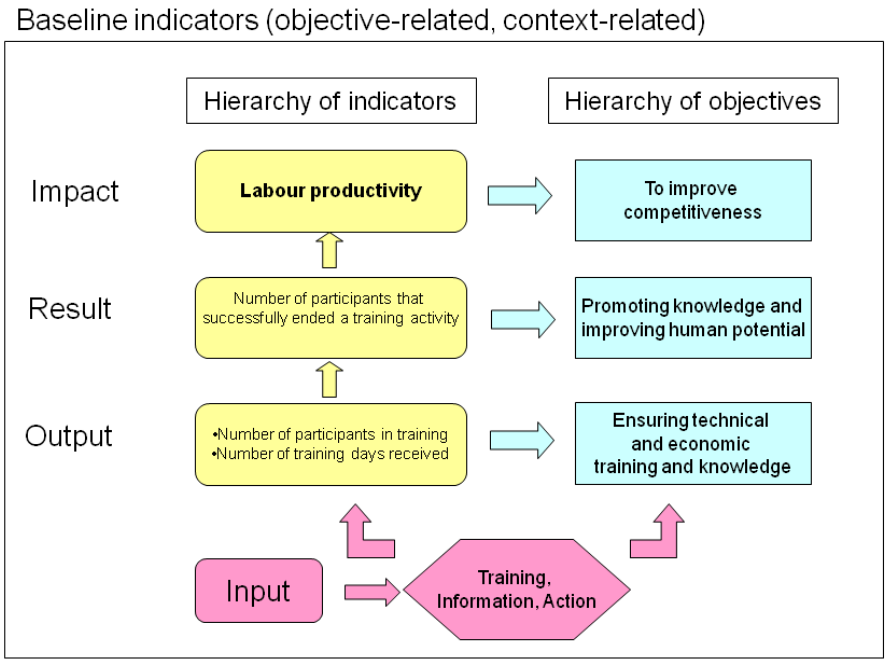


Fig. 2: Hierarchy of indicators and objectives (source: Guidance note E – Measure Fiches; http://ec.europa.eu/agriculture/rurdev/eval/guidance/note_e_en.pdf)

To analyze the relationships between RDP measures and impact trough indicators a complete set of measure indicators and the related CMEF indicators which show spatial coincidence is required: Data from the current CAP period ranging from 2007 to 2013. Only if appropriate data, representing the indicators which reflect the impact of the certain measures, can be found (for entire Europe!) a relationships investigation can be conducted.

The Work package 2 team is responsible for

- providing the software tool (data warehouse, GUI with certain functionalities for data retrieval, - viewing, - comparison, - subset extraction and data download via Web-access) as prerequisite for statistical analysis,
- the acquisition of the respective data, allowing to apply statistical analysis tools,
- and the exploration of data quality regarding spatial and temporal data gaps.

Thus the current deliverable referring to Task 2.2 is in charge for exploring the acquired data, for compiling a common data set with identical structure out of the single files, for identifying data gaps when comparing the years and regions and further issues which hinder a proper spatial economics analysis.

2 Transformation of Eurostat CMEF-indicator tables into DB-ready format

The CMEF is still under development and only for the first programming period in use. Therefore there are still a lot of data gaps with regard to the baseline indicators. In addition, output, result, and impact indicators are not available yet, since they can only be evaluated after the current program has terminated (or even later due to time lags).

This gaps have been explored, documented and have to be considered for the further spatial analysis.

The following table 2 gives an overview of available indicators.

Table 2: Overview of the data availability of the CMEF indicators (status: 09/2010) (Source: Sandra Uthes et al., D 3.1)

Type of indicator	**n (examples)**	**Program Level**	**Spatial scale**
Baseline indicators (Range from 2005 to 2008, most values refer to 2006)	59 lead indicators with each several sub-indicators	-	NUTS2 NUTS3
Input indicators (planned expenditures 2007-2013)	1	Per measure	Country RDP
Output indicators (targets 2007-2013)	1-5 (number of beneficiaries/contracts/actions, supported area, total volume of investment, number of training days)	Per measure	RDP-region
Result indicators (targets 2007-2013)	1-5 (Number of participants that successfully ended a training activity Increase in gross value added in supported holdings/enterprises Number of holdings/enterprises introducing new products and/or techniques Value of agricultural production under recognized quality label/standards Number of farms entering the market Areas under successful land management Increase in non-agricultural gross value added in supported businesses Gross number of jobs created Additional number of tourist visits Population in rural areas benefiting from improved services Increase in internet penetration in rural areas Number of participants that successfully ended a training activity)	Axis 1/3: Per measure Axis 2: Per RDP	RDP-region
Impact indicators (targets 2007-2013)	7 (Economic growth Employment creation Labour productivity Reversing biodiversity decline Maintenance of high nature value farming and forestry areas Improvement in water quality Contribution to combating climate change)	Per RDP	RDP-region

SPARD focuses on the relationship between expenditures and impact. Baseline and input (expenditure) indicators refers to different spatial levels (NUTS2 and RDP region). Objective- and context-related baseline indicators are reported for NUTS2 and NUTS3 regions. The most recent publication is following report: RD_Report_2009_Chapter3_Regional_Tables-B.xls (2009)[2].

[2]http://ec.europa.eu/agriculture/agrista/rurdev2009/RD_Report_2009_Chapter3_Regional_Tables-B.xls

- **Data source:** The data come mostly from different EUROSTAT databases, the Farm Structure Survey (FSS), the European Environmental Agency (EEA) and to some extent directly from the Member States.
- **Temporal coverage:** It seems that the report always seeks to publish the most recent figures. The variation in years is due to that indicators may have different update cycles and reporting delays.
- **Spatial Coverage:** Values are provides for the NUTS2 (n=271) and NUTS3 (n=1303) levels. In total, there are 59 so-called baseline lead indicators. The above mentioned report covers 34 of the total 59 lead indicators.
- **Changes in reference years:** baseline indicators show changes which refer to different periods, eg:"change in population density" is calculated for the period 1995-2006, while the "change in educational attainment" is calculated for 2005-2008.

