Integrated Nutrient Pollution Control Project – Romania

BASELINE STUDY:

RESEARCH METHODOLOGY, SAMPLING DESIGN, AND MAIN INDICATORS

A report for the World Bank

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November 2008

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Introduction

Romania has received a loan from the International Bank for Reconstruction and Development (the Bank) and a Grant from the Global Environment Facility (GEF) to support the implementation of the Integrated Nutrient Pollution Control (the Project) in selected localities vulnerable or potentially vulnerable to the pollution with nutrients (NVZs). The overall development objective of the project is to support the Government of Romania to meet the EU Nitrates Directive requirements by (a) reducing nutrients discharges to water bodies, (b) promoting behavioral changes at the communal level, and (c) strengthening institutional and regulatory capacity. The ultimate goal is to reduce over the long-term the discharge of nutrients and other agricultural pollutants into the Danube River and Black Sea through integrated land and water management.

In support of this objective, the project assists the Government of Romania to:

1. Implement a menu of investments in about 86 localities in the NVZs, including: (i) communal storage and handling systems to promote better management of the livestock and household waste, (ii) planting of buffer strips and pastures' rehabilitation, (iii) small-scale sewage collection and treatment, (iv) promotion of Code of Good Agricultural Practices, and (v) feasibility studies to improve water and waste water services and attracting external financing. Initially, in the first eighteen months, the project will support the creation of eleven Training and Dissemination Sites (TDS) through a menu of investments focusing on eleven NVZ-designated communes in ten river basins and eleven counties. Following experienced gained in the first eighteen months, subsequent project investments will be rolled out to another 75 NVZ/communes in the twenty three remaining counties. These communes will be selected subsequently according to the criteria presented in the project Appraisal Document (PAD).

2. Institutional strengthening and capacity building within the MESD and their National Administration "Romanian Waters", as well as other national, regional and county agencies involved in implementing the Nitrate Directive.

3. Undertake a Public Awareness and promote a Replication Strategy. A broad public awareness campaign of the project's activities will be undertaken at local, river basin and national levels to achieve replication of project interventions in other similar areas within Romania as well as other Black Sea riparian countries and EU candidate countries.

The implementing agency of the Project, the Ministry of Environment and Sustainable Development – Project Management Unit (PMU-INPC) intends to use a part of the Project's funds for organizing a series of surveys, aiming to measure the Project's outcomes and impact, with a special focus on behavioral changes expected to be induced by components 1 and 3. During the life of the project three surveys will be carried out: (i) a baseline survey that will be completed in 2008, (ii) a mid-term survey to be carried out in 2010, and (iii) a final survey to be carried out in 2013, by end of the project.

The present report represents the baseline study, describing the research methodology, the sampling design to be used during the baseline study and providing the values of the main

indicators collected during the baseline survey. The baseline survey was carried out in September – November 2008.

The report has four different goals: identifying the target population, describing the sampling design and providing the list with localities included in the sample, designing the research instruments for the baseline study and presenting the main indicators collected during the baseline. Consequently, the report has four different parts, the first one describing the target groups, the second one giving details about the sampling design, the third one presenting the research instruments and the last one describing the main indicators. The questionnaires used for each target group and included in Annex II.

Target population

The target population includes all the relevant stakeholders located in the project area. The relevant stakeholders are defined as individual households, companies, and local representatives who could have an influence on the project's outcomes. Individual households and agricultural companies can produce pollution in their daily activities, while the local administration is actively involved in the project's implementation. Consequently, we have identified three different target groups within the target population:

1. **Individual households** represent a potential source of water and soil pollution due to the incorrect management of manure and waste and to the lack of sewage system. Previous studies have pointed out that most of individual households having livestock use to dispose of the manure in improper places and to leave livestock urine infiltrate in the soil. On the other hand, most dwellings in rural areas have neither flushing toilet, nor septic tank, while sewage systems are not very common in the Romanian villages. Moreover, many individual households in rural areas own and exploit agricultural land. In many cases the agricultural practices do not pay attention to environment pollution, representing an additional source of contamination. Therefore, not only do the households having livestock represent a source of pollution for soil and water, but also most of the other domestic units are likely to pollute the environment. Consequently, both types of households, with and without livestock, should be included in the target population.

2. **Agricultural companies and livestock farms** produce environmental pollution due to improper management of the manure or to improper agricultural practices (using uncontrolled chemical fertilizers or pesticides). Consequently, the research should investigate both types of companies. Since in many cases the same organization has activities related both to land cultivation and to livestock, we have built one questionnaire addressed to both types of companies. The investigation should target all agricultural and livestock companies, including both agricultural associations and private companies.

3. **Local administration** is a key actor in the project's implementation, as well as in providing relevant socio-economic and demographic data needed to monitor and asses the tasks' achievement.

Sampling design

We propose the following sampling design for project evaluation:

1. The **treatment group (TG)** will be comprised of all eleven communes that have been selected as training and dissemination sites (TDSs) out of the 251 communes defined as vulnerable or potentially vulnerable to nutrients pollution (NVZs)[1].

2. The first **control group (CG1)** will include eleven communes out of the remaining 240 NVZs that will not receive funding during the first eighteen months (the first phase) of the project.

3. The second **control group (CG2)** will include eleven communes that have not been defined as NVZs. The treatment group and the two control groups (CG1 and CG2) will form the first sample.

4. In addition to these two control groups, a third **control group (CG3)**, which will form the second sample, will include ten of the 75 communes that will receive project investments during the second phase of the project.

By using this sampling design, the treatment group can be compared to any of the three control groups at the time of the three surveys (baseline, mid-term, and final). In addition to these comparisons, changes in the treatment group can also be followed over time (from survey to survey).

Methodology for selecting control group CG1.

Control group CG1 follows the structure of the treatment group, including 11 NVZ communes from the 10 River Basins (2 communes are selected in the Siret River Basin). We have selected the 11 NVZ communes using a propensity score matching approach with the following steps:

1. We have used the following independent variables (conditioning variables / characteristics) for matching the TDSs to the communes included in CG1:
   a. Commune Population (2005 data). The population of the commune is a significant variable that can affect the production of nutrients, the probability of receiving funding through the project, and the commune's ability to co-finance project activities.
   b. Arable Land (2005 data, in ha). The commune's arable land is an indicator of the commune's ability to absorb some of the nutrient production.
   c. Commune Development Index (2002 data). This is a composite index of commune

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[1] The 11 TDS's are: Albeştii de Argeş (Argeş county), Gârleni (Bacău county), Tinca (Bihor county), Balta Albă (Buzău county), Bontida (Cluj county), Ghercești (Dolj county), Miroslava (Iaşi county), Cristești (Mureş county), Dumbrava Roşie (Neamţ county), Peciu Nou (Timiş county), and Mihăeşti (Vâlcea county).

development built by Sandu[2] (2005) as a weighted (by village population) average of the index of village development. The commune development index includes information related to human development (education stock, employment rate and percentage of population employed in agriculture), biological capital (village population, percentage of village population out of the commune population, and percentage of active population out of the village population), infrastructure (percentage of houses with running water, percentage of houses with sewage, and average living area per house), and village isolation (village position in the commune and distance to the nearest town). For a detailed description of the community development index, see Sandu (2005: 131-135). Given the small number of cases included in the treatment group and in the control group, we have decided the best approach is to use such a composite index rather than using a series of separate indicators for each of the dimensions included in the index.

  d. Estimated Nitrate Production (2003 data, in tons/year). We built this index starting from the number of animals in the commune, multiplied by the yearly content of nitrates produced by animals and summed to create the index.[3]

  e. Farms (2005 data). This is a dummy variable indicating if there are any animal farms operating in the commune (without distinguishing by the type of animal). The existence of such animal farms in a commune should have a significant effect both on the production of nutrients and on how these nutrients are used.

  f. Sewage (2005 data). This is a dummy variable indicating if the commune has a sewage system or not. The existence of a sewage system should decrease the risk of pollution.

2. Run a logistic regression model with the dependent variable coded 1 for TDSs (n=11) and 0 for non-TDS NVZs (n=240) and with the independent variables discussed above and save the propensity scores (the predicted probabilities of belonging to the treatment group).

3. For each River Basin, match the TDS commune with a NVZ commune using the nearest neighbor method. The results of the matching procedure are reported in Table 1.

4. The results of this procedure have been verified using discriminant analysis. In eight of the eleven pairs, the two procedures give the same results. In the remaining three pairs, the communes selected through discriminant analysis are among the closest five communes based on propensity scores. The means and standard deviations of the independent variables for the treatment group and the control group CG1 are presented in Table 2. Propensity scores are presented in Table A - 1 in Annex I.

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[2] Sandu, Dumitru. 2005. *Dezvoltare comunitară: Cercetare, practică, ideologie*. Iaşi: Polirom.

[3] For the average level of yearly nitrate animal production we used the data reported in Annex 8, Table 1 of the Code of Good Agricultural Practices (MMGA. 2005. *Cod de bune practice agricole pentru protecţia apelor împotriva poluării cu nitraţi din surse agricole*. Bucureşti. Available online at http://www.icpa.ro/Coduri/cbpaRO.pdf).

Methodology for selecting control group CG2.

Control group CG2 includes 11 non-NVZ communes from 10 River Basins, with two communes coming from the Siret River Basin. We have selected the 11 communes belonging to this group using a propensity score matching approach similar to the one used for selecting control group CG1:

1. We have used the following commune characteristics for matching the TDSs to the communes in CG2:
    a. Commune Population (2005 data).
    b. Arable Land (2005 data, in ha).
    c. Commune Development Index (2002 data).
    d. Estimated Nitrate Production (2003 data, in tons/year)
    e. Due to data availability issues, the other variables used in the selection of control group CG1 (farms and sewage) could not be used in the selection of control group CG2.
2. Run a logistic regression model with the dependent variable coded 1 for NVZs (n=251) and 0 for non-NVZs (n=2700) and with the independent variables discussed above and save the propensity scores.[4]
3. For each River Basin, match the TDS commune with a non-NVZ commune, using the nearest neighbor method. The results of the matching procedure are reported in Table 1.
4. The results of the matching procedure have been verified using discriminant analysis. In four of the eleven pairs the two procedures have led to the same results. In the remaining seven pairs the two procedures have generated different matches, but this was expected given the large pool of communes available for matching. The means and standard deviations of the independent variables for the treatment group and the control group CG1 are presented in Table 2. Propensity scores are presented in Table A - 1 in Annex I.

Methodology for selecting control group CG3.

Control group CG3 follows the structure of the treatment group, including 10 of the 75 NVZ communes that will receive project investments during the second phase of the project. We have selected the 10 communes to be included in CG3 using a propensity score matching approach[5] with the following steps:

1. We have used the following independent variables (conditioning variables / characteristics) for matching the TDSs to the communes included in CG1:
    a. Commune Population (2005 data).
    b. Arable Land (2005 data, in ha).
    c. Commune Development Index (2002 data).

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[4] Given the small number of TDSs compared to the total number of communes we have decided to use the whole set of NVZs during this step of the procedure.
[5] It should be noted that given the small number of units included in the sample (11 TDSs and 69 non-TDSs) the results of this procedure should be interpreted with care.

d. Estimated Nitrate Production (2003 data, in tons/year).
e. Farms (2005 data).
f. Sewage (2005 data).

2. Run a logistic regression model with the dependent variable coded 1 for TDSs (n=11) and 0 for non-TDS NVZs included in the project (n=69)[6] and with the independent variables discussed above and save the propensity scores (the predicted probabilities of belonging to the treatment group).

3. For each River Basin, match the TDS commune with a non-TDS NVZ commune included in the project using the nearest neighbor method. The results of the matching procedure are reported in Table 1.

4. The results of this procedure have been verified using discriminant analysis. In nine of the ten pairs, the two procedures give the same results. In the remaining pair, the commune selected through discriminant analysis is the second commune based on propensity scores. The means and standard deviations of the independent variables for the treatment group and the control group CG1 are presented in Table 2. Propensity scores are presented in Table A - 1 in Annex I.

Methodology for selecting subjects within communes.

In each commune included in the treatment group or in any of the control groups, questionnaires will be applied to:

1. 100 households (The household represents the unit of analysis and in each commune the households included in the sample will be randomly selected from the Agricultural Register. In each household, the interview will be carried out with the head of household)

2. The town hall (The town hall's secretary or the mayor will be interviewed in each commune, additional information should be collected from medical staff and from the agricultural engineer)

3. All agricultural and livestock companies (The questionnaire will be filled in with information provided by the president/ director of the company / farm or by agricultural engineer employed by the company)

In addition to these questionnaires, all town halls of the 75 communes that will receive project investments will receive a questionnaire to be filled.

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[6] The complete list of non-TDS NVZs included in the project should be comprised of 75 communes. Out of these 75, five have not been determined yet (one in Dâmbovița county and four in Neamț county) and one (Parța in Timiş county) was not among the initial list of 251 NVZs (probably because this commune was founded in 2004, by separation from commune Şag).

Table 1 Communes in the treatment group and in the three control groups

River basin	Treatment Group	Control Group 1	Control Group 2	Control Group 3
Argeş - Vedea	Albeştii de Argeş (Argeş)	Ciocăneşti (Dâmboviţa)	Suseni (Argeş)	Ţiţeşti (Argeş)
Banat	Peciu Nou (Timiş)	Şag (Timiş)	Teregova (Caraş Severin)	Şag (Timiş)
Buzău - Ialomiţa	Balta Alba (Buzău)	Glodeanu Sărat (Buzău)	Gheorghe Lazăr (Ialomiţa)	Movila Miresii (Brăila)
Crişuri	Tinca (Bihor)	Sălacea (Bihor)	Oşorhei (Bihor)	Macea (Arad)
Jiu	Gherceşti (Dolj)	Işalniţa (Dolj)	Cernăteşti (Dolj)	Gârla Mare (Mehedinţi)
Mureş	Cristeşti (Mureş)	Sântimbru (Mureş)	Joseni (Harghita)	Vladimirescu (Arad)
Olt	Mihăeşti (Vâlcea)	Budeşti (Vâlcea)	Moieciu (Braşov)	Şercaia (Braşov)
Prut - Bârlad	Miroslava (Iaşi)	Tomeşti (Iaşi)	Belceşti (Iaşi)	Schela (Galaţi)
Siret	Gârleni (Bacău)	Zăneşti (Neamţ)	Ion Creangă (Neamţ)	Todireşti (Suceava)
Siret	Dumbrava Roşie (Neamţ)	Todireşti (Suceava)	Asău (Bacău)	Todireşti (Suceava)
Someş - Tisa	Bontida (Cluj)	Urziceni (Satu Mare)	Poienile de sub Munte (Maramureş)	Chiuza (Bistriţa Năsăud)

Table 2 Means and standard deviations for variables used in propensity score matching

	Treatment group	Control group 1	Control group 2	Control group 3
Population (persons, 2005)	5666 (1987)	4853 (2833)	5753 (2994)	4763 (2581)
Arable land (hectares, 2005)	3615 (2804)	2595 (1256)	2683 (1933)	3897 (2403)
Commune development index (2002)	8 (7)	11 (6)	11 (10)	10 (7)
Nitrate production (tons/year, 2003)	195 (197)	147 (140)	131 (74)	157 (148)
Farms (proportion, 2005)	0.73 (0.47)	0.73 (0.47)	---	0.50 (0.53)
Sewage (proportion, 2005)	0.18 (0.40)	0.18 (0.40)	---	0.20 (0.42)

Note: the entries in the table represent the means and the standard deviations (in parentheses). Data sources: INS 2003,2005; Sandu 2005.

