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Expansion and modernization of water and sanitation systems in Moldova with EU funds for rural development

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EXPANSION AND MODERNIZATION OF WATER AND SANITATION SYSTEMS IN MOLDOVA WITH EU FUNDS FOR RURAL DEVELOPMENT

Alina-Mirela Marcu[1]

Abstract. This study assumes that improving of utilities infrastructure was influenced to the involvement of decision makers, the role of the natural environment and by the level of training of local people which in local morphology have created opportunities or rejections in the effective use of European funds for rural development in Moldova It is known that in some areas, the alimentation of water for population is difficult because she is made mainly from own sources influenced by weather conditions, while consumption of drinking water is influenced by the high level of pollution which are distinguished mainly at high levels of nitrates as organic contaminants that are in their drinking water sources, agriculture also having a major contributor to water quality deterioration by using pesticides that leach into groundwater. In the case of sanitation systems, exist some peculiarities of rural areas such as: high degree of dispersion in the territory of localities and the low economic power of local communities which prevents modernization to a larger scale of these systems.

Keywords: rural development, sanitation system, water supply

1. Introduction

Drinking water is the most important basic need of the human beings (Prasain J.N., 2003) and the water sanitation is by definition, hygienic disposal or recycling of wastewater, as well as the policy and practice of protecting health through hygienic measures (Vrhovšek D., 2007). Quantity and quality of water resources influence the health of the population through access to clean water, security of the population in flood risk zones, economic development (the level of plant and animal production), state of ecosystems and the development of non–productive functions of rural areas (Pierzgalski E., 2013).

The utility infrastructure should make more effective use of existing knowledge about the impacts and effectiveness of rural water supply, sanitation and hygiene interventions – for example, information about the risk of limited impact on health if investments are only made in communal water supply facilities without effectively improving hygiene and sanitary conditions in households (Evaluation Insights, 2012).

Experience in parts of the world shows that when the health administrations have organized themselves in such a way as to be able to give technical assistance to local communities and to promote long-range financial planning, there has been great progress in

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the construction of public water-supplies for small rural towns and villages (Wagner G.E., 1959).

The involvement of managers of water supply and sanitation utilities is essential, since they should be able to operate continuously while responding to hazards. Therefore they need to be empowered; their management capabilities need to be strengthened; and their participation should be incorporated into disaster mitigation strategies (Sinisi L., Aertgeerts R., 2011). In Romania the water management is based on the principle of human solidarity and common interest through the close, all level collaboration and cooperation of the public administration, water users, representatives of the local communities and population, in order to obtain the maximum social benefit. The responsibility for drinking water supply, wastewater disposal and treatment belongs to the local authorities (FRESHWATER2004-ROMANIA) because almost 2.1 Mio people live in villages. These settlements often rely on local groundwater sources for their drinking water which are often insufficiently protected and polluted by human activities. However, the measures set in the river basin management plans are not addressing sufficiently the problems of lacking sanitation and wastewater treatment in these settlements (Wendland, Albold, 2010; Minea, 2012).

The population in rural areas is often economically weak, and the rural regions are less developed and lack the possibility to get the important economical support for the development of water and sanitation infrastructure. Based on the potential of this impact on water quality of European waters and human well-fare, it is essential to consider the development of rural water and sanitation systems as an urgent necessity (Bodík I., 2007).

The appropriate technology of water supply and sanitation is affected by the geological, economical and cultural characteristics of the projected area. The differences of development costs between areas are caused by the difference of natural conditions such as access to water sources or geographical features of the project areas, the difference of the application technology of the system such as the type of water treatment process, and the difference of social and economic conditions (Magara Y., 2010). And the most important tasks of water management in the rural areas are:

- water supply for domestic use and for agricultural production (proper quantity and quality),
- mitigation of extreme hydrological phenomena effects such as floods and droughts,
- protection of water resources against pollution (sewage, animal wastes),
- conservation of natural habitats (Pierzgalski E., 2013).

2. Methodology and variables used

The article is based on the analysis of the available statistical data provided by *Payment Agency for Rural Development and Fisheries.* To realise an exact analysis, were used lists of beneficiaries of EU funds of measures *2.1. Development and improvement of rural infrastructure* and 3.2.2. *Village renewal and development, improvement of basic services for rural economy and population and upgrading of the rural heritage*. And for to represent the reality on the ground in a much smaller scale, mapping method was used. In addition, the localization of the projects position relative to the main geographical relief units is important because it may suggest there is some causal link between the natural environment and population.

3. Analysis and results

Economic and social development of rural areas in Moldova depends largely on the public utilities of the region, by the assurance of all the necessary for the potential investors or

consumers. Construction of new housing with a high degree of comfort and increasing the comfort to the existing residences, make it necessary and compulsory the realisation of the sewage systems for to not pollute the environment with wastewater.