The lead indicators may be underpinned with several sub or even subsub- indicators, therefore the total number of indicators behind the 34 is higher (n=79).

36 out of 79 indicators are available for all 271 NUTS2 regions.

9 out of 79 indicators are available for all 1303 NUTS regions.

27 out of 79 indicators are not available at all.

Baseline indicators are incomplete (only 34 out of 59 available) and refer to different years. The data coverage (referring only to the 34 indicators) appears to be sufficient at NUTS2 level and weak at NUTS3 level. Changes in indicators are reported (with gaps) but they are often not comparable as they refer to different periods.

The statements above refer to the mentioned report as preparatory investigations. Our goal is to acquire the data itself and explore the quality in detail.

Data representing CMEF indicators are downloaded from EUROSTAT websites. The datasets are organized to be read visually and not as tables to be used directly for data processing. The following figure 3 shows a detail of such a table with its original structure for 2009 containing variable names as multiple headers and indicator values with additional comments in the fields.

Original Table Structure

cmefid			CO	CP	CQ	CR	CS	CT	CU
			C191a		C191b		C191c		C192a
Indicator			Context 19 - Structure of the Economy		Context 19 - Structure of the Economy		Context 19 - Structure of the Economy		Change in Structure of the Economy
Subindicator									
Measurement			% GVA by branch		% GVA by branch		% GVA by branch		% GVA by branch
Source			Eurostat		Eurostat		Eurostat		Eurostat
Source2			Economic Accounts		Economic Accounts		Economic Accounts		Economic Accounts
Year			2007		2007		2007		2002-2007
Unit			%		%		%		%
Calculation			DG AGRI -L2		DG AGRI -L2		DG AGRI -L2		DG AGRI -L2
NUTS code	label	NUTS level	% GVA in Primary sector		% GVA in Secondary sector		% GVA in Tertiary sector		% GVA in Prima
FR824	Bouches-du-Rhône	NUTS3	1,2		19,8		79,0		
FR825	Var	NUTS3	2,7		13,5		83,8		
FR826	Vaucluse	NUTS3	4,1		18,5		77,4		
FR83	**Corse**	**NUTS2**	**1,7**		**15,7**		**82,6**		
FR831	Corse-du-Sud	NUTS3	0,9		15,7		83,4		
FR832	Haute-Corse	NUTS3	2,6		15,7		81,8		
FR91	**Guadeloupe**	**NUTS2**	**3,0**		**13,7**		**83,3**		
FR910	Guadeloupe	NUTS3	3,0		13,7		83,3		

Fig. 3: Layout of a exemplary "raw" table containing RDP-indicators (Source: EUROSTAT)

Each year some of the tables show a slightly different structure and layout, which does not allow an automatic data conversion. So it was necessary, to "clean" the content of the tables manually, before copying the data into the common SPARD database, which can be directly accessed for statistical analysis and mapping. The following figure 4 shows as example such a "clean" table of NUTS2 indicators for year 2009.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
								BaselineIndicator_ID								
	NUTSCo	SRegio	NUTSLe	DECDGr	GroupD	CountryC	Countr	1	2	3	4	5	6	7	8	9
	AT11	Burgenlan	NUTS2	(1) PR	predomina	AT	Austria	8,16167	-0,01176	73,41	4,7	3,701068	0,54	26,1	0,18	25,3
	AT12	Niederöste	NUTS2	(1) PR	predomina	AT	Austria	101,5541	-4,68241	74,09	4,44	3,553616	0,52	61,5	0,33	16,5
	AT13	Wien	NUTS2	(3) PU	predomina	AT	Austria	169,6499	-16,6812	67,84	-1,02	8,31458	2,54	66,1	0,17	30,9
	AT21	Kärnten	NUTS2	(1) PR	predomina	AT	Austria	105,6811	-2,40943	69,79	4,93	3,867609	0,77	42,9	0,27	10,1
	AT22	Steiermark	NUTS2	(1) PR	predomina	AT	Austria	107,4498	-3,60717	71,84	4,61	3,728473	0,54	43,9	0,29	12,3
	AT31	Oberösterr	NUTS2	(2) IR	intermedial	AT	Austria	121,4522	-3,5101	75,31	4,34	3,238253	0,15	47,1	0,55	15,8
	AT32	Salzburg	NUTS2	(2) IR	intermedial	AT	Austria	139,5816	-8,74161	75,54	3,15	3,008596	0,67	49,4	0,46	10,2
	AT33	Tirol	NUTS2	(1) PR	predomina	AT	Austria	129,5589	-3,00502	75,06	6,21	2,761072	0,24	45,9	0,29	11,4
	AT34	Vorarlberg	NUTS2	(2) IR	intermedial	AT	Austria	129,8536	-4,74968	74,3	4,96	3,599788	1,18	37,7	0,32	17,2
	BE10	Région de	NUTS2	(3)												
	BE21	Prov. Antw	NUTS2	(3)												
	BE22	Prov. Limb	NUTS2	(3)												
	BE23	Prov. Oost	NUTS2	(3)												
	BE24	Prov. Vlaar	NUTS2	(3)												
	BE25	Prov. Wes	NUTS2	(3)												
	BE31	Prov. Brab	NUTS2	(3)												
	BE32	Prov. Hain	NUTS2	(3)												
	BE33	Prov. Liège	NUTS2	(2)												
	BE34	Prov. Luxe	NUTS2	(1)												
	BE35	Prov. Nam	NUTS2	(2)												
	BG31	Severozap	NUTS2	(1)												
	BG32	Severen ts	NUTS2	(2)												
	BG33	Severoiztoc	NUTS2	(2)												
	BG34	Yugoiztoch	NUTS2	(2)												
	BG41	Yugozapac	NUTS2	(3)												
	BG42	Yuzhen tse	NUTS2	(2)												