Characteristics of the treatment and control groups

In addition to the variables used in the propensity score matching procedure, in this section we provide a brief discussion of additional characteristics of the treatment and control groups included in the survey. The data presented here allow the comparison of the four groups.

Table 3 Population

	Treatment group	Control group 1	Control group 2	Control group 3
Age				
% population age 15 – 59	57.23	58.73	56.78	57.13
% population age 60+	23.25	22.65	23.31	21.96
Education				
% 4 grades	24.76	24.45	27.45	25.67
% 8 grades	34.04	33.94	35.14	33.35
% vocational school	16.92	18.87	15.60	15.56
% high school	14.24	13.25	11.28	12.65
% faculty	2.03	1.97	1.42	2.09
Employment status				
% occupied population	36.42	36.60	32.06	33.77
% population in school	15.10	15.17	14.70	14.64
% non-occupied population	48.48	48.24	53.24	51.60

Data source: 2002 Census.

In Table 3 we present the mean values for the population characteristics for the four groups. Given the small number of cases included in the groups (10 cases in CG3, 11 cases in the other three groups) significance tests for differences among the groups cannot be computed. The comparison of the distributions of the three variables suggests that there are no substantive differences among the four groups of communes.

Overall, the four groups offer a similar image, one that reflects the characteristics of the rural areas in Romania: a population that is older, less educated, and less occupied by comparison to the urban population.

Table 4 Livestock

	Treatment group	Control group 1	Control group 2	Control group 3
Cattle				
Total	1076	861	1611	961
In households	928	781	1601	919
Pigs				
Total	7144	5484	2991	7271
In households	1615	1817	1728	1889
Sheep				
Total	2481	1409	3956	2919
In households	2387	1399	3956	2919
Poultry				
Total	131083	73766	23620	23460
In households	20085	20952	23620	23080

Data source: INS, 2003.

Table 4 presents the mean values for the livestock of the four groups by type of animals. There are several significant differences indicated by the data:

- The communes included in control group 2, on the average, have a higher number of cattle and sheep and a lower number of pigs. In the case of pigs, the difference seems to come from the number of pigs in agricultural farms.
- The communes included in the treatment group and in control group 1 have a higher number of poultry compared to the other two control groups, difference given by the higher number of poultry in agricultural farms.
- The communes included in control group 1 have a lower number of sheep.

Despite these differences, the estimated nitrate production (see Table 2) does not seem to vary significantly among the four groups. The average nitrate production for the communes in the treatment group is larger compared to the other three groups, but the value of the standard deviation indicates a high degree of variation within the group.

Research instruments

The baseline study, as well as the mid-term survey and the final survey, should provide comparable data for a large number of research units (individual households, agricultural companies, and local administration). The survey research is the best way to insure the comparability of the results in the given context. We have designed three different questionnaires, one for each target group, paying special attention to the relevant indicators mentioned in the project's documentation. In addition, the questionnaires include other indicators relevant for the project's implementation and monitoring.

Since the baseline study should provide comparable data for all relevant target groups, from all the localities included in the samples, the same questionnaires should be used for the same target groups in all the villages included in the samples. The mid-term and final surveys should include the items which allow the monitoring of the project implementation and should address different topics depending on the activities carried out during the project's implementation. Consequently, different questionnaires should be used in the next two surveys in the communes included in sample A and in sample B.

1. The questionnaire addressed to the **individual households** contains items tapping the following relevant topics:
   a. Management of manure, organic waste and non-organic waste (including separation, storage and evacuation) (ECO4 – ECO24)
   b. Management of waste water (including the latrines) (V37-V54)
   c. Nutrient reduction control under the Code of Good Agricultural Practices (including crop rotation, use of natural fertilizers, use of fertilizers and pesticides under the guidance of a specialist) (AGRO8-AGRO18)
   d. Awareness about the polluting effects of improper agricultural practices, mixing manure with household waste and disposing of it in inappropriate places (ECO1-ECO3, Q1-Q20)
   e. Households' sources of information about agricultural activities (relevant for the design of the awareness campaign) (S1-S3)
   f. Households' access to public utilities (such us public service for waste and manure collection, sewage system, running water) and households' willingness and capacity to pay for the relevant public services (ECO25-ECO29, CONTR1-CONTR6)
   g. Households' resources (including livestock and agricultural land) (SEP1-SET6, V1-V6, V7, AUTO,TEL, TELMOB, MSPAL, TVC, PC)
   h. Socio-demographic relevant data (SEX, AGE, EDUC, OCUP, NRMEM, MEM1, VENOCT, VAGR, VENTOT)
2. The questionnaire addressed to **agricultural companies and livestock farms** contains items tapping the following relevant topics:
   a. Livestock's dimension (SEP1-SEP5)

b. Surface of the exploited area (AGRO1)

c. Management of manure (ECO1-ECO5, ECOUR)

d. Nutrient reduction control under the Code of Good Agricultural Practices (including crop rotation, use of natural fertilizers, use of fertilizers and pesticides under the guidance of a specialist) (AGRO2-AGRO12)

e. Willingness to use compost as fertilizer (AGRO13-AGRO15)

f. Information about the Code of Good Agricultural Practices (ECO6, ECO7)

3. The questionnaire addressed to **public administration** contains items tapping the following relevant topics:

a. Socio-demographic information (V27-V34, SEP1-SEP6, V69-V78)

b. Information about water quality and the level of water and soil pollution (including the number of baby-blue disease cases in the last three years) (V4, V5, MAS1, MAS2, V79-V81)

c. Information about public utilities and public services (with a special focus on the availability of the public service for waste/ manure collection) (V9, V9A, V9B, V42 – V68)

d. Plans for local development (V1-V3, V17 – V21, V24-V26, TEREN, PLATA1, PLATA2)

e. Information about waste and manure management in locality (V6-V16, V22, V23)

f. Information about agricultural practices (V35 –V41)

We advise against using opinion questions (e.g. regarding the awareness of polluting consequences of the waste / manure management) in the questionnaires addressed to agricultural companies and the local administration. In the case of these respondents there is a high likelihood that information will be collected from different persons in different surveys (baseline study, mid-term survey, final survey), in which case the answers will not be comparable.

Pre-testing the instruments

The questionnaires have been pretested in two communes (Albeştii de Argeş, in Argeş county, and Balta Albă, in Buzău county). Interviews have been conducted with the mayor, the secretary of the town hall, and members of the population. As a result of the pre-testing procedure, we have operated several small changes in the questionnaires. These included:

1. Changing the order of some questions in the questionnaire in order to improve the logical flow of the interview.
2. Re-phrasing some of the questions in order to make them easier to understand.
3. Adding some new questions necessary for filters.
4. Deleting some questions that did not offer relevant information.

Data collection

The data were collected by a survey research carried out during September – November 2008. In each commune included in the sample, according to the sampling methodology, there were interviewed 100 individual farmers, as well as a representative for each identified agricultural company. In addition, in each commune a representative of the local administration was interviewed using a standard questionnaire.

By comparison to the original sample presented in the methodological report, several replacements were made during the data collection. Apahida (Cluj) was replaced on the list of TDS's by Bontida (Cluj) and we had to replace it in our sample as well. In addition, Gătaia (Timiş) was replaced by Şag (Timiş), Vicovu de Sus (Suceava) was replaced by Zăneşti (Neamț), and Pecica (Arad) was replaced by Vladimirescu (Arad). These replacements were necessary because during the last territorial reorganization they have received urban status. In all cases the replacements have been done by selecting the next commune on the list, based on the results of the propensity score matching procedure. It should be noted that two communes (Şag and Todireşti) are included in two control groups (CG1 and CG3).

During the baseline survey there were collected 4100 questionnaires from individual households, in 41 communes (100 questionnaires in each commune), 41 questionnaires from the local representative and 125 questionnaires from agricultural companies. In eight communes the field operators did not identify any agricultural companies.

Main indicators – Baseline results

Commune characteristics

This section provides an image of the communes included in the study based on the survey data. In Table 5 the four groups are described in terms of their populations' age, education, employment status, and income. The average age is 59 years in the Treatment Group (TG), 58 years in Control Group 1 (CG1) and Control Group 3 (CG3), and 57 years in Control Group 2 (CG2). The TG has a significantly older population by comparison to CG1. The survey data show a population that is significantly older compared to the age structure based on the census data presented in Table 3. This difference is explained by the fact that the focus of the surveys is on the household and not on individuals. The sampling procedure required the field operators to randomly select the households and to conduct the interviews with the head of the household.

In terms of education, the four groups are similar to each other. The populations of these groups are characterized by low levels of education: more than half of the people living in these communes have only eight years of schooling or less and only about 20% have obtained a high school diploma.

Table 5 Population characteristics – survey data

	Treatment group	Control group 1	Control group 2	Control group 3
Average age	59	58	57	58
Education				
% 4 grades	21.29	18.98	20.18	18.90
% 8 grades	31.48	31.34	32.91	33.10
% vocational school	24.75	28.97	27.45	28.70
% high school	17.93	16.53	16.09	14.50
% faculty	4.55	4.09	3.00	4.80
Occupational status				
% occupied population	29.42	30.45	31.12	31.63
% population in school	0.09	0.09	0.27	0.10
% non-occupied population	13.11	12.64	16.01	18.12
% retired population	57.38	56.82	52.59	50.15
HH Income				
Last month	993	1013	877	916
From selling agricultural products	14	65	17	30
Monthly income last year	981	990	797	961

Data source: HH survey.

More than half of the people living in the communes included in the sample are retired. The communes in CG3 have a significantly lower proportion of retired people compared to the communes included in the TG and CG1 groups. At the same time, CG3 has a significantly higher proportion of non-occupied people (this category includes housewives, unemployed, people unable to work, and other categories). Adding the retired population to the non-occupied population eliminates the differences among the four groups. In all four groups only about 30% of the population belongs to the occupied category.

Table 5 also includes three variables measuring income: total household income obtained the previous month, household income obtained the previous month from selling agricultural products, and average household monthly income during the last 12 months. The analyses of variance indicate significant differences among the four groups. Households in CG2 had a significantly lower income compared to households in the other groups both in terms of monthly average income during the last 12 months and in terms of the income obtained during the previous month. Households in CG3 also had a significantly lower income the previous month compared to those in CG1. Households in CG1 have also obtained more money than the households in the other groups from selling agricultural products.

It should also be noted that selling agricultural products does not represent a significant source of income for any of the four groups. This source of income represents only 6% of the total household income in CG1 and less than 3% in the other three groups.

Overall, the data in Table 5 present the typical image of the Romanian rural areas: aged population, with low education, with a high proportion of non-occupied population (including the retired population), and with reduced income.

Table 6 and Table 7 present data related to the agricultural activities in the four groups of communes.[7] By comparison to the communes in the other groups, the communes in CG1 have, on the average, a smaller area of cultivated land. The communes in TG have the highest proportion of land cultivated by farms (40%), compared to 32% in CG1, 24% in CG2, and 37% in CG3. This indicates the existence of significant differences among the four groups with respect to the way the land is cultivated.

Table 6 Land use – survey data

	Treatment group	Control group 1	Control group 2	Control group 3
Total area of cultivated land	3589	2645	3765	3881
Cultivated by farms	1449	837	894	1417
Cultivated individually	2140	1808	2871	2240
Cultivated ecologically	205	276	216	444
Number of agricultural farms	4.3	3.6	4.4	4.6

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[7] As previously argued, the small number of cases included in the four groups does not allow using statistical significance tests for differences among the groups. Differences have to be interpreted in terms of their substantive importance.

Soil tested for nitrates	3 / 11	9 / 11	1 / 11	3 / 10

Data source: local administration representatives survey.

The data also show significant differences related to ecological agriculture. Using the data from all communes included in the groups, 7% of the total land is cultivated ecologically in TG, 10% in CG1, 25% in CG2, and 17% in CG3. If we take into account only the communes in which ecological agriculture is used, the percentages become 19% for TG (in 4 communes), 13% for CG1 (in 8 communes), 46% for CG2 (in 6 communes), and 28% for CG3 (in 6 communes).

The high number of communes using ecological agriculture in CG1 is also reflected in the number of communes that had tested the soil for nitrates. Nine of the 11 communes in CG1 have tested their soil, compared to only three communes in TG, one in CG2, and three in CG3.

Table 7 presents aggregate data for the livestock in the four groups of communes, obtained from the local administration representatives. By comparison to the INS data presented in Table 4 it can be observed that in most cases the figures obtained from the local administration are lower. Part of this difference can be explained by the fact that the INS data refer to 2003. The comparison also shows that the largest differences are recorded for the total number of pigs and poultry, indicating either that some farms have stopped their activity during the last 5 years, or that the local administration does not have a complete evidence of farm-raised pigs and poultry.

Table 7 Livestock – survey data

	Treatment group	Control group 1	Control group 2	Control group 3
Cattle				
Total	803	576	1294	806
In households	738	449	1151	686
Pigs				
Total	1509	2348	1484	4009
In households	1278	1183	1463	1381
Sheep				
Total	2811	1330	3275	3067
In households	2613	1330	3002	2971
Poultry				
Total	21744	16736	15296	17125
In households	17299	14769	14880	16525
Horses				
Total	214	170	262	177
In households	164	170	256	177
Bee hives				
Total	274	323	238	477
In households	258	323	219	477

Data source: local administration representatives survey.

Compared to the communes in the control groups, the communes in TG have the highest number of poultry, an average number of cattle, sheep, and horses, and a lower number of pigs and bees. The agricultural farms in TG raise mainly pigs (15% of the total number) and poultry (20% of the total number). In CG1 the agricultural farms raise mainly pigs (50% of the total number) and cattle (22% of the total number). In the communes included in CG2 more than 90% of the cattle, pigs, sheep, and poultry are raised in households. In CG3 66% of the total number of pigs and 15% of the total number of cattle are farm-raised.

Table 8 presents data on the availability of water, sewage, and garbage collection systems in the communes included in the sample.

In each of the four groups there are seven or eight communes that already have a water system. Most of the remaining communes have a feasibility study already completed. The only exceptions are Todireşti (in CG1 and CG3), who has a project for the water system but has not done the feasibility study yet, and Tergova (in CG2), who has no project for a water system. The average price for a cubic meter of water is 1.32 lei in the TG communes, 2 lei in the CG1 communes, 1.8 lei in CG2, and 1.95 lei in CG3.

Only 5 of the 41 communes have stations for monitoring water quality: Peciu Nou (TG), Işalniţa (CG1), Oşorhei (CG2), Movila Miresii (CG3), and Macea (CG3). Even though these are the only communes with such stations, the county health office runs tests regularly. The results of the last tests show that eight communes included in the treatment group have recorded values above the accepted limits. By comparison, values above the accepted limits have also been recorded in seven communes in CG1, in three communes in CG2, and in 2 communes in CG3.

Sewage systems are also missing from most of the communes. The only communes that have a sewage system are: Tinca and Cristeşti in TG, Tomeşti in CG1, Joseni and Belceşti in CG2, and Movila Miresii, Vladimirescu, and Schela in CG3. With the exception of Vladimirescu and Schela, all communes that have a sewage system also have a station for the treatment of residual water.

Garbage collection systems are in place in 9 TG communes (3 run by the local administration and 6 run by private companies), 5 CG1 communes (only 1 run by the local administration), 8 CG2 communes (7 of them run by the local administration), and 5 CG3 communes (only 1 run by the local administration). Most of the communes without a garbage collection system do not have yet a project for building such a system.

Even in the communes having a garbage collection system, special containers for separate waste collection are not widely used. In the treatment group only two communes have such containers: Balta Albă (paper, glass, and plastic) and Miroslava (plastic only). In CG1 there are 5 communes that use separate containers (plastic in 5 communes, paper in 3, metal in one, and glass in one). In CG2 there is only one commune that collects metal (Joseni). Finally, CG3 includes two communes that use separate containers: Şag (paper, plastic, and metal) and Movila Miresii (paper, glass, plastic, and metal).