	A	B	C	D	E
1	BaselineIndicat	MEFS	CMEFID	Indicator	Subindicator
2	1	O1	O1a	Objective 1 - Economic Development	
3	2	O1	O1b	Change in Economic Development	
4	3	O2	O2a	Objective 2 - Employment Rate	
5	4	O2	O2b	Change in Employment Rate	
6	5	O3	O3a	Objective 3 - Unemployment	
7	6	O3	O3b	Change in Unemployment	
8	7	O4	O4	Objective 4 - Training and Education in Agriculture	
9	8	O5	O5	Objective 5 - Age Structure in Agriculture	
10	9	O6	O6a	Objective 6 - Labour Productivity in Agriculture	
11	10	O6	O6b	Change in Labour Productivity in Agriculture	
12	11	O7	O7a	Objective 7 - GFCF in Agriculture	
13	12	O7	O7b	(Objective 7) - GFCF in Agriculture	
14	13	O7	O7c	Change in GFCF in Agriculture	
15	14	O8	O8a	Objective 8 - Employment Development of Primary Sector	
16	15	O8	O8b	(Objective 8) - Employment Development of Primary Sector	
17	16	O8	O8c	Change in Employment Development of Primary Sector	
18	17	O9	O9a	Objective 9 - Economic Development of Primary Sector	
19	18	O9	O9b	(Objective 9) - Economic Development of Primary Sector	
20	19	O9	O9c	Change in Economic Development of Primary Sector	
21	20	O12	O12a	Objective 12 - Employment Development in Food Industry	
22	21	O12	O12b	(Objective 12) - Employment Development in Food Industry	
23	22	O12	O12c	Change in Employment Development in Food Industry	
24	23	O16	O16	(Objective16) - Importance of semi-subsistence farming in New Member States	
25	25	O23	O23a	Objective 23 - Soil: Organic Farming	

Fig.4: Layout of the "clean" table containing RDP-indicators, linked with a further table containing variable description. (Source: SPARD DB, AIT)

During the project meeting in Müncheberg it was decided to select a subset of RDP measures where a sufficient data coverage is expected and where distinct relationships between cause and effect indicators are assumed. These measures are:

121 setting up young farmers

214 agri-environmental payments

311 diversification into non-agricultural activities

The following table 4 depicts these 3 measures and the related CMEF indicators to be integrated into further analysis.

Table 4: Selected measures and related CMEF indicators

Code	Measure	Axis	Impact* Indicators	Output Indicators	Result Indicators	Objective related in	Context related
121	Modernisation of agricultural holdings (Article 20 (b) (i) of Reg. (EC) N° 1698/2005)	1	Labour productivity in agriculture Gross fixed capital formation in agriculture	Number of farm holdings that received investment support Total volume of investments	Number of holdings introducing new productst and/or techniques Increase in gross value added in supported holdings	Labour productivity in agriculture Gross fixed capital formation in agric.	Agricultureal land use (2/3) Farm structure (2/3)
214	Agri-environment payments (Article 36 (a) (iv) of Reg. (EC) N°1698/2005)	2	Biodiversity: population of farmland birds, HNV farmland and forestry Water quality Climate change / air quality: porduciton of renewable energy from agriculture, gas emmissions from agriculture	Number of farm holdings and holdings of other land managers receiving support Total area under agri-environmental support Physical area under agri-environmental support under this measure Total Number of contracts Number of actions related to genetic resources	Area under successful land management contributing to: (a) bio diversity and high nature value farming/forestry (b) water quality (c) mitigating climate change (d) soil quality (e) avoidance of marginalisation and land abandonment	Biodiversity: High Nature Value farmland and forestry	Land cover (2/3) Areas of extensive agriculture (2/3)
311	Diversification into non-agricultural activities (Article 52 (a) (i) of Reg. (EC) N° 1698/2005)	3	Farmers with other gainful activities Employment development in the non-agricultural sector Economic development in the non-agricultural sector	?? Number of beneficiaries ?? Total volume of investments	Increase in non-agricultural GVA in supported business Gross number of jobs created (division according to on-farm / off-farm jobs, gender and age category)	Farmers with other gainful activities Employment development in the non-agric. sector Economic development of non-agric.l sector	FSS Diversification Indicators

Currently data from 2006 – 2010 are integrated for all 5 CMEF indicator groups.

3 SPARD Viewer: data integration and application

The SPARD Viewer has been developed as data warehouse with the necessary functionalities for data compilation, examination and extraction for the partners working within the project (technicals details are provided in Deliverable D2.1).

The SPARD Viewer now contains all reachable CMEF indicator data and further CATS DB data, described later . The graphical user interface (GUI) allows to select data sets, select variables, view data and extract them to data subsets for individual analysis. The following figure 5 shows the general GUI of the Viewer with the “empty” start page and the top records of a selected data set.

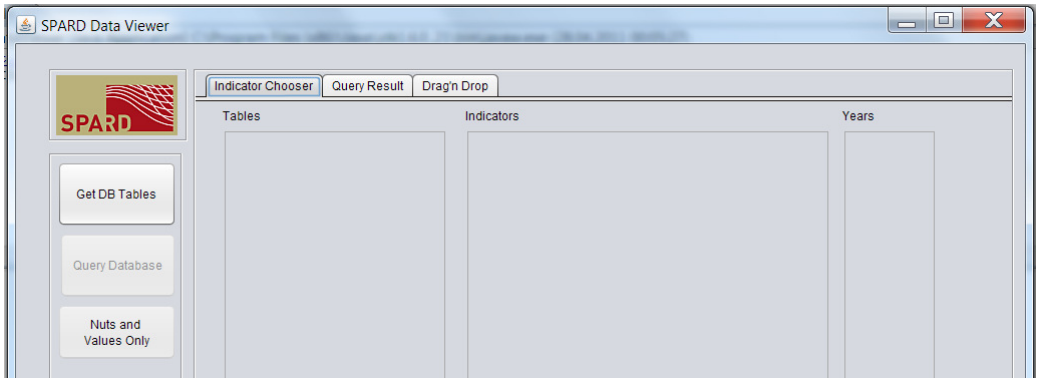


Fig. 5: SPARD Viewer with its basic functionality: indicator selection, viewing, and extracting (drag & drop)

For all data fields metadata are stored containg information on entity (NUTS2,NUTS3) units, on region types (eg. urban, rural), on Objectives, on measure and further comments related to single fields.

The following Figure 6 shows the metadata of a certain indicator for the top records of a data set, one single

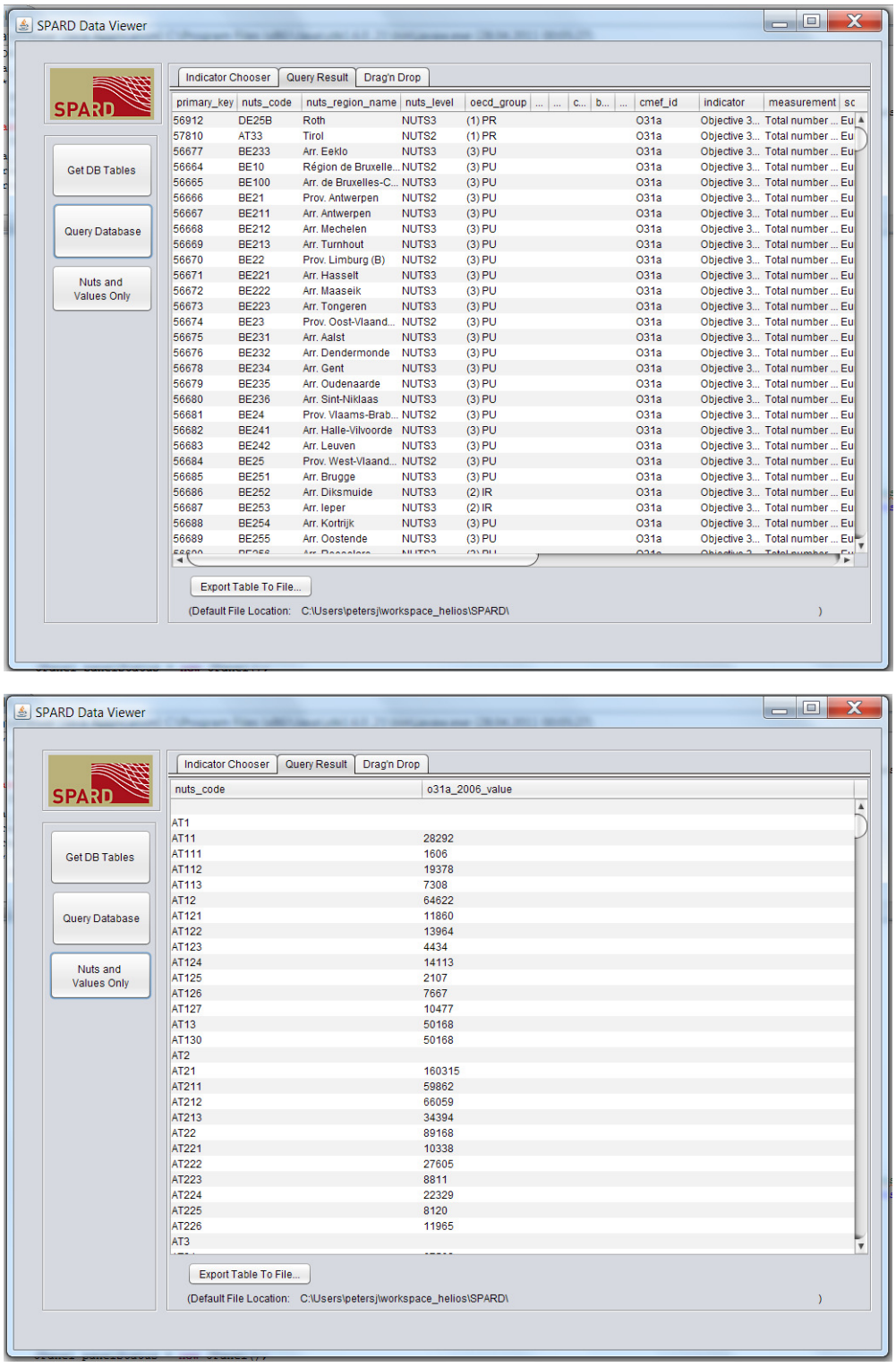


Fig. 6: SPARD Viewer: View content; metadata(top), values (bottom)

The basic buttons to start the system are “GetDB”, “QueryDB, and (show)”VALUES Only”. The top “rider” buttons allow to select indicators, to query results, to drag & drop indicators.

The following figure 7 gives an impression of the performance of the selection procedure.