None of the communes included in this study have a manure collection system. The local administration representatives have explained the absence of such a system using the following arguments: people use the manure as natural fertilizer (22 communes), there are not enough

animals to justify a manure collection system (11 communes), and the lack of funds (7 communes). It seems, however, that some communes would need a manure collection system:

Table 8 Availability of water, sewage, and garbage collection systems

	Water system				Sewage system				Garbage collection system			
	TG	CG1	CG2	CG3	TG	CG1	CG2	CG3	TG	CG1	CG2	CG3
Albeştii de Argeş	Yes	Study	Yes	Yes	Study	Study	No project	Study	Yes	No project	Yes	No project
Peciu Nou	Yes	Yes	No project	Yes	Study	Project	Study	Project	Yes	Yes	Yes	Yes
Balta Albă	Study	Study	Yes	Yes	Study	Project	Study	Yes	No project	No project	No project	Project
Tinca	Yes	Study	Yes	Yes	Yes	Study	Study	No project	Yes	Study	Yes	Yes
Gherceşti	Study	Yes	Study	Study	No project	Study	Study	Study	No project	No project	No project	Project
Cristeşti	Yes	Yes	Yes	Yes	Yes	No project	Yes	Yes	Yes	Yes	Yes	Yes
Mihăeşti	Yes	Yes	Yes	Study	Study	Study	Study	Study	Yes	Yes	Yes	Yes
Miroslava	Study	Yes	Yes	Yes	Study	Yes	Yes	Yes	Yes	Yes	Study	Study
Gârleni	Study	Yes	Study	Project	Study	Study	Study	Study	Yes	Study	Yes	Project
Dumbrava Roşie	Yes	Project	Yes	Project	Project	Study	No project	Study	Yes	Project	Yes	Project
Bontida	Yes	Yes	Yes	Yes	Study	Study	Study	Study	Yes	Yes	Yes	Yes

Data source: local administration representatives. Notes: 'Yes' – the system exists in the commune; 'Study' – the commune does not have the system, but it has a project for building one and a feasibility study; 'Project' – the commune does not have the system, but it has a project for building one; 'No project' – the commune does not have the system and it does not have a project to build one.

three communes in TG and four communes in CG3 report having sites for depositing manure, most of them improvised. Most of the communes report having a place that is suitable for building an ecological manure platform. Eight communes in the TG have such places available, all of them owned by a public institution. About half of the communes in the control groups also have a place that could be used for an ecological manure platform.

Table 9 Waste management in the four groups

	Treatment Group	Control Group 1	Control Group 2	Control Group 3
% HH with manure storage platforms	8%	16%	15%	13%
% HH with waste bins	30%	41%	23%	48%
% HH separating manure from waste	71%	76%	70%	66%
% HH separating organic and non-organic waste	65%	61%	59%	45%

Data source: household survey.

According to the survey data presented in Table 9, only a small percentage of households have individual platforms for manure storage. The communes included in the treatment group have the lowest percentage of households with such platforms (8%). Almost a third of the households in TG have waste bins, an average value compared to the households in the control groups. The majority of the households declared, however, they separate manure from garbage and organic waste from non-organic waste. Tables A-3 to A-6 in Annex I present the four types of behavior for all communes included in the four groups.

Awareness about polluting effects

Three different measures were used in order to capture the level of awareness of the local population about the polluting effects of the waste management and of the agricultural practices they use: an index of awareness of the polluting effects of improper waste and manure management, an index of awareness of the polluting effects of improper agricultural practices, and an index of awareness of the polluting effects of improper waste and manure management and of inappropriate agricultural practices on Danube and Black Sea. The factor analysis run on data referring to awareness of polluting effect of the improper waste management and of the agricultural practices indicates the existence of two different dimensions: one related to the waste and manure management and the second one to the agricultural practices.

The level of awareness of the polluting effects of animal waste and manure management was investigated only for the inhabitants of the communes included in the sample, items tapping this issue being included only in the questionnaire addressed to individual household. It is not possible to measure it for the agricultural companies as long as this topic is related to respondents' attitudes and opinions and it is quite likely that data will be collected from different employees of the same agricultural companies in different research waves. Consequently, the results included in this section refer only to the opinions and attitudes held by the villagers.

Index of awareness of the polluting effects of improper waste and manure management. This index is operationally defined as the average score of the following items: *'To what extent do you*

think the following could be a source of water pollution: animal manure/ household waste/ depositing waste and manure together/ depositing waste in improvised locations' and 'To what extent do you think the following could be a source of soil pollution: animal manure/ household waste/ depositing waste and manure together/ depositing waste in improvised locations'. The response scale of the eight items is: 1. Not at all; 2. To little extent; 3. To some extent; 4. To a great extent. The index takes values from 1 to 4, higher scores indicating higher awareness of the polluting effects. The reliability analysis indicates that the scale based on the eight items provides a good measure for the target variable (Alpha Cronbach = 0.876).

The data from Table 10 indicate a significant variation between the four groups of communes (p≤0.000 for F test), as well as a statistical significant heterogeneity inside each group (p≤0.000 for Levene Statistic). The inhabitants of the communes included in CG3 are more aware about the polluting effect of waste and manure management, while those living in communes from CG1 and CG2 have the lowest level of awareness. However, the four groups are not homogenous, higher variation being registered inside each of them.

In the Treatment Group (TG), villagers from Mihăieşti and Albeştii de Agreş display a higher level of awareness, the data indicating that the inhabitants are rather aware about the impact of waste and manure management on the quality of the environment. The results of ANOVA analysis indicate a significant difference between the inhabitants of the two communes from TG and those living in corresponding villages from the three control groups (p≤0.05), the only non-significant difference being between Albeşti de Argeş and the commune from CG3 (Ţiţeşti).

Table 10 Index of awareness of the polluting effects of waste and manure management on water and soil for individual households by commune

	Treatment Group	Control Group 1	Control Group 2	Control Group 3
Albeştii de Argeş	2.94	2.55	2.38	2.99
Peciu Nou	2.76	2.85	2.15	2.85
Balta Albă	2.48	2.51	2.02	2.53
Tinca	2.41	2.22	2.61	3.09
Gherceşti	1.58	2.19	2.32	1.78
Cristeşti	2.35	2.23	2.34	2.25
Mihăeşti	3.27	2.27	2.48	2.58
Miroslava	2.71	2.48	2.71	2.94
Gârleni	2.42	2.69	2.52	2.69
Dumbrava Roşie	2.78	2.84	2.49	
Bontida	2.32	2.33	3.13	2.88
Group mean	2.54	2.46	2.47	2.62

Data source: household survey.

The inhabitants of Gherceşti are the least aware about the polluting effects of manure and waste management. According to the survey data, on the average, they are inclined to declare that this management has no impact on the environment. People from Gherceşti share a similar point of

view with those from the CG3 (Gârla Mare) and they significantly differ from those living in the corresponding communes from CG1 and CGI2 (p≤0.05).

Index of awareness of the polluting effects of improper agricultural practices. This index is operationally defined as the average score of the following items: **'To what extent do you think the following could be a source of water pollution: Using chemical fertilizers without asking a specialist/ Using natural fertilizers without asking a specialist'** and *'To what extent do you think the following could be a source of soil pollution: Using chemical fertilizers without asking a specialist/ Using natural fertilizers without asking a specialist'*. The response scale of the four items is: 1. Not at all; 2. To little extent; 3. To some extent; 4. To a great extent. The index takes values from 1 to 4, higher scores indicating higher awareness of the polluting effects. The reliability analysis indicates that the scale based on the four items provides a good measure for the target variable (Alpha Cronbach = 0.814).

The data from Table 11 indicate a higher level of awareness with the respect to the polluting effect of agricultural practices as compared to the effect of waste and manure management among the inhabitants of all communes included in the sample. Moreover, the differences between the mean of Treatment Group and the mean of the CG2 and CG3 are not significant; only the difference between TG and CG1 is statistically significant. However, statistical tests point out a significant heterogeneity inside each group.

Table 11 Index of awareness of the polluting effects of agricultural practices on water and soil for individual households by commune

	Treatment Group	Control Group 1	Control Group 2	Control Group 3
Albeştii de Argeş	3.33	2.43	2.63	3.00
Peciu Nou	2.77	2.89	2.37	2.89
Balta Albă	3.43	2.92	1.86	3.13
Tinca	2.62	2.30	2.81	3.23
Ghercești	1.67	2.96	2.70	2.39
Cristeşti	2.82	2.56	2.39	2.40
Mihăeşti	3.51	2.08	2.71	2.75
Miroslava	2.77	2.49	2.69	3.19
Gârleni	2.90	2.66	2.77	2.66
Dumbrava Roşie	2.83	2.93	2.92	
Bontida	2.66	2.38	2.90	2.99
Group mean	2.84	2.60	2.61	2.88

Data source: household survey.

Three of the TG communes (Albeşti de Argeş, Balta Albă and Mihăileşti) register an average of the index higher than 3, indicating that most of the interviewed people share the idea that agricultural practices might damage the environment, while in Gârleni the average is close to the 3. Albeştii de Argeş and Balta Albă are similar with the corresponding communes from CG3, while

they significantly differ from communes from the other two control groups (p≤0.05). Gârleni and Mihăileşti significantly differ from the equivalent communes from all the control groups (p≤0.05).

Villagers from Ghercești have again the lowest level of awareness about the polluting effects of agricultural practices, similar to the awareness about the polluting effect of waste management. Ghercești lags behind the Treatment Group average and significantly differs from the equivalent communes included in the control groups 1 and 2 (p≤0.05), being similar only with its corresponding commune from CG3 (Gârla Mare). Moreover, Ghercești has the lowest level of awareness from the entire sample, being significantly different from all communes included in the sample with the exception of Gârla Mare.

Index of awareness of the polluting effect on Danube and Black Sea of the waste and manure management and of the agricultural practices is operationally defined as the average score of the following items: **'**_Do you think the way people in your locality are using manure has any effects on the quality of water in: Danube River/ Black Sea'_ and _Do you think the way people are practicing agriculture in your locality has any effects on the quality of water in: Danube River/ Black Sea'_. The response scale of the four items is: 1. Definitely no; 2. Probably no; 3. Probably yes; 4. Definitely yes. The index takes values from 1 to 4, with higher scores indicating a higher level of awareness of the polluting effects. The reliability analysis indicates that the scale based on the four items provides a good measure for the target variable (Alpha Cronbach = 0.956).

Table 12 Index of awareness of the polluting effects of agricultural practices and waste management on Danube River and Black Sea by commune

	Treatment Group	Control Group 1	Control Group 2	Control Group 3
Albeştii de Argeş	1.56	1.77	1.65	1.65
Peciu Nou	2.13	2.36	1.41	2.36
Balta Albă	1.12	1.79	2.17	2.14
Tinca	1.64	1.75	1.88	1.63
Ghercești	1.46	1.20	1.17	1.77
Cristeşti	1.90	2.06	1.72	1.49
Mihăeşti	1.23	1.92	1.26	1.61
Miroslava	1.85	1.62	2.29	1.83
Gârleni	2.07	1.66	2.01	1.66
Dumbrava Roşie	1.64	1.61	2.12	
Bontida	1.41	1.45	2.03	2.11
Group mean	1.63	1.73	1.79	1.78

Data source: household survey.

The results presented in Table 12 indicate a very low level of awareness of the polluting effect of their activities for Danube River and Black Sea. Almost all of the interviewed people are likely to say that their manure management and agricultural practices have no impact on Danube River and Black Sea, seeing no connection between what happens in their locality and the quality of environment located at a long distance. It seems that the villagers are more aware about the

effect of their activities on the local environment than about the similar effect on the water located far away.

The differences between the communes included in TG and those belonging to the control groups are significant. Each group of communes is characterized by a significant level of heterogeneity (p≤0.000 for Levene Statistic). Within the Treatment Group the highest level of awareness is registered in Peciu Nou and Gârleni. The lowest level of awareness is registered in Balta Albă, which significantly differs from the equivalent communes belonging to the control groups (p≤0.05). Moreover, Balta Albă has the lowest level of awareness as compared to all communes included in the sample.

Adoption rate of the improved waste management system

For measuring the adoption rate of the improved waste management system, two different indexes were computed, one tapping the rate among individual households and the second among agricultural companies.

Adoption rate of the improved waste management system by households is captured by a summative index which counts the positive answers to the following items: the household deposits the manure produced in the household on the waste platform in the yard, the distance between the manure storing place and the closest source of drinking/cooking water is above 40 meters, the distance between the manure storing place and the closest well is above 40 meters, the household uses to take the manure out of the yard at least once a month, and the urine from the animals is collected in a impermeable basin. The index ranges from 0 to 5, with higher values indicating an improved manure management system.

Table 13 Index of animal waste / manure management by individual households by commune

	Treatment Group	Control Group 1	Control Group 2	Control Group 3
Albeştii de Argeş	1.87	0.45	1.55	1.32
Peciu Nou	0.60	0.25	2.15	0.25
Balta Albă	1.92	1.01	0.95	1.30
Tinca	0.91	1.34	0.52	0.33
Ghercești	1.48	0.65	1.36	1.88
Cristești	0.62	1.12	1.25	0.35
Mihăești	1.38	1.75	1.89	0.89
Miroslava	0.88	0.66	1.66	1.08
Gârleni	0.80	0.74	1.54	0.74
Dumbrava Roşie	0.45	1.35	1.23	
Bontida	0.53	0.85	1.01	1.04
Group mean	1.04	0.93	1.37	1.02

Data source: household survey.

The data in Table 13 indicate a lower level of adoption of improved manure management among the households in all communes. Generally speaking, almost all the households have an improper animal waste and manure management, the risk of pollution being very high. However, there is higher variation among the four groups of communes as well as within each group. Control Group 1 has the lowest adoption rate, while CG2 has the highest. One has to mention that CG2 comprises communes not included in NZV, but sharing similar traits in terms of population, arable land, level of development, and estimated nitrate production. In the context of similar nitrate production they have a lower level of pollution thanks to a better manure management proved by survey data, too.

Among the communes from the treatment group, Balta Albă and Albeştii de Argeş have the highest adaptation rates and both of them significantly differ from the equivalent communes included in the controls group. Dumbrava Roşie has the lowest level of adoption rate among TG communes and significantly differs from the corresponding communes belonging to control groups.

Adoption rate of the improved waste management system by agricultural companies is captured by a summative index which counts the positive answers to the following items: the farm deposits the manure produced in the farm on the waste platform in the yard, the distance between the manure storing place and the closest well is higher than 40 meters, the farm uses to take the manure out of the yard at least once a month, and the urine from the animals is collected in a impermeable basin. The index ranges from 0 to 4, with higher values indicating an improved manure management system.

Table 14 Index of animal waste / manure management for agricultural companies by commune

	Treatment Group	Control Group 1	Control Group 2	Control Group 3
Albeştii de Argeş	1.50	4.00	*	4.00
Peciu Nou	*	*	1.00	#
Balta Albă	*	*	*	*
Tinca	1.33	0.50	#	*
Ghercești	#	1.00	1.67	*
Cristești	1.00	1.40	*	.44
Mihăești	2.00	1.00	#	1.00
Miroslava	0.83	#	0.33	0.75
Gârleni	1.00	1.00	*	1.00
Dumbrava Roşie	1.00	1.50	1.00	
Bontida	#	1.00	#	#
Group mean	1.23	2.32	1	1.43

Data source: farm survey. Notes: * - no agricultural land in the commune # - no agricultural companies in the commune.