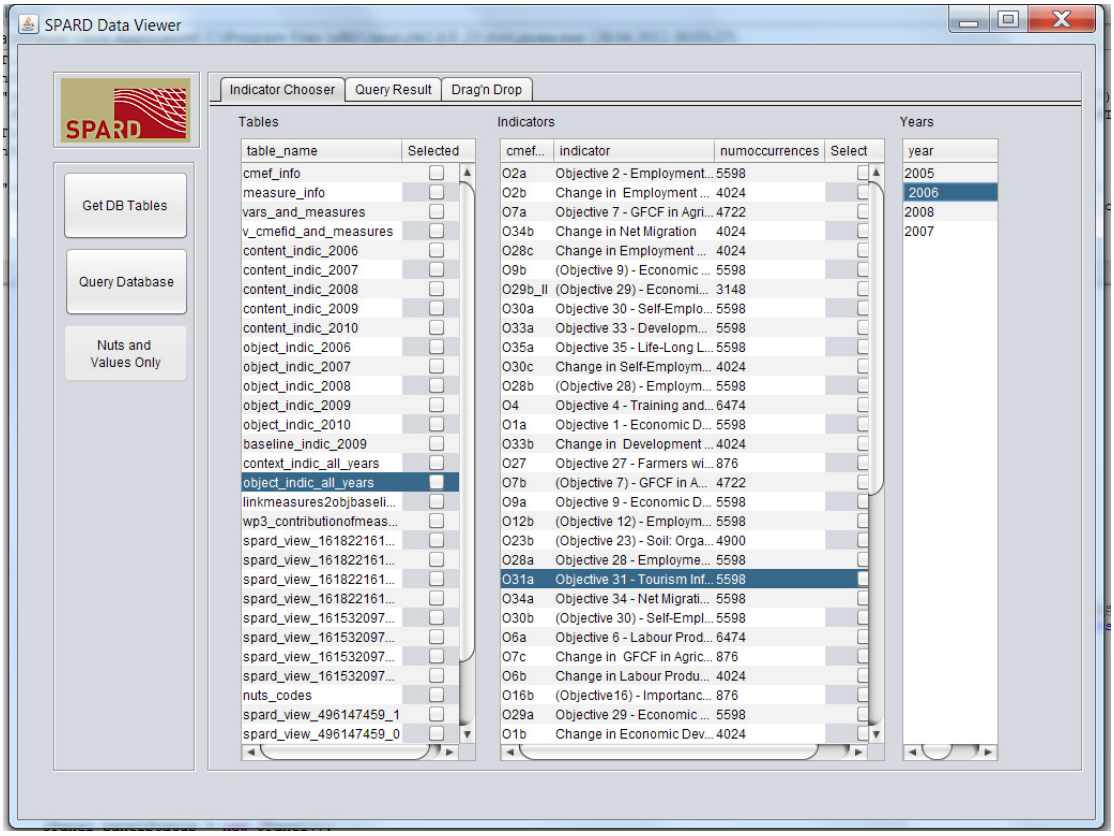


Fig. 7: SPARD Viewer: dataset selection, indicator selection, year selection for exporting statistical analysis-ready indicator subsets

The click boxes inside the action window (fig. 7) allow the easy selection of tables, variables and reporting years, This initial GUI window contains all the important features for the users within the project. who want to extract their own data subsets without deep system experience for interactive indicator selection and data set compilation.

The SPARD Viewer is easily accessible by calling the following link:

http://sf5.arcs.ac.at/spard/spardviewer_v0.05.jnlp

Additionally the application of LEI's METABASE was tested to be used as general SPARD data repository. The idea was to add a SPARD Branch to the METABASE system and use the system's functionality. It turned out that the METABASE system provides far too many features which makes the handling too complex for unexperienced users. Nevertheless it was decided to use METABASE for data update, and at least for statistical data gap analysis and plausibility tests.

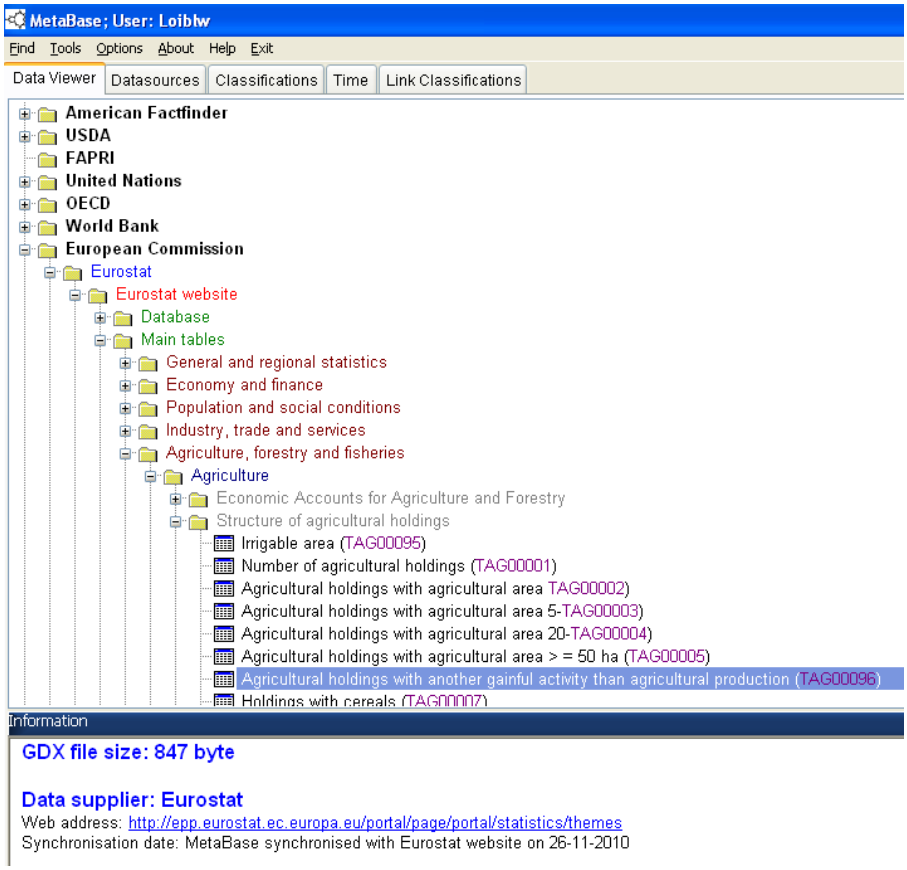


Fig. 8: METAbase navigation surface (Source: LEI)

4 Data coverage analysis of RDP measure data

Certain data has been provided from CATS DB vial ZALF. All data have been transferred into the SPARD Viewer and a mapping feature has been integrated by using open source mapping tools (Geoserver). Here the spatial coverage (NUTS3) of the relevant measure indicators has been investigated for the yearly reported data 2007 to 2010.

The following figures 9 to 12 show some 28 maps describing the spatial coverage of a set of relevant measure indicators (number of beneficiaries, public expenditures and area covered by expenditures for certain measures 111,112, 211,212,214 and 311) changing over the years.

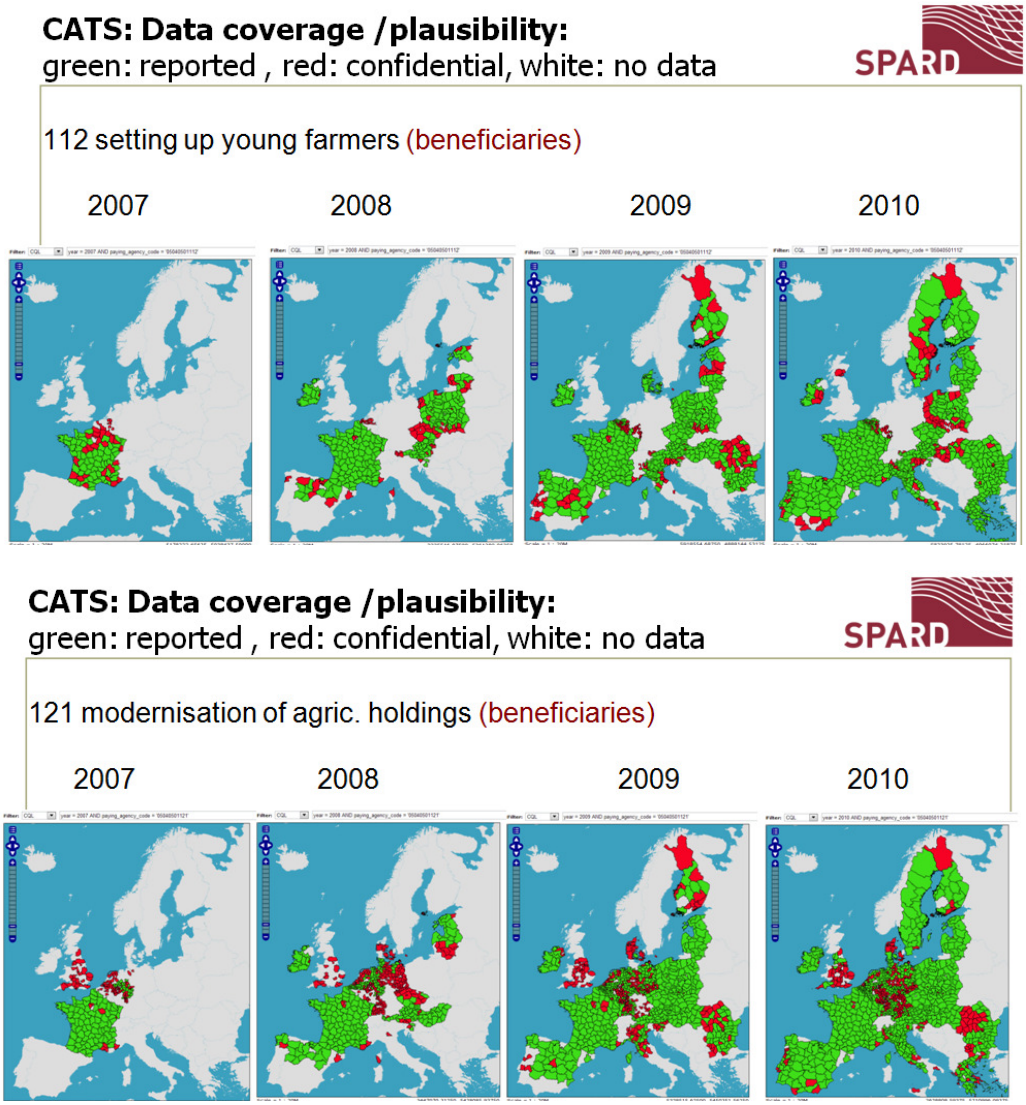


Fig. 9: Spatial coverage over the years of measures 112, 121 - number of beneficiaries (Source: AIT, based on CATS data)