The adoption rate is very low among the agricultural companies, too. The values are quite similar with those registered for the individual households. The average of adoption varies among the

four groups and within these groups. The higher rate is registered for CG1, which is significantly different from the other three groups of communes.

Within the treatment group the highest adoption rate is observed in Mihăieşti, while the lowest is registered in Miroslava. In the case of Miroslava one has to mention that the corresponding communes from the control groups display lower level of adoption rate, too. The highest level of adoption rate from the entire sample is observed in Ciocăneşti, which has the maximum score on the index.

Application of nutrient reduction measures

For measuring the application of the nutrient reduction measures under the Code of Good Agricultural Practices, two different indexes were computed, one tapping the application rate among individual households and the second among agricultural companies.

Application of the nutrient reduction measures under the Code of Good Agricultural Practices by households is captured by a summative index which counts the positive answers for the following items: *Which of the following did you use in your agricultural activities in 2007: Did you use crop rotation/ Did you use chemical fertilizers asking a specialist about the quantity to be used/ Did you use natural fertilizers/ Did you use natural substances against pests/ Did you use chemical substances (pesticides) against pests asking a specialist about quantity and type / Did you use chemical fertilizers asking a specialist about the quantity to be used.* The index ranges from 0 to 5, with higher values indicating high application of the nutrient reduction measures.

Table 15 Index of application of nutrient reduction measures by individual households by commune

	Treatment Group	Control Group 1	Control Group 2	Control Group 3
Albeştii de Argeş	0.94	0.71	1.87	0.93
Peciu Nou	1.16	0.38	2.44	0.38
Balta Albă	3.57	2.65	0.57	2.01
Tinca	1.65	1.41	1.54	0.72
Gherceşti	1.51	2.35	1.47	0.46
Cristeşti	0.82	2.19	1.26	1.12
Mihăeşti	1.65	1.25	0.94	1.11
Miroslava	0.59	1.13	0.99	0.83
Gârleni	0.51	1.56	0.95	1.56
Dumbrava Roşie	1.32	1.72	0.76	
Bontida	0.95	1.27	1.13	2.59
Group mean	1.33	1.51	1.27	1.22

Data source: household survey. Notes: * - no agricultural land in the commune # - no agricultural companies in the commune.

The application of nutrient reduction measures is very low in individual households. However, the variation between and within groups is quite large and significant (p≤0.05). On the average, villagers from CG1 seem to use more environmental friendly agricultural practices, but the level is low even in this group.

Within the treatment group, Balta Albă has the highest level of application, scoring very high in the TG as well as in the entire sample. Villagers from Balta Albă significantly differ from those living in the equivalent communes from control groups. Miroslava and Gârleni have the lowest level of application, lagging behind all communes from the treatment group.

Application of the nutrient reduction measures under the Code of Good Agricultural Practices by agricultural companies is captured by a summative index which counts the positive answers to the following items: *Which of the following did you use in your agricultural activities in 2007: Did you use crop rotation/ Did you use chemical fertilizers asking a specialist about the quantity to be used/ Did you use natural fertilizers/ Did you use natural substances against pests/ Did you use chemical substances (pesticides) against pests asking a specialist about quantity and type / Did you use chemical fertilizers asking a specialist about the quantity to be used.* The index ranges from 0 to 5, with higher values indicating high application of the nutrient reduction measures.

Table 16 Index of application of nutrient reduction measures by agricultural companies by commune

	Treatment Group	Control Group 1	Control Group 2	Control Group 3
Albeştii de Argeş	1.00	4.00	3.00	#
Peciu Nou	2.67	1.67	3.00	1.67
Balta Albă	3.00	2.00	2.33	3.00
Tinca	3.67	2.75	#	3.25
Ghercești	#	3.00	3.00	4.00
Cristeşti	4.00	2.00	2.00	2.78
Mihăești	0.33	*	#	1.33
Miroslava	2.17	#	2.33	3.00
Gârleni	2.86	4.00	3.00	4.00
Dumbrava Roşie	2.67	3.00	1.00	
Bontida	#	2.00	#	#
Group mean	2.51	2.44	2.48	2.84

Data source: farm survey. Notes: * - no agricultural land in the commune # - no agricultural companies in the commune.

According to the data in Table 16 the application of nutrient reduction measures under the Code of Good Agricultural Practices is higher in agricultural companies, as compared to individual households. The average score for agricultural companies is higher in each group as compared to individual households in the same group. Among the groups, CG3 scores the highest in average. However, the level of homogeneity is low inside each group (p≤0.000 for Levene Statistic). Within

the Treatment Group Balta Albă, Tinca and Cristeşti score higher on the index of application, while Mihăieşti has the lowest level of application.

Recommendations

The data collected during the baseline study indicate significant differences between the villagers with respect to awareness of the polluting effects. Thus, the population is aware of the polluting effects of their activities on the local environment, but it is not aware about the effects on environments located at a long distance (Danube River and Black Sea). Consequently, an awareness campaign should focus on the long distance effects of the agricultural and waste/ manure management and it should explain the mechanisms through which local agricultural activity can produce damage on environments situated at a longer distance.

A second issue resulting from the data is related to the adoption rate of improved waste and manure management and to the application of nutrient reduction measures. While there are no differences between agricultural companies and individual households with respect to the adoption of improved waste management, the results indicate a higher application of nutrient reduction measures in agricultural companies as compared to households in most of the communes included in the sample. Consequently, an awareness campaign should focus the message mainly of individual farmers and should better explain to them the consequences of improper agricultural practices.

It should also be noted that although more than two thirds of the households separate manure from garbage, the percentage of households having a manure depositing platform is 16% or lower in all four groups of communes. At the level of the whole sample, 11% of the households have such a platform for depositing manure, 39% declare they do not have manure to dispose of, while 50% of the households declare they deposit the manure either in a place in the yard or in a place outside the yard. Similarly, only 12% of the households collect animal urine in an impermeable basin. Half of the households let the animal urine infiltrate the ground, or have a ditch that eliminates it in a place within the yard or outside the yard. The project should focus on these 50% of the households that dispose of the manure in an improper way either by building individual platforms or by educating them about the negative effects of their actions. The agricultural engineer should be involved in this process, given that 28% of the households consider that he/she is the one that can give the best advice about agricultural practices (followed by 26% who said that the elders are the best advisors).

Annex I – Additional tables

Table A - 1 Propensity scores for the four groups

TG	Propensity scores		CG1
Albeştii de Argeş	0.025	0.025	Ciocăneşti
Peciu Nou	0.090	0.074	Şag
Balta Alba	0.019	0.020	Glodeanu Sărat
Tinca	0.107	0.069	Sălacea
Gherceşti	0.014	0.013	Işalniţa
Cristeşti	0.066	0.067	Sântimbru
Mihăeşti	0.124	0.096	Budeşti
Miroslava	0.274	0.197	Tomeşti
Gârleni	0.122	0.105	Zăneşti
Dumbrava Roşie	0.136	0.124	Todireşti
Bontida	0.133	0.044	Urziceni

TG	Propensity scores		CG2
Albeştii de Argeş	0.143	0.142	Suseni
Peciu Nou	0.224	0.165	Teregova
Balta Alba	0.051	0.051	Gheorghe Lazăr
Tinca	0.143	0.125	Oşorhei
Gherceşti	0.040	0.086	Cernăteşti
Cristeşti	0.163	0.160	Joseni
Mihăeşti	0.183	0.182	Moieciu
Miroslava	0.687	0.492	Belceşti
Gârleni	0.115	0.115	Ion Creangă
Dumbrava Roşie	0.158	0.157	Asău
Bontida	0.795	0.391	Poienile de sub Munte

TG	Propensity scores		CG3
Albeştii de Argeş	0.025	0.023	Ţiţeşti
Peciu Nou	0.090	0.074	Şag
Balta Alba	0.019	0.023	Movila Miresii
Tinca	0.107	0.023	Macea
Gherceşti	0.014	0.020	Gârla Mare
Cristeşti	0.066	0.038	Vladimirescu
Mihăeşti	0.124	0.074	Şercaia
Miroslava	0.274	0.080	Schela
Gârleni	0.122	0.124	Todireşti
Dumbrava Roşie	0.136		
Bontida	0.133	0.058	Chiuza

Table A - 2 Female respondents by commune (%)

	Treatment Group	Control Group 1	Control Group 2	Control Group 3
Albeştii de Argeş	42%	38%	35%	39%
Peciu Nou	36%	55%	47%	55%
Balta Albă	69%	29%	26%	41%
Tinca	39%	57%	28%	35%
Ghercești	39%	19%	31%	42%
Cristeşti	40%	53%	22%	42%
Mihăeşti	27%	38%	41%	46%
Miroslava	31%	44%	19%	44%
Gârleni	28%	44%	32%	44%
Dumbrava Roşie	36%	49%	26%	
Bontida	28%	21%	55%	43%
Group mean	38%	41%	33%	42%

Table A - 3 Households with manure storing platforms by commune (%)

	Treatment Group	Control Group 1	Control Group 2	Control Group 3
Albeştii de Argeş	27%	10%	4%	19%
Peciu Nou	4%	14%	78%	14%
Balta Albă	1%	4%	2%	9%
Tinca	6%	4%	10%	4%
Ghercești	3%	23%	2%	0%
Cristeşti	17%	23%	0%	29%
Mihăeşti	4%	12%	24%	38%
Miroslava	3%	24%	18%	13%
Gârleni	7%	16%	7%	16%
Dumbrava Roşie	13%	17%	0%	
Bontida	15%	31%	2%	13%
Group mean	8%	16%	15%	13%

Table A - 4 Households with waste bins by commune (%)

	Treatment Group	Control Group 1	Control Group 2	Control Group 3
Albeştii de Argeş	83%	10%	27%	14%
Peciu Nou	17%	40%	34%	40%
Balta Albă	1%	14%	4%	8%
Tinca	72%	21%	71%	90%
Gherceşti	1%	29%	0%	0%
Cristeşti	38%	93%	20%	95%
Mihăeşti	66%	66%	62%	35%
Miroslava	7%	70%	22%	52%
Gârleni	3%	9%	4%	9%
Dumbrava Roşie	7%	2%	1%	
Bontida	37%	99%	5%	91%
Group mean	30%	41%	23%	48%

Table A - 5 Households separating manure from waste by commune (%)

	Treatment Group	Control Group 1	Control Group 2	Control Group 3
Albeştii de Argeş	63%	59%	86%	52%
Peciu Nou	90%	16%	63%	16%
Balta Albă	23%	80%	31%	27%
Tinca	86%	52%	66%	46%
Gherceşti	72%	83%	13%	60%
Cristeşti	87%	95%	96%	98%
Mihăeşti	72%	76%	99%	89%
Miroslava	68%	83%	79%	70%
Gârleni	71%	99%	96%	99%
Dumbrava Roşie	99%	96%	96%	
Bontida	58%	85%	70%	88%
Group mean	71%	76%	70%	66%

Table A - 6 Households separating organic and non-organic waste by commune (%)

	Treatment Group	Control Group 1	Control Group 2	Control Group 3
Albeştii de Argeş	72%	60%	86%	76%
Peciu Nou	58%	20%	21%	20%
Balta Albă	91%	78%	60%	57%
Tinca	59%	51%	63%	15%
Ghercești	97%	56%	97%	5%
Cristeşti	64%	42%	47%	7%
Mihăeşti	33%	76%	57%	70%
Miroslava	65%	72%	78%	91%
Gârleni	30%	37%	47%	37%
Dumbrava Roşie	79%	86%	15%	
Bontida	61%	92%	81%	39%
Group mean	65%	61%	59%	45%

Annex II - Questionnaires

Questionnaire for households

Good morning / good afternoon / good evening. My name is [name] and I am a field operator for [company]. We are conducting a study to find out people's opinions on current issues related to agriculture. In order to discuss these issues, you have been selected randomly, like in a lottery. If you agree to answer our questions, we hope to finish the interview in 15 minutes. We will not give your answers to anyone; we are interested only in counting the people that have an opinion or another.

Could you please tell us how interested are you in:	Very interested	Quite interested	Not very interested	Not at all interested	DK/ NA
ECO1. The quality of the water in your locality.	4	3	2	1	9
ECO2. The quality of the air in your locality	4	3	2	1	9

ECO3. How would you rate the quality of the water in your locality?

very good	good	poor	very poor	DK	NA
4	3	2	1	8	9

Do you think the way people in your locality are using manure has any effects on the quality of water in:

	Definitely yes	Probably yes	Probably no	Definitely no	DK/ NA
q1. Danube River	4	3	2	1	99
q2. Black Sea	4	3	2	1	99

Do you think the way people are practicing agriculture in your locality has any effects on the quality of water in:

	Definitely yes	Probably yes	Probably no	Definitely no	DK/ NA
q3. Danube River	4	3	2	1	99
q4. Black Sea	4	3	2	1	99

To what extent do you think the following could be a source of:

	water pollution						**soil** polution				
	To a great extent	To some extent	To little extent	Not at all	DK NA		To a great extent	To some extent	To little extent	Not at all	DK NA
q5. Animal manure	4	3	2	1	99	**q6.**	4	3	2	1	99
q7. Household waste	4	3	2	1	99	**q8.**	4	3	2	1	99
q9. Depositing waste and manure together	4	3	2	1	99	**q10.**	4	3	2	1	99
q11. Depositing waste in improvised locations	4	3	2	1	99	**q12.**	4	3	2	1	99
q13. Using chemical fertilizers without asking a specialist	4	3	2	1	99	**q14.**	4	3	2	1	99
q15. Using natural fertilizers without asking a specialist	4	3	2	1	99	**q16.**	4	3	2	1	99

How many animals do you have in the household:

	Number		Number	0 – none
SEP1. Cattle		**SEP4.** Sheep		998 – DK
SEP2. Pigs		**SEP5.** Poultry		999 – NA
SEP3. Horses		**SEP6.** Bee hives		

ASK ECO4-ECO13 ONLY THOSE WITH ANIMALS IN THE HOUSEHOLD.OTHERWISE GO TO ECO14.

ECO4. **Is there a specially built concrete platform for depositing manure in your yard?**

1. Yes   2. No   7. NC   9. NA

IF YES (1) OR DK (9) GO TO ECO7

ECO5. **Would you like to build a concrete platform for depositing manure?**
1. Yes   2. No   7. NC   8. DK   9. NA

ECO6. **Would you be willing to pay for building a concrete platform for depositing manure?**
1. Yes   2. No   97. NC   98. DK   99. NA

ECO6C. *IF YES,* **What is the maximum amount you would be willing to pay?** .... RON

ECO7. **To what extent do you believe the platform is / would be of use in your household?**

To a great extent	To some extent	To little extent	Not at all	NC	DK	NR
4	3	2	1	7	8	9

ECO8. **Where do you usually deposit the animal manure produced in your household:**
1. on the waste platform in the yard
2. Somewhere in the yard
3. Somewhere outside the yard
4. Somewhere else. Where?...
9. DK / NA   7. NC

ECO9. **What is the distance between the place where you deposit the manure and the closest source for drinking / cooking water?**
97. NC   99. NA   METERS→ ☐ ECO9

ECO10. **What is the distance between the place where you deposit the manure and the closest well?**
97. NC   99. NA   METERS→ ☐ ECO10

ECO11. **How often do you take the manure out of the yard?** .... months

1. I do not need to, I use / burn it all   97. NC   99. DK/NA

IF CODE (1) OR (99) GO TO ECO14

ECO12. **How do you transport the manure from the yard?**
1. It is taken by the manure collecting service
2. I transport It myself, through my own means (cart, tractor)
3. I pay someone to transport it
4. I do not need to transport it, I use it / burn it all,
7. NC   9. NA

ECOUR. **What happens with the urine from the animals in your household?**
1. it infiltrates into the ground
2. It is collected into an impermeable basin
3. It is eliminated through a ditch in a place in the yard
4. It is eliminated through a ditch outside the yard
5. Other case, what?...
9. DK/NA

FOR ALL RESPONDENTS:

ECO13. Do you use manure...?	Yes	No	NC	NA
1. As fertilizer	1	2	7	9
2. As materials for adobe	1	2		

3. For heating	1	2		
4. For something else. What?...........................	1	2		

ECO14. Do you have a special waste container in your yard?
      1. Yes   2. No   9. NA

IF YES (1) OR DK (99) GO TO ECO 16:

ECO15. would you like to have a special waste container in your yard?
      1. Yes   2. No   7. NC   9. DK/NA

ECO16. To what extent do you believe the special waste container is / would be of use in your household?