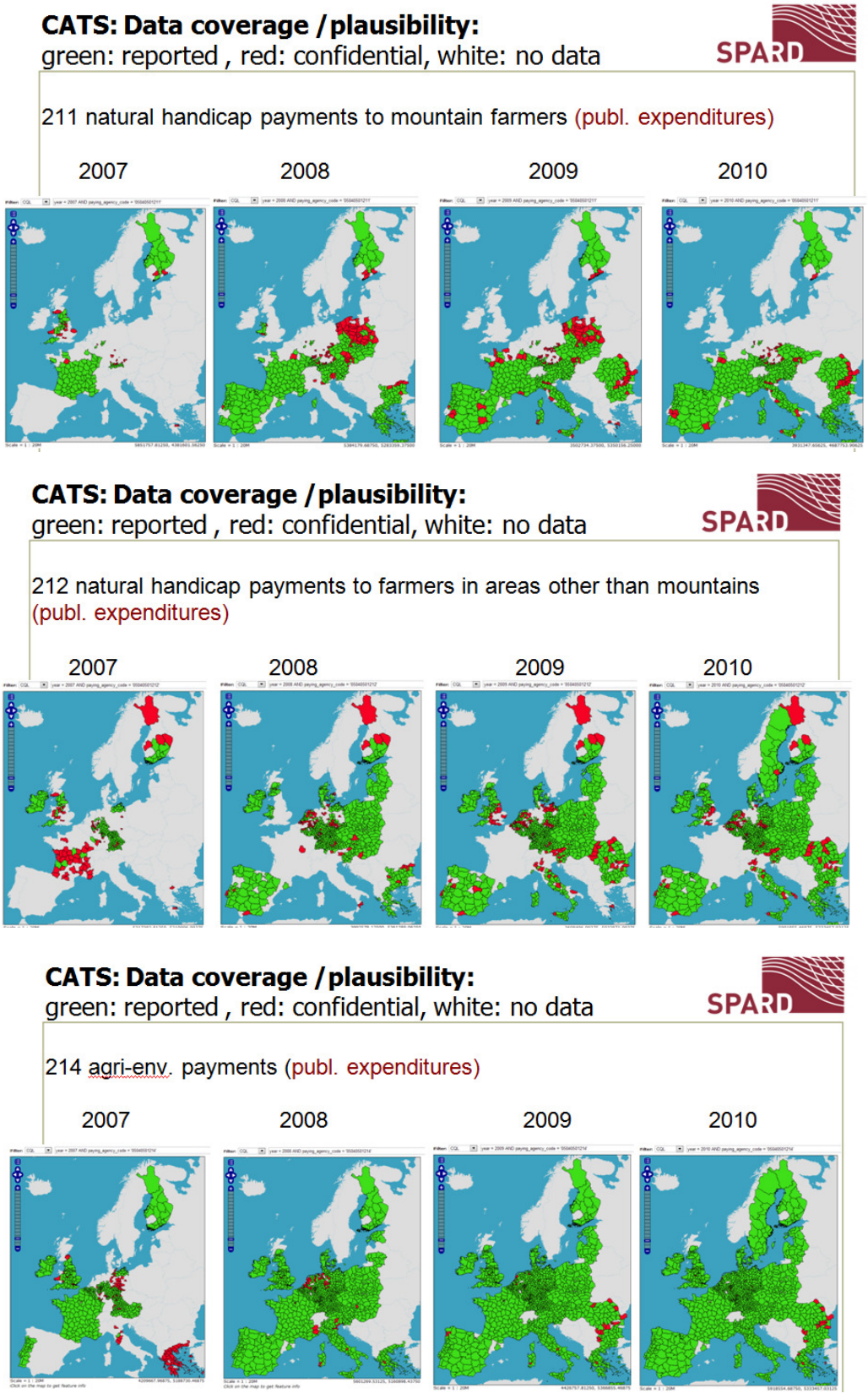


Fig. 10: Spatial coverage over the years of measures 211,212,214 – public expenditures (Source: AIT, based on CATS data)

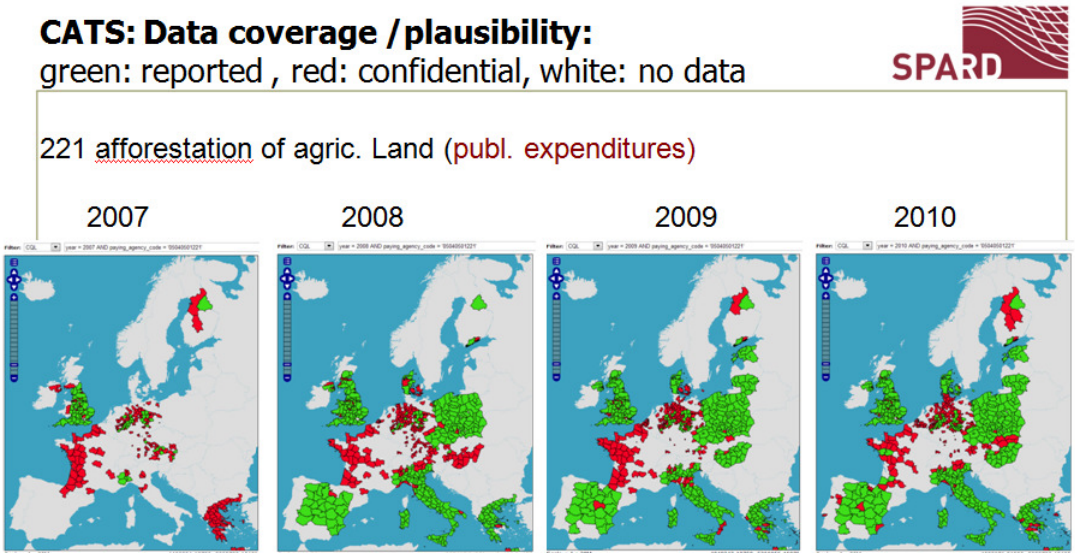


Fig. 11: Spatial coverage over the years of measures 214 – public expenditures (Source: AIT, based on CATS data)

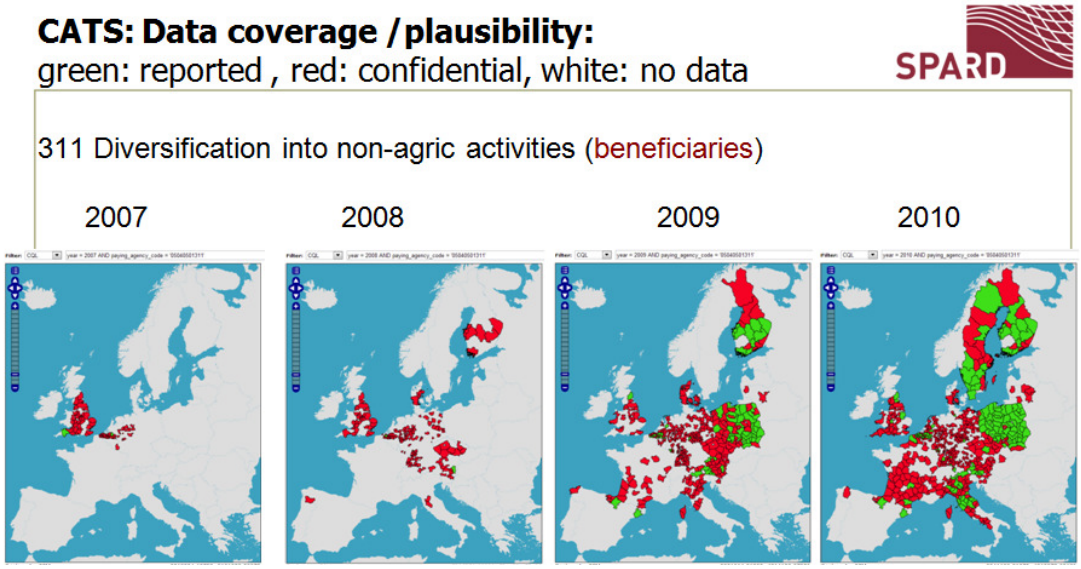


Fig. 12: Spatial coverage over the years of measure 311 – beneficiaries (Source: AIT, based on CATS data)