To a great extent	To some extent	To little extent	Not at all	DK	NA
4	3	2	1	8	9

When depositing garbage how do you usually proceed?	Yes	No	DK/NA	I never throw away garbage *[do not read!]*
ECO17. I separate household waste from manure	1	2	99	4
ECO18. I separate organic waste from glass, plastic, or paper waste	1	2	99	4

Where do you usually deposit ... (see answer codes below)	Answer code
ECO19. Organic waste (not used as animal food)	
ECO20. Glass waste	
ECO21. Metal waste	
ECO22. Plastic waste	

1. on the waste platform in the yard	6. I burn them 7. I sell them
2. in the special waste container	8. somewhere else, where?_____
3. in a hole dug in the yard / garden	9. I never throw away garbage [*do not read this answer!]*
4. on a random place in the yard / garden	99. DK/NA
5. in bags, boxes, etc.	

ECO23. What do you usually do when there is too much waste in your yard?
1. I deposit it on the village / commune waste platform
2. I deposit it on the field
3. I deposit it on the edge of the road in front of the yard
4. I burn it
5. Something else, what?...
6. I never throw it away [OPERATOR: do not read this answer!]
9. DK/NA

To what extent do you believe it is / would be helpful having a public system for collecting …	To a great extent	To some extent	To little extent	Not at all	DK	NA
ECO24. waste?	4	3	2	1	8	9
ECO25. manure?	4	3	2	1	8	9

Does your household use the public service for ...?	Yes	No	The service is not available	DK/ NA	*If YES (1)* **ECO29A. How much do you pay monthly?**
ECO26. Waste collection	1	2	7	9	.... RON
ECO27. Manure collection	1	2	7	9	.... RON
ECO28. Water	1	2	7	9	.... RON
ECO29. Sewage	1	2	7	9	.... RON

ECO30. Gas	1	2	7	9	.... RON

[IF THE SERVICE IS NOT AVAILABLE IN THE LOCALITY]

If your commune would have a public service for …	Would you like to use it?		*[If YES (1)]* How much would you be willing to pay for the service **monthly ?**
ECO31. **Waste collection**	1. yes	2 no	Monthly:........... RON
ECO32. **Manure collection**	1. yes	2 no	Monthly:........... RON
ECO33. **Water**	1. yes	2 no	Monthly:........... RON
ECO34. **Sewage**	1. yes	2 no	Monthly:........... RON
ECO35. **Gas**	1. yes	2 no	Monthly:........... RON

IF YES ON ECO33 (CODE 1):
CONTR1. Would you be willing to contribute with money for connecting your household to the water system?

        1. Yes   2. No   9. NA

    CONTR2. *IF YES*, **What is the maximum amount you could pay?** .... RON

CONTR3. **Would you be willing to contribute with work for connecting your household to the water system?**   1. Yes 2. No   9. NA

IF YES ON ECO34 (CODE 1):
CONTR4. Would you be willing to contribute with money for connecting your household to the sewage system?

        1. Yes   2. No   9. NA

CONTR5. *IF YES*, **What is the maximum amount you could pay?** .... RON

CONTR6. Would you be willing to contribute with work for connecting your household to the sewage system?   1. Yes   2. No   9. NA

Which of the following agricultural activities is / was practiced in your household during the last 12 months through the work of your household's members:	No	Yes	DK	NA	**On what area?** (hectares) 1 ha = 10.000 m^2 1 ar = 1.000 m^2 = 0,1 ha 1 pogon = 5000 m^2 = 0,5 ha
v1. Cereals for grains	0	1	8	9	.... ha
v2. Vegetables	0	1	8	9	.... ha
v3. Industrial crops	0	1	8	9	.... ha
v4. Fruits	0	1	8	9	.... ha
v5. Vineyards	0	1	8	9	.... ha
v6. Pastures/ Hayfields	0	1	8	9	.... ha

IF NONE (CODE 0 ON ALL QUESTIONS V1-V6) GO TO V7.

ECO36. What type of fertilizers do you use in working the land:

1. chemical fertilizers   2. manure   3. combined   7. NC   9. NA

We will talk now about how you practiced agriculture in <u>2007</u>. Which of the following did you use in your agricultural activities:	Yes	No	IF YES a. On what area (ha)?	DK/ NA	IF NO: b. Would you be willing to use it in the future?		
					Da	*Nu*	*NS/NR*
AGRO8. Did you practice crop rotation (during 2005 - 2007), changing the crop on the same lot of land??	1	0	.... ha	99	1	0	9
AGRO9. Did you use chemical fertilizers?	1	0	.... ha	99	1	0	9
AGRO10. Did you use chemical fertilizers asking a specialist about the quantity to be used?	1	0	.... ha		1	0	9
AGRO11. Did you use natural fertilizers?	1	0	.... ha	99	1	0	9
AGRO12. Did you use chemical fertilizers asking a specialist about the quantity to be used?	1	0	.... ha		1	0	9
AGRO13. Did you use natural substances against pests?	1	0	.... ha	99	1	0	9
AGRO14. Did you use chemical substances (pesticides) against pests?	1	0	.... ha	99	1	0	9
AGRO15. Did you use chemical substances (pesticides) against pests asking a specialist about quantity and type?	1	0	.... ha		1	0	9
AGRO16. Did you use selected seeds?	1	0	.... ha	99	1	0	9
AGRO17. Did you test the soil?	1	0	.... ha	99	1	0	9
AGRO18. Did you use fertilizing plans designed by specialists?	1	0	.... ha	99	1	0	9

ECO37. **Compost is a natural fertilizer created mainly from manure and organic waste. Would you be interested in using compost as fertilizer?**

1. Yes   2. No   9. DK

IF CODES 2 OR 9 GO TO **V7.**

ECO38. **On what area would you like to use compost?**

99. DK/NA   [   ] *hectares*

ECO39. **How much would you pay for a ton of compost?**

99.NA   *(DO NOT READ)* 0. Nothing, I would rather not use   [   ] *RON*

ECO40. Have you heard of the Code of Good Agricultural Practices, elaborated by the Ministry of the Environment?

1. Yes   2. No   99. DK/NA

IF CODES (1) OR (99) GO TO S1

ECO41. Did you apply the provisions of this code in your household during the last year (2007)?

1. Yes   2. No   99. DK/NA

S1. **What are your sources of information regarding agricultural activities?** [MULTIPLE ANSWER]
1. the agricultural engineer at the town hall
2. TV, radio
3. newspapers, books, specialty journals
4. friends, relatives, neighbors
5. agricultural associations
6. firms working in the agricultural sector (firms that sell seeds, tools, etc.)
7. from the Code of Good agricultural Practices
8. other sources, what?_____
97. I do not look for information
99. DK/NA
96. NC

S2. **Out of these, which is the most important source of information for agricultural activities?** _____ (use codes from *S1*)

S3.   The best way to practice agriculture can be learned from:

1. books, journals
2. parents
3. agricultural engineer
4. relatives, neighbors, friends
5. TV, radio
6. the elders
7. other, what?_____
99. DK/NA

v7. Which of the following do you have in your household	Yes	No	DK/NA
1. tractor	1	0	9
2. seeder	1	0	
3. milking machine	1	0	
4. cart	1	0	
5. truck	1	0	
6. trailer	1	0	
7. combine	1	0	
10. other, what?	1	0	

Does your household have:		Yes	No	NC / not available in the locality	DK/NA
ECO42.	well	1	0		9
ECO43.	running water	1	0	7	
ECO44.	shower in the house	1	0	7	
ECO45.	toilet in the house	1	0	7	
ECO46.	sewage	1	0	7	
ECO47.	toilet in the yard	1	0		
ECO48.	septic tank	1	0		

FOR THOSE HAVING SEPIC TANKS, CODE 1 ON ECO42. OTHERWISE GO TO ECO45.

ECO49.   How often do you empty the septic tank?

99. DK/NA   *months*

ECO50.   How much does it cost to empty the septic tank?

99.DK/NA   *RON*

FOR THOSE HAVING TOILET IN THE YARD, CODE 1 ON ECO41. OTHERWISE GO TO ECO51

ECO51.   How deep is your toilet?

99. DK/NA   *meters*

ECO52. How is the toilet hole built?

1. built in the ground
2. built in the grouns, with cement walls
9. DK/NA
3. septic tank
4. other, what ?...
7. NC

IF CODE 2 ON ECO46. OTHERWISE GO TO ECO48

ECO53.   How often do you empty the toilet hole?

99. DK/NA   *months*

ECO54.   What is the distance from the toilet to the closest source for drinking / cooking water?

97. NC   *99. DK/NA*   *meters*

ECO55.   What is the distance from the toilet to the closest well?

99. DK/NA   *meters*

ECO56. Is this well the source for drinking / cooking water?

      1. Yes   2. No   7. NC   9. NA

ASK ECO50 IF CODE 2 (NO) ON ECO49. OTHERWISE GO TO ECO51

What type of water do you use most often in your household for *A SINGLE ANSWER ON EACH COLUMN*	ECO57. drinking	ECO58. cooking
Well water	1	1
Tap water	2	2
Bottled water	3	3
NA	9	9

ASK ECO53 IF USING WELL WATER (CODE 1 ON ECO51 OR ECO52)

ECO59. Has the water from this well been tested?

      1. Yes   2. No   9. NA

SATSERV. What are, in your opinion, the most important three services in the village that the town hall should invest in? Which is the first? The second? The third?

1. Schools	5. Waste and cleaning services	First ☐
2. Health services	6. Sewage	Second ☐
3. Roads	7. Public lighting	Third ☐
4. Water services	8. Other 9. DK/NA	

In the end I would like to ask you about yourself and your household. We are interested in this information only for statistical purposes.

Does your household have...?	YES	NO	NA
AUTO Car	1	0	9
TEL Telephone	1	0	
TELEMOB Mobile phone	1	0	
MSPAL Washing machine	1	0	
TVC Color TV set	1	0	
PC Computer	1	0	↓

SEX. Gender:
1. male   2. female   ☐

AGE. What is your age? ☐ .... years

EDUC. What is the last school you graduated?

1. No school
2. Elementary school (1 - 4 grades)
3. Secondary school (5 – 8 grades)
4. Apprentice school
5. 9 – 10 grades
6. Secondary vocational school
7. Complete high school
8. Post-secondary school
9. Post-secondary vocational school
10. Junior college
11. Complete college
12. M.A., Ph.D.
99. NA

OCUP. What is your current occupation?   **Main** ☐

USE THE FOLLOWING CODES   **Secondary** ☐

1. Managers, directors
2. Intellectual occupations, personnel with higher education
3. Technician, foreman
4. Civil servants
5. Workers in services or trade
6. Farmers
7. Handicraft worker and machinery mechanic
8. Skilled worker
9. Unskilled worker in non-agricultural sectors
10. Temporary worker in agriculture
11. Temporary worker in non-agricultural sectors
12. Armed forces
13. Entrepreneur with employees
14. Entrepreneur (without employees)
15. Student
16. Homemaker
17. Unemployed, registered
18. Unemployed, not registered
19. Retired
20. Unable to work
21. Other
90. No secondary status   99. NA

NRMEM. How many people live in your household: children, adults, including you?

DO NOT INCLUDE PEOPLE WHO WERE NOT IN THE HOUSEHOLD DURING THE LAST 6 MONTHS!

MEM1. Out of which, how many children under 15?

VENOCT. During the last month, the total amount of money obtained by all members of your household, including income, interest, rent, etc. was approximately …?

0. no income   98. DK   99. NA   mil ROL

VAGR. Out of which, what sum was obtained from selling agricultural products?

0. none   98. DK   99. NA   mil ROL

VENTOT. During the last 12 months, the total amount of money obtained by all members of your household, including income, interest, rent, etc. was approximately …?

0. no income   98. DK   99. NA   mil ROL

Thank you!

THE OPERATOR will fill in the answers for the questions below.

County name		County code	
Commune name		SIRSUP code	
Village name		SIRINF code	

DD. Day   **MM. Interview duration**   minutes

OP. Operator name   **CODOP. Operator code**

Questionnaire for associations and agricultural farms

County name		**County code**	
Commune name		**SIRSUP code**	
Village name		**SIRINF code**	
Association / farm name			

AGRO1. Total area cultivated by the association / farm in 2007 [ ] *hectares*

IF TOTAL AREA IS 0 GO TO SEP 1

In <u>2007</u>	Yes	No	*IF YES* **On what area (ha)?**	DK/ NA
AGRO2. Did you practice crop rotation (during 2005 - 2007), changing the crop on the same lot of land?	1	0	.... ha	99
AGRO3. Did you use chemical fertilizers	1	0	.... ha	99
AGRO4. Did you use chemical fertilizers asking a specialist about the quantity to be used			.... ha	
AGRO5. Did you use natural fertilizers (compost)	1	0	.... ha	99
AGRO6. Did you use natural substances against pests	1	0	.... ha	99
AGRO7. Did you use chemical substances (pesticides) against pests	1	0	.... ha	99
AGRO8. Did you use chemical substances (pesticides) against pests asking a specialist about quantity and type	1	0	.... ha	99
AGRO9. Did you use selected seeds	1	0	.... ha	99
AGRO10. Did you test the soil	1	0	.... ha	99
AGRO11. Did you plant buffer strips	1	0	.... ha	99
AGRO12. Did you use fertilizing plans designed by specialists	1	0	.... ha	99

AGRO13. **Are you interested in using compost as fertilizer in the future?**
        1. Yes   2. No   9. DK

AGRO14. **IF YES, on what area?** [ ] *hectares*

AGRO15. **How much would you be willing to pay for a ton of compost?** [ ] *RON*
99.NA(Do not read) 0. Nothing, I would rather not use it

How many animals does your farm have?	**Number**	*998. DK 999. NA*	*0 – none*	**Number**
SEP1. Cattle		**SEP4.** Sheep		
SEP2. Pigs		**SEP5.** Poultry		
SEP3. Horses				

ECO60. **Does your farm have a specially built concrete platform for depositing manure?**

    1. Yes   2. No   7. NC   9. NA

IF YES (1) OR NA(9) GO TO ECO3

ECO61. **Would you like to build a concrete platform for depositing manure?**
    1. Yes   2. No   7. NC   8. DK   9. NA

ECO62. Where do you usually deposit the manure?
5. On the farm's waste platform
6. In a place in the farm's yard
7. In a place outside the farm
8. Somewhere else. Where?...
10. DK / NA   7. NC

ECO4. What is the distance between the place where you deposit the manure and the closest well?
97. NC   99. NA   METERS→

ECO10

ECO63. How often do you take the manure out of the farm? ....months

1. I do not need to, I use it / burn it all   97. NC   99. DK/NA

IF CODE (1) OR DK/NA (99) GO TO ECOUR

ECO64. How do you transport the manure from the farm?
5. It is taken by the manure collecting service
6. I transport It myself, through my own means (cart, tractor)
7. I pay someone to transport it
8. I do not need to transport it, I use it / burn it all
7. NC   9. NA

ECOUR. What happens with the urine from the animals in your farm?

1. it infiltrates into the ground
2. It is collected into an impermeable basin
3. It is eliminated through a ditch in a place in the yard
4. It is eliminated through a ditch outside the yard
5. Other case, what?..
9. DK/NA

ECO65. Have you heard of the Code of Good Agricultural Practices elaborated by the Ministry of the Environment?
                         1. Yes   2. No   99. DK/NA

IF NO (2) OR DK/NA (99) END

ECO66. Did your farm apply the provisions of this code during the last year (2007)?
                         1. Yes   2. No   99. DK/NA

Thank you!

Questionnaire for the town hall

County name		**County code**	
Commune name		**SIRSUP code**	
Respondent's function			

Does your commune have:	Yes	No
E1. A water system	1	2
E2. A sewage system	1	2
E3. A garbage collecting system	1	2

[IF NO (2)]

Does your commune have a project for building or extending...?	Yes	No	*IF YES*: **What is the funding source for the project**	**Does the project have a feasibility study:**	
				Yes	No
v1. The water system	1	2	....	1	2
v2. The sewage system	1	2	....	1	2
v3. The garbage collecting system	1	2	....	1	2

Does your commune have stations for monitoring water quality:	Yes	No
V4. For surface water	1	2
V5. For groundwater	1	2

MAS1. Even if your commune does not have stations for monitoring water quality, the county health office is conducting such surveys regularly. When was the last measurement done in your commune? *OPERATOR, CONVERT INTO DAYS* ☐ *days*

MAS2. From what you know, did the last measurement record values above the accepted limits?

       1. Yes   2. No   9. DK   8. No data available

V6. Does your commune have a manure collecting service?
     1. Yes   2. No → *GO TO V6B*

IF YES

    V6A. Who is administering this service?
    1. the town hall   2. A private firm   3. Other, who?..

    V11. What is the monthly fee for collecting the manure? ☐ *RON*
      1. per household
      2. per animal
      3. per ton
      4. other case, what? ....

IF NOT TO V6
V6B. What is the main reason for which a manure collecting service has not been implemented?

    ....

    ....

V7. How many specially designated sites for depositing manure are there in your commune?
     0 – NONE ☐ *SITES*

V8. How many improvised sites for depositing manure are there in your commune? ☐ *SITES*

0 – NONE [ ]

V9. Does your commune have a waste collection service?

        1. Yes   2. No→ *GO TO V9B*

IF YES

       V9A. Who is administering this service?

       1. the town hall   2. A private firm   3. Other, who?..

       V12. What is the monthly fee for collecting the waste?   [ ] *RON*

1. per household
2. per person
3. other case, what? ....

IF NOT ON V6

V9B. What is the main reason for which a waste collection service has not been implemented?

....

....

V14. How many specially designated sites for depositing waste are there in your commune?   0 – NONE   [ ] *SITES*

V15. How many improvised sites for depositing waste are there in your commune?   0 – NONE   [ ] *SITES*

V16. Does your commune have special containers for separate waste collection?

	Yes	No	DK/NA
V16_1. Paper	1	0	99
V16_2. Glass	1	0	99
V16_3. Plastic	1	0	99
V16_4. Metal	1	0	99

V18. Was a transit waste platform built in your commune through the county plan?

     1. Yes   2. No → GO TO *V20*   9. DK

V19. In what year?   [ ]   99 – DK

 V20. Will a transit waste platform be built in your commune through the county plan?

     1. Yes   2. No → GO TO *V22*   9. DK

V21. In what year?   [ ]   99 – DK

IF NO ON V18 and V20

V22. What is the distance from the commune center to the closest transit waste platform built through the county plan?   99 - DK   [ ] *Km*

V23. What is the distance from the commune center to the closest transit waste platform that will be built through the county plan?   99 - DK   [ ] *Km*

ALL RESPONDENTS:

V24. Does your commune have a plan for systemizing the waste depositing sites?
      1. Yes   2. No   9. DK

V25. Does your commune have a place that is suitable for building an ecological manure platform?
      1. Yes   2. No → *GO TO PLATA1*   9. DK

V26. This place is ...?
1. Property of the town hall   2. Property of other public institution
3. Private property   4. Other case, what?..

TEREN. How is this place used now?
1. Illegal buildings   2. Pasture
3. Improvised site for depositing waste   4. It is not used
5. Other situation, what? ....

PLATA1. How much do you think a household in your commune could pay monthly for the waste collection system?   [   ] *RON*

PLATA2. What is the amount that the local council of your commune could contribute for creating a garbage collection service?   0. Can not contribute   [   ] *RON*

V27. How many associations / companies, agricultural farms are in your commune? 0. None   [   ] *No.*

What is the total area of cultivated land...?	Hectares	None
V28. ... in the commune		0
V29. ..in the commune, by firms / farms / associations		0

How many … are in your commune? (If none, write down 0)	**Total**	None	**Households**	None
V30. Tractors		0		0
V31. Combines		0		0
V32. Other agricultural equipment. What?................		0		0

How many animals are in your commune:

	Total	Households		Total	Households	
SEP1. Cattle			**SEP4.** Sheep			**0 – none** **998 – DK** **999 – NA**
SEP2. Pigs			**SEP5.** Poultry			
SEP3. Horses			**SEP6.** Bee hives			

V35. Does your commune have maps of the terrain?
          1. Yes   2. No → *GO TO V37*   9. DK
V36. What is the percentage of cultivated area for which such maps have been created during the last two years?   [   ] *%*
99 – DK   0 – None in the last 2 years

V37. During the last two years has the soil nitrate concentration been tested in your commune?

          1. Yes   2. No → *GO TO V39*

V39. Is ecological agriculture practiced in your commune?
          1. Yes, in agricultural associations   2. Yes, in households
          3. Yes, both in households and associations   4. No

What is the area on which ecological agriculture is practiced in …	Hectares
V40. Households	
V41. Associations / Firms / Agricultural farms	

V42. Does your commune have a water system?
      1. Yes   2. No

IF YES TO V42; OTHERWISE GO TO V47

V43. What is the price of a cubic meter of water from the water system?   *RON*

REST1. What percentage of the households that are connected to the water system are behind with the payments for this service?   99 – DK   *%*

ALL RESPONDENTS:	**Households**
GOSP. Number of households in the commune	
V44. Number of households connected to the water system …	
Out of which:	
V45. Households with running water in the house	
V46. Households with running water in the yard	
V47. Number of households not connected to the water system	
Out of which:	
V48. Households with running water in the house (own system)	
V49. Households with running water in the yard	
V50. Number of households with their own well	
V51. Number of households with toilet in the house	
V52. Number of households with toilet outside the house	
V55. Number of households with septic tanks	

V56. How many public wells are in your commune?
      99 – DK   0 – none   *wells*

V57. How many public pumps are in your commune?
      99 – DK   0 – none   *pumps*

V58. Is there a company that empties septic tanks in the area?
      1. Yes   2. No

V59. This company is: 1. Private   2. State-owned

V60. What is the average price for emptying a septic tank?   *RON*

V61. Is there a sewage system in your commune?
      1. Yes   2. No

*IF YES***:**

V62. What is the number of households connected to the sewage system?   *households*

V63. What quantity of residual water is produced by your commune per day?
    (cubic meters per day)   *m³/day*

V64. Is there a functioning station for the treatment of residual water in your commune?
      1. Yes   2. No

V65. What method is used for the treatment of residual water?
    ....

V66. What is the price for a cubic meter of residual water that is eliminated using the sewage system? | | *RON*

REST3. What percentage of the households that are connected to the sewage system are behind with the payments for this service?   99 – DK | | *%*

V67. What are the most important three problems of the sewage system?
1. ....
2. ....
3. ....

V68. What are the most important three problems of the public water system?
1. ....
2. ....
3. ....

ALL RESPONDENTS	**Number**
V69. Number of schools in the commune	
V70. … out of which, having running water:	
V71. Number of schools using water from the public network inside the building	
V72. Number of schools using water from theeir own well	
V73. Number of schools using water from a public well	
V74. Number of schools using water from a pump	
V75. Number of schools connected to the sewage system	
V76. Number of schools with outside toilets	
V77. Number of schools with toilets in the building	
V78. Number of schools having a health authorization	

CONTR. In your commune, how many people that receive the guaranteed minimum income have worked / will work for the community during the month of … 2008? | | *people*

How many cases of methemoglobinemia (children intoxicated with nitrates) have been recorded in your commune in …?		
V79. 2005		
V80. 2006		
V81. 2007		

Chestionar pentru gospodării

Bună dimineața / bună ziua /bună seara, mă numesc .... şi sunt operator de interviu la…….... Realizăm un studiu pentru a afla părerea oamenilor despre problemele curente legate de agricultură. Pentru a discuta aceste aspecte, dumneavoastră ați fost ales la întâmplare, ca într-o loterie. Dacă sunteți de acord să ne răspundeți la întrebări, sperăm să nu vă răpim mai mult de 15 minute. Răspunsurile pe care le vom obține nu le vom comunica nimănui în această formă. Ne interesează doar numărarea persoanelor care au o părere sau alta.

Vă rugăm să ne spuneți în ce măsură sunteți interesat de următoarele:	În foarte mare măsură	În mare măsură	În mică măsură	Deloc	NS/ NR
ECO1. Calitatea apei în localitatea în care trăiți.	4	3	2	1	9
ECO2. Calitatea aerului în localitatea în care trăiți	4	3	2	1	9

ECO3. Cum apreciați calitatea apei din localitatea dvs.?

foarte bună	bună	proastă	foarte proastă	NS	NR
4	3	2	1	8	9

Credeți că modul în care se foloseşte gunoiul de grajd în localitatea dvs. are efecte asupra calității apei:

	Da, cu siguranță	Probabil că da	Probabil că nu	Sigur nu	NS/ NR
q17. Dunării	4	3	2	1	99
q18. Mării Negre	4	3	2	1	99

Credeți că modul în care se face agricultură în localitatea dvs. are efecte asupra calității apei:

	Da, cu siguranță	Probabil că da	Probabil că nu	Sigur nu	NS/ NR
q19. Dunării	4	3	2	1	99
q20. Mării Negre	4	3	2	1	99

În ce măsură credeți că următoarele pot să reprezinte surse de:

	poluare a **apei**						poluare a **solului**				
	În foarte mare măsură	În mare măsură	În mică măsură	Deloc	NS NR		În foarte mare măsură	În mare măsură	În mică măsură	Deloc	NS NR
q21. Gunoiul de grajd	4	3	2	1	99	**q22.**	4	3	2	1	99
q23. Gunoiul menajer	4	3	2	1	99	**q24.**	4	3	2	1	99
q25. Depozitarea gunoiului de grajd împreună cu cel menajer	4	3	2	1	99	**q26.**	4	3	2	1	99
q27. Depozitarea gunoiului în locuri neamenajate	4	3	2	1	99	**q28.**	4	3	2	1	99
q29. Folosirea îngrăşămintelor chimice fără sfatul unui specialist	4	3	2	1	99	**q30.**	4	3	2	1	99
q31. Folosirea îngrăşămintelor naturale fără sfatul unui specialist	4	3	2	1	99	**q32.**	4	3	2	1	99

Câte animale aveți în gospodărie:

	Total		Total	
SEP1. Bovine total		**SEP4.** Ovine total		0 – none
SEP2. Porcine		**SEP5.** Păsări de curte		998 – DK
SEP3. Cabaline		**SEP6.** Stupi		999 – NA

ÎNTREABĂ ECO4-ECO13 DOAR PE CEI CARE AU ANIMALE ÎN GOSPODĂRIE. ALTFEL SARI LA ECO14.

ECO4. În curtea dvs. există platformă de beton special construită unde aruncați bălegarul?

    1. Da   2. Nu   7. NC   9. NR

DACĂ DA(1) SAU NR(9) SARI LA ECO7

ECO5. **Ați dori să vă construiți o platformă de beton pentru depozitarea bălegarului?**
       1. Da   2. Nu   7. NC   8. NS   9. NR

ECO6. Ați fi dispus să plătiți pentru construirea unei astfel de platforme pentru depozitarea bălegarului?

       1. Da   2. Nu   97. NC   98. NS   99. NR

    ECO6C. *DACĂ DA*, **Care este suma maximă pe care ați fi dispus s-o plătiți?** .... RON

ECO7. În ce măsură considerați că platforma vă este/v-ar fi utilă în gospodărie?
     în foarte mare măsură   în mare măsură   în mică măsură   deloc   NC   NS   NR
         4   3   2   1   7   8   9

ECO8. Unde puneți de obicei gunoiul de grajd (bălegarul):
    9. la platforma de gunoi din curte
    10. într-un loc în curte sau în grădină
    11. într-un loc în afara curții
    12. în altă parte. Unde?..
    11. NS / NR   7. NC

ECO9. La ce distanță de locul unde depozitați gunoiul de grajd se află sursa de apă pentru băut / gătit?
     97. NC   99. NR   METRI→ ☐
                                                    ECO9

ECO10. La ce distanță de locul unde depozitați gunoiul de grajd se află cea mai apropiată fântână?
     97. NC   99. NR   METRI→ ☐
                                                   ECO10

ECO11. La cât timp duceți de obicei bălegarul din curte? ....luni

    1. Nu am nevoie să îl transport, îl folosesc / îl ard pe tot în curte   97. NC   99. NS/NR

DACĂ NU ARE NEVOIE SA-L TRANSPORTE... (1) SAU NS/NR (99) SARI LA ECO14

ECO12. Cum transportați bălegarul din curte?
     9. Este colectat de către serviciul comunal de colectare a bălegarului
     10. Îl transport singur, prin mijloace proprii (căruță, tractor, cărucior, roabă)
     11. Plătesc pe cineva să îl transporte
     12. Nu am nevoie să îl transport, îl folosesc / îl ard pe tot în curte,
     7. NC   9. NR

ECOUR. Ce se întâmplă cu urina provenită de la animale?

     1. se infiltrează în sol prin podeaua grajdului, care este din pământ
     2. este colectată într-un bazin impermeabil
     3. se scurge printr-un şanț într-un loc în curte sau în grădină
     4. se scurge printr-un şanț într-un loc în afara curții
     5. Altceva, ce?...
     9. NȘ/NR

PENTRU TOȚI RESPONDENȚII:

ECO13. Dvs. folosiți bălegar...?	Da	Nu	NC	NR
1. Ca îngrăşământ	1	2	7	9
2. Pentru a fabrica chirpici, vălătuci	1	2	↓	↓
3. Pentru încălzire	1	2		
4. Pentru altceva. Ce anume?..........................	1	2	↓	↓

ECO14. În curtea dvs. există pubelă (tomberon) pentru gunoi?

1. Da	2. Nu		9. NR

DACĂ DA(1) SAU NR(99) SARI LA ECO 17:

ECO15. Ați dori să aveți în gospodărie o pubelă / tomberon pentru depozitarea gunoiului menajer?
    1. Da   2. Nu   7. NC   9. NS/NR

ECO16. În ce măsură considerați că pubela / tomberonul este/ar fi utilă în gospodărie?