A further examination of measure data, provided via CATS, has been conducted exploring all measures. Table 5 indicates the spatial coverage of NUTS3 regions benefitting from measures, described through number of beneficiaries, ranges during the years from a few percent in 2007 till 50 to 90% for a few measures in 2010.

Table 5: Number of Beneficiaries –NUTS 3 measure coverage

Measure	reported NUTS3 - not confidental			
	2007	2008	2009	2010
112	5%	16%	29%	38%
121	8%	21%	42%	55%
211	9%	28%	32%	35%
212	15%	47%	55%	61%
214	37%	83%	92%	93%
221	6%	25%	29%	31%
311	0%	0%	6%	11%

The spatial coverage of NUTS3 regions benefitting from measures related to public expenditures range during the years from around 20 percent in 2007 till 50 to 90% for some measures in 2010 (Table 6).

Table 6: Public expenditures – NUTS3 measure coverage

Measure	public expenditures: reported NUTS3 - incl. confid			
	2007	2008	2009	2010
111	8%	21%	31%	40%
112	7%	21%	39%	48%
121	16%	39%	63%	83%
123	6%	16%	43%	52%
212	23%	52%	66%	73%
214	50%	90%	97%	99%
221	20%	41%	47%	49%
227	8%	26%	35%	41%
311	6%	13%	30%	42%
322	9%	15%	27%	40%
323	3%	21%	38%	50%
431	0%	6%	25%	51%

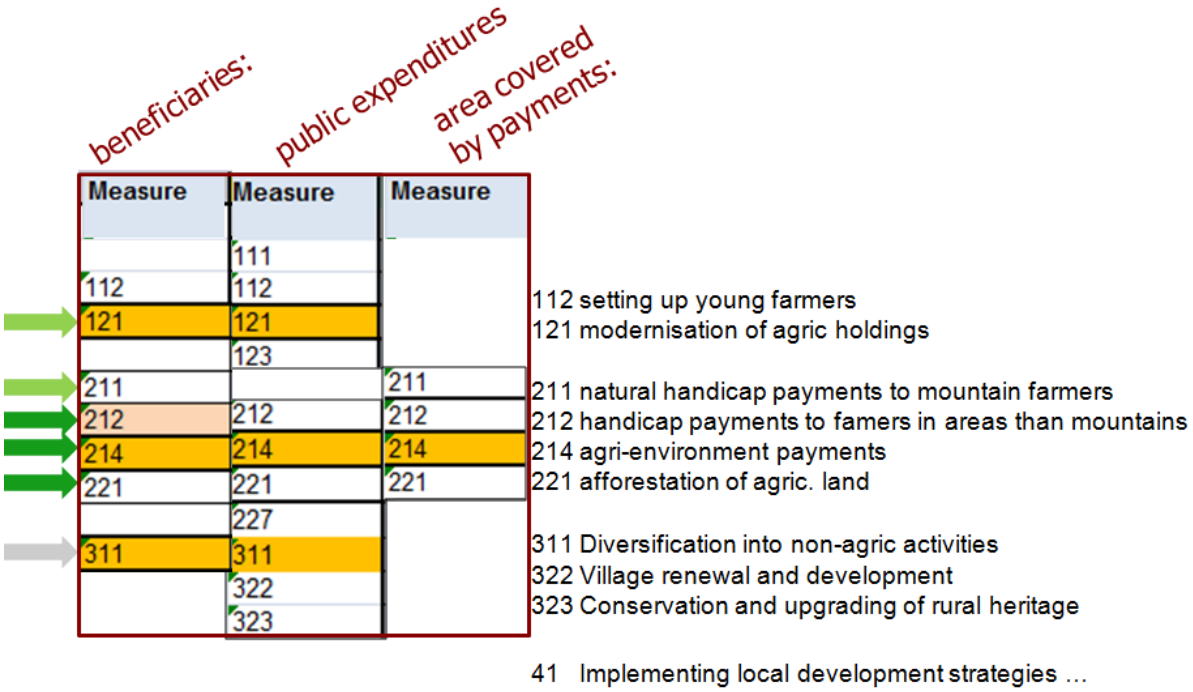
The spatial coverage of NUTS3 regions with Axis 2 data showing areas covered by subsidies show a similar range (Table 7).

Table 7: Area covered by payments –NUTS3 measure coverage

Measure	Area covered not conf.			
	2007	2008	2009	2010
211	12%	30%	39%	39%
212	23%	50%	65%	71%
214	17%	43%	87%	99%
221	17%	18%	41%	45%
227	18%	8%	23%	26%

In Axis 3 no measure shows sufficient spatial coverage (all below 20%).

Table 8: Measure indicators with sufficient NUTS3 measure coverage



The suggestion to achieve a better data coverage for further statistical analysis is to aggregate measures with little spatial coverage but targeting similar objectives (without mixing beneficiary related - expenditure related - area-covered indicators). E.g.: the axis 2 measures - natural handicap payments to mountain farmers + famers in non-mountain areas could be aggregated to have a common set for mountain and flat areas with general natural handicap subsidies.

An aggregation can help to avoid 0-values, merge measures targeting the same objectives, which let expect similar effects and can finally achieve higher NUTS3 data coverage.