în foarte mare măsură	în mare măsură	în mică măsură	deloc	NS	NR
4	3	2	1	8	9

Când depozitați gunoiul, cum procedați de obicei?	Da	Nu	NS/NR	Nu arunc gunoiul niciodată *[NU citi această variantă!]*
ECO17. Separați gunoiul menajer de gunoiul de grajd (bălegar)	1	2	99	4
ECO18. Separați resturile de mâncare de resturile de sticlă, plastic, hârtie	1	2	99	4

Unde aruncați de obicei... (vezi variantele de mai jos)	**Răspuns**
ECO19. resturile de alimente (pe care nu le folosiți ca hrană pentru animale):	
ECO20. resturile de sticlă	
ECO21. resturile de fier	
ECO22. resturile de plastic	

1. la platforma de gunoi din curte	6. le ard 7. le vând
2. la pubelă / tomberon	8. în altă parte. Unde?_____
3. într-o groapă făcută în curte sau în grădină	9. Nu arunc gunoiul niciodată *[OPERATOR: NU citi această variantă!]*
4. într-un loc ales la întâmplare în curte sau în grădină	99. NS/ NR
5. în pungi, saci, cutii, roabe	

ECO23. Ce faceți de obicei când se adună multe resturi menajere în curtea dvs.?
1. le duc la platforma de gunoi a satului/ a comunei
2. le duc pe câmp
3. le depozitez pe drum în fața curții
4. le ard
5. altceva. Ce anume?..
6. Nu arunc gunoiul niciodată [OPERATOR: NU citi această variantă!]
9. NȘ/NR

În ce măsură considerați ca este/ar fi util un serviciu comunal de colectare...	în foarte mare măsură	în mare măsură	în mică măsură	Deloc	NS	NR
ECO24. a gunoiului menajer?	4	3	2	1	8	9
ECO25. a gunoiului de grajd?	4	3	2	1	8	9

Gospodăria dvs. este abonată la serviciul de...?	da	nu	Nu există în localitate	NS/NR	*Dacă DA (1)* **ECO29A. Cât plătiți în medie pe lună?**
ECO26. Colectare a gunoiului menajer	1	2	7	9	.... RON
ECO27. Colectare a bălegarului	1	2	7	9	.... RON
ECO28. Furnizare a apei curente	1	2	7	9	.... RON
ECO29. Canalizare	1	2	7	9	.... RON
ECO30. Gaze	1	2	7	9	.... RON

Dacă s-ar înființa în comuna dvs. serviciu de …	Ați dori să vă abonați?		[Dacă DA (1)] **Care este suma medie pe care ați fi dispus să o plătiți <u>lunar</u> pentru acest serviciu ?**
ECO31. Colectare a gunoiului menajer	1. da	2 nu	Lunar:........... RON
ECO32. Colectare a bălegarului	1. da	2 nu	Lunar:........... RON
ECO33. Furnizare a apei curente	1. da	2 nu	Lunar:........... RON
ECO34. Canalizare	1. da	2 nu	Lunar:........... RON
ECO35. Gaze	1. da	2 nu	Lunar:........... RON

DACĂ DA LA ECO33 (CODUL 1):
CONTR1. Ați fi dispus să contribuiți cu bani la introducerea de apă curentă în gospodăria dvs.?
      1. Da   2. Nu   9. NR

     CONTR2. *DACĂ DA*, **Care este suma maximă cu care ați putea contribui?** .... RON

CONTR3. **Ați fi dispus să participați la lucrările de introducerea apei curente în gospodăria dvs.?**
        1. Da   2. Nu   9. NR

DACĂ DA LA ECO34 (CODUL 1):
CONTR4. Ați fi dispus să contribuiți cu bani la conectarea gospodăriei dvs. la rețeaua de canalizare?
        1. Da   2. Nu   9. NR

CONTR5. *DACĂ DA*, **Care este suma maximă cu care ați putea contribui?** .... RON

CONTR6. Ați fi dispus să participați la lucrările de conectarea a gospodăriei dvs. la rețeaua de canalizare?   1. Da   2. Nu   9. NR

Care din următoarele activități agricole este / a fost practicată de gospodăria dvs., în ultimele 12 luni, prin munca efectivă a celor din gospodărie:	Nu	Da	NȘ	NR	**Pe ce suprafață?** (hectare) 1 ha = 10.000 m^2 1 ar = 1.000 m^2 = 0,1 ha 1 pogon = 5000 m^2 = 0,5 ha
v8. cultura pământului (cereale)	0	1	8	9	.... ha
v9. legumicultura (zarzavaturi, cartofi, roşii, morcovi etc. + pepeni, căpşuni)	0	1	8	9	.... ha
v10. plante tehnice (tutun, soia, floarea soarelui, in, cânepă etc.)	0	1	8	9	.... ha
v11. pomicultura (livadă)	0	1	8	9	.... ha
v12. cultura viței de vie	0	1	8	9	.... ha
v13. păşune/ fâneață	0	1	8	9	.... ha

DACĂ NU CULTIVĂ TEREN AGRICOL (COD 0 LA TOATE INTREBARILE V1-ECO41) SARI LA V7.

ECO36. Ce tip de fertilizanți folosiți la cultivarea terenului:

1. îngrăşăminte chimice   2. gunoi de grajd   3. combinat   7. NC   9. NR

O să discutăm acum despre modul în care ați practicat agricultura în 2007. Pe care dintre următoarele le folosiți în activitatea agricolă:	Da	Nu	*DACĂ DA* a. Pe ce suprafață (ha)?	NS/ NR	*DACĂ NU:* b. Ați fi dispus să folosiți în viitor?		
					Da	*Nu*	*NS/NR*
AGRO19. Ați practicat rotația culturilor (în perioada 2005-2007), schimbând periodic cultura de cereale sau plante tehnice (grâu, porumb, orz, floarea soarelui etc.) cu cea de leguminoase (fasole, mazăre, soia), pe același lot de pământ?	1	0	.... ha	99	1	0	9
AGRO20. Ați folosit îngrășăminte chimice	1	0	.... ha	99	1	0	9
AGRO21. Ați folosit îngrășăminte chimice cerând sfatul unui specialist cu privire la cantitatea de îngrășământ	1	0	.... ha		1	0	9
AGRO22. Ați folosit îngrășăminte naturale	1	0	.... ha	99	1	0	9
AGRO23. Ați folosit îngrășăminte naturale cerând sfatul unui specialist cu privire la cantitatea de îngrășământ	1	0	.... ha		1	0	9
AGRO24. Ați folosit substanțe naturale împotriva dăunătorilor	1	0	.... ha	99	1	0	9
AGRO25. Ați folosit substanțe chimice (pesticide) împotriva dăunătorilor	1	0	.... ha	99	1	0	9
AGRO26. Ați folosit substanțe chimice (pesticide) împotriva dăunătorilor cerând sfatul unui specialist cu privire la cantitatea și tipul pesticidului	1	0	.... ha		1	0	9
AGRO27. Ați folosit semințe selecționate	1	0	.... ha	99	1	0	9
AGRO28. Ați folosit testarea solului	1	0	.... ha	99	1	0	9
AGRO29. Ați folosit planuri de fertilizare întocmite de un specialist	1	0	.... ha	99	1	0	9

ECO37. Compostul este un îngrășământ natural realizat în principal din gunoi de grajd și din gunoi menajer. În viitor, sunteți interesat să folosiți compostul ca îngrășământ?

1. Da 2. Nu 9. Nu știu

DACĂ DA COD 1 LA ECO37. DACĂ COD 2 SAU 9 SARI LA **V7.**

ECO38. Aproximativ pe ce suprafață ați dori să folosiți compost?
99. NȘ/NR [ ] *hectare*

ECO39. Cât ați fi dispus să plătiți pentru o tonă de compost?
99.NR *(NU CITI)* 0. Nimic, mai bine nu folosesc [ ] *RON*

ECO40. Ați auzit de Codul de Bune Practici Agricole elaborat de Ministerul Mediului și Gospodăririi Apelor?

1. Da 2. Nu 99. NS/NR

DACĂ NU A AUZIT (1) SAU NS/NR (99) MERGI LA S1

ECO41. În gospodăria dvs. ați aplicat prevederile acestui cod în ultimul an (2007)?

1. Da 2. Nu 99. NS/NR

S4. De unde vă informați cu privire la activitățile agricole? [RĂSPUNS MULTIPLU]
1. inginerul agronom de la Primărie
2. TV, radio
3. ziare, cărți, reviste de specialitate
4. prieteni, rude, vecini, cunoștințe
5. asociații agricole
6. firme care își desfășoară activitatea în domeniul agriculturii
(firme care furnizează/vând semințe, utilaje agricole etc.)
7. din Codul de Bune practici Agricole
8. altă sursă. Care?_____
97. nu mă informez
99. NS/NR
96. NC

S5. Dintre acestea care este cea mai importantă sursă de informare pentru dvs. în ceea ce privește activitățile agricole? _____ (*folosește codul de la S1*)

S6. **Cel mai bun mod de a face agricultură îl poți învăța de la:**

1. din cărți, reviste
2. părinți
3. inginerul agronom
4. rude, vecini, prieteni

5. TV, radio
6. de la bătrâni
7. altele. Care?_____
99. NS/NR

v14.Care dintre următoarele se găseşte în gospodăria dvs.	Da	Nu	NŞ/NR
1. tractor	1	0	9
2. semănătoare	1	0	
3. mulgătoare electrică	1	0	
4. căruță	1	0	↓
5. camion	1	0	
6. remorcă	1	0	
7. combină	1	0	
10. altele, CARE?	1	0	

Aveți în gospodărie		Da	Nu	NC / nu există în localitate	NŞ/NR
ECO42.	fântână	1	0	■■■■■■	9
ECO43.	apă curentă	1	0	7	
ECO44.	duş în casă	1	0	7	
ECO45.	WC în casă	1	0	7	↓
ECO46.	Canalizare	1	0	7	
ECO47.	WC în curte	1	0	■■■■■■	
ECO48.	Fosă septică	1	0	■■■■■■	

PENTRU CEI CARE AU FOSĂ SEPTICĂ, COD 1 LA ECO42. ALTFEL TRECI LA ECO45.

ECO49. **O dată la câte luni goliți fosa septică?**

99. NŞ/NR [ ] *luni*

ECO50. **Cât costă să goliți o dată fosa septică?**

99.NŞ/NR [ ] *RON*

PENTRU CEI CARE AU WC ÎN CURTE, COD 1 LA ECO41. ALTFEL TRECI LA ECO51

ECO51. **Cât de adânc este WC-ul?**

99. NŞ/NR [ ] *metri*

ECO52. **Cum este construită groapa în care se află WC-ul?**

1. este săpată în pământ
2. este săpată şi are pereți laterali de beton
9. NS/NR

3. este fosă septică
4. altfel. Cum?...
7. NC

DACĂ WC-UL ESTE GROAPĂ CU PEREȚI DE BETON, COD 2 LA ECO46. ALTFEL TRECI LA ECO48

ECO53. **Cât de des goliți groapa de wc?**

99. NŞ/NR [ ] *luni*

ECO54. **La ce distanță de WC se află sursa de apă pentru băut/ gătit?**
97. NC   *99. NŞ/NR* [ ] *metri*

ECO55. **La ce distanță de WC se află cea mai apropiată fântână?**

99. NŞ/NR [ ] *metri*

ECO56. **Aceasta fântână este şi sursa de apă pentru băut / gătit?**

1. Da   2. Nu   7. NC   9. NR

Ce fel de apă folosiți în principal în gospodărie pentru consum casnic *UN SINGUR RĂSPUNS PE FIECARE COLOANĂ*	ECO57. băut	ECO58. gătit
Apă de la fântână	1	1
Apă de la rețeaua de alimentare cu apă	2	2
Cumpăr apă îmbuteliată	3	3
NR	9	9

ECO59. Apa din această fântână a fost testată?

    1. Da   2. Nu   9. NR

SATSERV. Care sunt după părerea dvs. cele mai importante trei servicii din sat în care primăria ar trebui sa investească? Care este primul? Dar al doilea? Dar al treilea?

1. Şcoli   5. Platforme de gunoi şi servicii de salubrizare   În primul rând ☐

2. Servicii medicale/policlinici   6. Canalizare   În al doilea rând ☐

3. Drumuri/drumuri reabilitate   7. Iluminat public   În al treilea rând ☐

4. Distribuirea apei (instalaţie de apa)   8. Altele   9. NŞ/NR

La sfârşit aş dori să vă întreb câteva date despre dvs. şi gospodărie. Vă reamintim că ne interesează aceste informaţii doar în scopuri statistice.

În gospodăria dvs. există...?		DA	NU	NR
AUTO	Autoturism	1	0	9
TEL	telefon fix	1	0	
TELEMOB	telefon mobil	1	0	
MSPAL	maşină de spălat	1	0	
TVC	televizor color	1	0	
PC	Computer	1	0	

SEX. Sexul respondentului: ☐
1. masculin   2. feminin

AGE. Care este vârsta dvs. în ani împliniţi? .... ani

EDUC. Care este ultima şcoală absolvită de dvs.?
         13. fără şcoală   20. şcoală postliceală
         14. şcoală primară (1 - 4 clase)   21. şcoală de maiştri
         15. gimnaziu (5 – 8 clase)   22. facultate de scurtă durată
         16. şcoală de ucenici (complementară)   (subingineri sau colegiu)
         17. treapta I de liceu (9 – 10 clase)   23. facultate completă
         18. şcoală profesională   24. masterat, doctorat
         19. liceu terminat   99. NR

☐ EDUC

OCUP. Care este ocupaţia dvs. actuală?   **Principală** ☐

FOLOSEŞTE URMĂTOARELE CODURI   **Secundară** ☐

1. conducători de unităţi, directori, manageri de vârf   12. cadru militar
2. ocupaţii intelectuale, specialişti cu studii superioare   13. patron cu angajaţi
3. tehnicieni sau maiştri   14. întreprinzător pe cont propriu (fără angajaţi)
4. funcţionari în administraţie   15. elev / student
5. lucrători în servicii şi comerţ   16. casnic(ă)
6. agricultori   17. şomer înregistrat
7. meşteşugari şi mecanici reparatori   18. şomer neînregistrat
8. muncitori calificaţi   19. pensionar
9. muncitori ne-calificaţi în sectoare ne-agricole   20. persoană în incapacitate de muncă
10. zilieri în agricultură   21. Altele
11. zilieri în domenii neagricole   90. Nu are statut secundar   99. NR

NRMEM. Câte persoane locuiesc în gospodăria dv.: copii, adulți, inclusiv dv.?

NU ÎNREGISTRA PERSOANELE CARE NU AU FOST PREZENTE ÎN GOSPODĂRIE ÎN ULTIMELE 6 LUNI!

MEM1. Din care câți copii sub 15 ani?

VENOCT. În luna trecută (octombrie), suma totală de bani obținută de către toți membrii gospodăriei dvs. incluzând salarii, dividende, chirii, vânzări etc., a fost cam de …?

0. nici un venit   98. NȘ   99. NR   milioane lei

VAGR. Din acești bani, cam ce sumă a provenit din vânzarea de produse agricole?

0. nici ban   98. NȘ   99. NR   milioane lei

VENTOT. În ultimele 12 luni, suma totală de bani obținută de către toți membrii gospodăriei dvs. incluzând salarii, dividende, chirii, vânzări etc., a fost cam de …?

0. nici un venit   98. NȘ   99. NR   milioane lei

Vă mulțumim!

OPERATORUL DE INTERVIU va completa răspunsurile pentru întrebările de mai jos.

Nume județ

Nume comună

Nume sat

Cod județ

Cod SIRSUP

Cod SIRINF

DD. Ziua

MM. Durata interviului   minute

OP. Numele operatorului

CODOP. Codul operatorului

Chestionar pentru asociații și ferme agricole

Nume județ	
Nume comună	
Nume sat	
Numele asociației	

Cod județ	
Cod SIRSUP	
Cod SIRINF	

AGRO16. **Total suprafață agricolă cultivată de asociație/fermă în anul 2007** [ ] *hectare*

DACĂ SUPRAFAȚA AGRICOLA CULTIVATĂ ESTE 0 TRECI LA SEP 1

În anul <u>2007</u>	Da	Nu	*DACĂ DA* **a. Pe ce suprafață (ha)?**	NS/ NR
AGRO17. Ați practicat rotația culturilor (în perioada 2004-2006), schimbând periodic cultura de cereale sau plante tehnice (grâu, porumb, orz, floarea soarelui etc.) cu cea de leguminoase (fasole, mazăre, soia), pe același lot de pământ?	1	0	.... ha	99
AGRO18. Ați folosit îngrășăminte chimice	1	0	.... ha	99
AGRO19. Ați folosit îngrășăminte chimice cerând sfatul unui specialist cu privire la cantitatea de îngrășământ			.... ha	
AGRO20. Ați folosit îngrășăminte naturale (compost)	1	0	.... ha	99
AGRO21. Ați folosit substanțe naturale împotriva dăunătorilor	1	0	.... ha	99
AGRO22. Ați folosit substanțe chimice (pesticide) împotriva dăunătorilor	1	0	.... ha	99
AGRO23. Ați folosit substanțe chimice (pesticide) împotriva dăunătorilor cerând sfatul unui specialist cu privire la cantitatea și tipul pesticidului			.... ha	
AGRO24. Ați folosit semințe selecționate	1	0	.... ha	99
AGRO25. Ați folosit testarea solului	1	0	.... ha	99
AGRO26. Ați plantat perdele de vegetație pe hotar	1	0	.... ha	99
AGRO27. Ați folosit planuri de fertilizare întocmite de specialiști	1	0	.... ha	99

AGRO28. În viitor, sunteți interesat să folosiți compostul ca îngrășământ?
    1. Da   2. Nu   9. Nu știu

AGRO29. **DACĂ DA, aproximativ pe ce suprafață?** [ ] *hectare*

AGRO30. **Cât ați fi dispus să plătiți pentru o tonă de compost? 99.NR (Nu citi) 0. Nimic, mai bine nu folosesc** [ ] *RON*

Câte animale sunt în fermă?	**Număr**	*998. NS* *999. NR*	*0 – nu are*	**Număr**
SEP1. Bovine total (vaci, viței, boi).		**SEP4.** Ovine total(oi, capre)		
SEP2. Porcine		**SEP5.** Păsări		
SEP3. Cabaline (cai, măgari, catâri)				

ECO67. **La ferma dvs. există platformă de beton special construită unde aruncați bălegarul?**

    1. Da   2. Nu   7. NC   9. NR

DACĂ DA(1) SAU NR(9) SARI LA ECO3

ECO68. **Ați dori să vă construiți o platformă de beton pentru depozitarea bălegarului?**

    1. Da   2. Nu   7. NC   8. NS   9. NR

ECO69. **Unde puneți de obicei gunoiul de grajd (bălegarul):**

    13. la platforma de gunoi a fermei
    14. într-un loc în curtea fermei
    15. într-un loc în afara fermei
    16. în altă parte. Unde?...
    12. NS / NR   7. NC

ECO4. La ce distanță de locul unde depozitați gunoiul de grajd se află cea mai apropiată fântână?

    97. NC   99. NR   METRI→

ECO10

ECO70. **La cât timp duceți de obicei bălegarul de la fermă?** ....luni

  1. Nu am nevoie să îl transport, îl folosesc / îl ard pe tot în curte   97. NC   99. NS/NR

DACĂ NU ARE NEVOIE SA-L TRANSPORTE... (1) SAU NS/NR (99) SARI LA ECOUR

ECO71. **Cum transportați bălegarul de la fermă?**

    13. Este colectat de către serviciul comunal de colectare a bălegarului
    14. Îl transport singur, prin mijloace proprii (căruță, tractor, cărucior, roabă)
    15. Plătesc pe cineva să îl transporte
    16. Nu am nevoie să îl transport, îl folosesc / îl ard pe tot în curte,
    7. NC   9. NR

ECOUR. **Ce se întâmplă cu urina provenită de la animale?**

    1. se infiltrează în sol prin podeaua grajdului care este din pământ
    2. este colectată într-un bazin impermeabil
    3. se scurge printr-un şanţ într-un loc în curtea fermei
    4. se scurge printr-un şanţ într-un loc în afara curţii
    5. Altceva, CE?..
    9. NŞ/NR

ECO72. **Ați auzit de Codul de Bune Practici Agricole elaborat de Ministerul Mediului şi Gospodăriri Apelor?**

                1. Da   2. Nu   99. NS/NR

DACĂ NU A AUZIT (1) SAU NS/NR (99) SFÂRŞIT

ECO73. **Compania agricolă/ ferma în care lucrați a aplicat prevederile acestui cod în ultimul an (2007)?**

                1. Da   2. Nu   99. NS/NR

Vă mulțumim!

Chestionar pentru primărie

Nume județ	
Nume comună	
Poziția ocupată de respondent	

Cod județ	
Cod SIRSUP	

Există în comuna dvs.:	Da	Nu
E1. rețea de apă potabilă în gospodării	1	2
E2. sistem de canalizare	1	2
E3. sistem de colectare a gunoiului	1	2

[DACĂ NU (2)]

Există în comuna dvs. un proiect care vizează introducerea sau extinderea...?	Da	Nu	*DACĂ DA:* Care este sursa de finanțare a proiectului	Există studiu de fezabilitate pentru proiect:	
				Da	Nu
v1. rețelei de apă potabilă în gospodării	1	2	....	1	2
v2. sistemului de canalizare	1	2	....	1	2
v3. sistemului de colectare a gunoiului	1	2	....	1	2

În comuna dvs. există stații de monitorizare a calității apei:	Da	Nu
V4. De suprafață	1	2
V5. De adâncime	1	2

MAS1. Chiar dacă în comuna dvs. nu există stație de monitorizare a calității apei, direcția sanitară județeană face astfel de măsurători periodic. Când a fost făcuta ultima măsurare în localitatea dvs.? *OPERATOR CONVERTEȘTE PERIOADA ÎN ZILE* ☐ *zile*

MAS2. Din câte ați fost informat, s-au înregistrat la această măsurătoare valori peste limitele admise la anumite concentrații?

      1. Da   2. Nu   9. NS   8. Nu avem informații

V6. În comuna dvs. există un serviciu de colectare a bălegarului?

      1. Da   2. Nu → *TRECI LA V6B*

DACĂ DA

      V6A. Cine administrează acest serviciu?

      1. primăria   2. o firmă privată   3. Altcineva, cine?.......................................

      V11. Care este taxa lunară pentru colectarea bălegarului? ☐ *RON*

      5. per gospodărie
      6. per animal
      7. per tonă
      8. altă situație, care? ....

DACĂ NU LA V6

V6B. Care este principalul motiv pentru care nu s-a înființat serviciul de colectare a bălegarului?

      ....

V7. În comuna dvs. câte locuri de depozitare a bălegarului special amenajate există?

      0 – NICI UNUL ☐ *LOCURI*

V8. În comuna dvs. câte locuri de depozitare a bălegarului neamenajate există?

      0 – NICI UNUL ☐ *LOCURI*

V9. În comuna dvs. există un serviciu de colectare a gunoiului menajer?

      1. Da   2. Nu→ *TRECI LA V9B*

DACĂ DA

V9A. Cine administrează acest serviciu?
1. primăria   2. o firmă privată   3. Altcineva, cine?.......................................

V12. Care este taxa lunară pentru colectarea gunoiului menajer? ☐ *RON*
1. per gospodărie
2. per persoană
3. altă situație, care? ....

DACĂ NU LA V6
V9B. Care este principalul motiv pentru care nu s-a înfiinţat serviciul de colectare a gunoiului?
....
....

V14. În comuna dvs. câte locuri de depozitare a gunoiului menajer special amenajate există?   0 – NICI UNUL   ☐ *LOCURI*

V15. În comuna dvs. câte locuri de depozitare a gunoiului menajer neamenajate există?   0 – NICI UNUL   ☐ *LOCURI*

V16. La dvs. în comună există pubele pentru colectarea separată a deşeurilor de:

	Da	Nu	NS/NR
V16_1. Hârtie	1	0	99
V16_2. Sticlă	1	0	99
V16_3. Plastic	1	0	99
V16_4. Fier	1	0	99

V18. S-a construit o platformă de gunoi amenajată de tranzit pe teritoriul comunei dvs. în cadrul planului judeţean?
          1. Da   2. Nu → *TRECI LA V20*   9. NS

V19. În ce an? ☐   99 – NŞ

V20. Se va construi o platformă de gunoi amenajată de tranzit pe teritoriul comune dvs. în cadrul planului judeţean?
          1. Da   2. Nu → *TRECI LA V22*   9. NS

V21. În ce an? ☐   99 – NŞ

DACĂ NU LA V18 şi V20
V22. La ce distanţă de satul centru de comună se află cea mai apropiată platformă de gunoi amenajată de tranzit în cadrul planului judeţean?   99 - NŞ   ☐ *Km*

V23. La ce distanţă de satul centru de comună se va construi cea mai apropiată platformă de gunoi amenajată de tranzit în cadrul planului judeţean?   99 - NŞ   ☐ *Km*

PENTRU TOŢI RESPONDENŢII:
V24. Există pentru comuna dvs. un plan de reamenajare a locului/locurilor de depozitare a gunoiului?
          1. Da   2. Nu   9. NS

V25. În comuna dvs. există vreun loc potrivit pentru construirea unei platforme ecologice de gunoi de grajd?
          1. Da   2. Nu → *TRECI LA PLATA1*   9. NS
DACĂ DA

V26. Acest teren este...?
1. proprietatea primăriei   2. proprietatea altei instituții publice
3. proprietate privată   4. altă situație, Care?...

TEREN. Cum este utilizat în prezent acest teren?
1. Ocupat case / adăposturi construite abuziv   2. Pășune
3. Loc neamenajat folosit pentru depozitarea gunoaielor   4. Nici o utilizare

5. Altfel, cum? ....

PLATA1. Cam ce sumă credeți că ar putea să plătească lunar o gospodărie din comună pentru colectarea gunoiului? | | *RON*

PLATA2. Consiliul local al comunei dvs. cu ce sumă ar putea să contribuie la înființarea unui serviciu de colectare a gunoiului?   0. Nu poate contribui | | *RON*

V27. În comuna dvs. câte asociații/ companii/ ferme agricole există? 0. Nu există | | *NR*

Care este suprafața totală a terenului cultivat...?	Hectare	Nu există
V28. ... pe teritoriul comunei		0
V29. ... de companii/ ferme pe teritoriul comunei		0

Vă rugăm precizați… (Dacă nu există scrieți cifra 0)	**Total**	Nu există	**Gospodării**	Nu există
V30. Nr. tractoare		0		0
V31. Nr. combine		0		0
V32. Alte mașini agricole. Care?.............................		0		0

Câte animale există în comună:

	Total	Gospodării		Total	Gospodării
SEP1. Bovine total (vaci, viței, boi).			**SEP4.** Ovine total(oi, capre)		
SEP2. Porcine			**SEP5.** Păsări de curte		
SEP3. Cabaline (cai, măgari, catâri)			**SEP6.** Stupi		

V35. În comuna dvs. există hărți ale solului?
      1. Da   2. Nu → *TRECI LA V37*   9. NS

DACĂ DA
V36. Pentru ce procent din suprafața cultivată s-au făcut astfel de hărți în ultimii doi ani?
      99 – NȘ   0 – Deloc în ultimii 2 ani | | *%*

V37. În comuna dvs. în ultimii doi ani s-au realizat analize ale concentrației de nitrați în sol?
      1. Da   2. Nu→ *TRECI LA V39*

V39. În comuna dvs., se practică agricultura ecologică?
      1. Da, în asociațiile agricole   2. Da, în gospodăriile individuale
      3. Da, atât în asociații cât și în gospodăriile individuale   4. Nu

DACĂ DA, COD 1, 2, 3 LA V39

Vă rugăm precizați suprafața pe care se practică agricultura ecologică în…	Hectare
V40. Gospodării	
V41. Asociații/ companii/ ferme agricole	

V42. În comuna dvs. există rețea de apă curentă?
      1. Da   2. Nu

DACĂ DA LA V42, ALTFEL TRECI LA V47

V43. Care este tariful pentru un metru cub de apă de la rețea? | | *RON*

REST1. Cam ce procent dintre gospodăriile conectate la rețeaua de apă au restanțe la plata apei?   99 – NȘ | | *%*

PENTRU TOȚI RESOPNDENȚII	Nr. gospodării
GOSP. Nr. total de gospodării în comună	
V44. Nr. de gospodării <u>conectate</u> la sistemul de alimentare cu apă …	
Din care:	
V45. Nr. de gospodării cu apă curentă în casă	
V46. Nr. de gospodării cu apă curentă în curte	
V47. Nr. de gospodării <u>neconectate</u> la sistemul de alimentare cu apă	
Din care:	
V48. Nr. de gospodării cu apă curentă în casă (în sistem propriu)	
V49. Nr. de gospodării cu apă curentă în curte	
V50. Nr. de gospodării cu fântână proprie	
V51. Nr. de gospodării cu WC în casă	
V52. Nr. de gospodării cu WC în curte	
V55. Nr. de gospodării cu fosă septică	

V56. Care este nr. total de fântâni publice în comună?
99 – NȘ   0 – niciuna   *fântâni*

V57. Care este nr. total de cişmele publice în comună?
99 – NȘ   0 – niciuna   *cişmele*

V58. În zonă, există o companie care se ocupă cu vidanjarea foselor septice?
1. Da   2. Nu

V59. Această companie este: 1. Privată   2. Publică

V60. Aproximativ cât costă golirea unei fose septice?   *RON*

V61. În comuna dvs. există sistem de canalizare?
1. Da   2. Nu

DACĂ DA:

V62. Care este numărul de gospodării conectate la sistemul de canalizare?   *gospodării*

V63. Vă rugăm estimați cantitatea de apă reziduală produsă într-o zi în localitatea dvs. ?
(metri cubi pe zi)   *m³/zi*

V64. În comuna dvs. există stație funcțională de epurare a apei?
1. Da   2. Nu

V65. Vă rugăm precizați prin ce metodă se epurează apa reziduală?
....
....

V66. Care este tariful pentru un metru cub de apă reziduală deversată în rețeaua de canalizare?   *RON*

REST3. Cam ce procent dintre gospodăriile conectate la sistemul de canalizare au restanțe la plata canalizării?   99 – NȘ   *%*

V67. Care sunt principalele trei probleme ale sistemului de canalizare?
1. ....
2. ....
3. ....

V68. Care sunt principalele trei probleme ale sistemului de alimentare cu apă?

1. ....
2. ....
3. ....

PENTRU TOȚI RESPONDENȚII	**Nr.**
V69. Număr de şcoli în comună	
V70. Din care alimentate cu apă curentă:	
V71. Nr. de şcoli alimentate de la reţeaua publică în interiorul clădirii	
V72. Nr. de şcoli alimentate de la fântână proprie	
V73. Nr. de şcoli alimentate de la fântâna publică	
V74. Nr. de şcoli alimentate de la cişmea	
V75. Nr. de şcoli conectate la reţeaua de canalizare	
V76. Nr. de şcoli care au WC în curte	
V77. Nr. de şcoli care au WC în clădire	
V78. Nr. de şcoli care au autorizaţie sanitară de funcţionare	

CONTR. În comuna dvs. câte persoane care primesc venitul minim garantat (VMG) au prestat / vor presta muncă în folosul comunităţii în luna [……..] 2008? ☐ *persoane*

În comuna dvs. câte cazuri de methemoglobinemie (intoxicaţii cu nitriţi la copii) au fost înregistrate în...?		
V79. 2005		
V80. 2006		
V81. 2007		