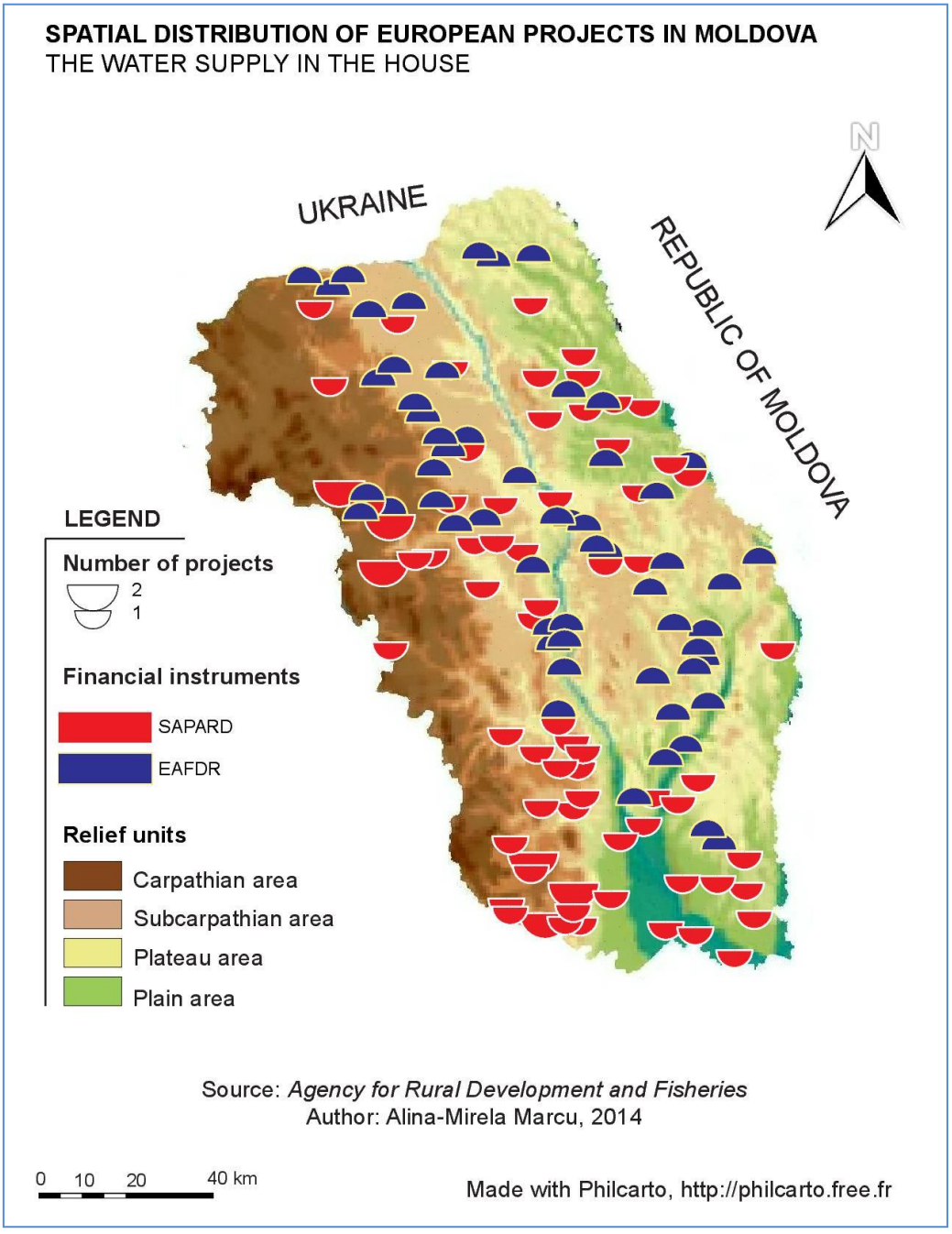

Figure 1: Spatial distribution of European projects in Moldova – the water supply in the house

In terms of public water supply, the population in Moldavia region is made mainly from own sources. It is influenced by weather conditions, while the consumption of drinking water is conditioned by the high level of pollution. The agriculture has also, a major contributor to water quality deterioration by using pesticides that leach into groundwater. In addition, through the subsidies received from the EU funds: SAPARD and EAFRD, the alimentation of population with drinking water supply in rural areas of Moldova has gained momentum.

Analysis of statistical data shows that the majority of rural residences, that have access to drinking water are usually located in more developed counties from northern half of the region. While Botosani and Vaslui Counties present the highest share with residences that are not connected to the public water supply. This situation is closely related to the population with low income and to the high costs of installing networks, but also with reduced requirements of the rural population. The same situation is encountered in the villages of Bacău County, due to insufficient water resources from mountain area, or by the problems related to: the small likelihood of making the connection between water supply networks and the high degree of dispersion in the territory of the rural settlements.

In contrast, in Figure No. 1 is observed that during the pre-accession period, in the southern part of Moldova were implemented most investments in water supply. Thus in Vrancea County, specifically in Putnei Basin, the largest in area, localities such as Andreiaşu de Jos, Bordeşti, Cârligele, Dumitreşti, Fitioneşti, Jitia, Milcovul, Păuneşti, Racoasa, Reghiu, Urecheşti and Vintileasca have benefited from this support European finance. The same situation is found in Galaţi County, where the Prut and Siret river valleys provide optimal conditions for the development of irrigated agriculture, to: Bălăbăneşti, Băleni, Certeşti, Corni, Cosmeşti, Fârtăneşti, Ghidigeni, Grivița, Munteni, Năмoloasa, Piscu, Rediu, Scânteieşti, Şendreni and Tulucești.

For to achieve sewer systems, are taken into account a number of features of rural areas, such as the high degree of dispersion in the territory of the villages, the large number of rural settlements and low economic power of local communities. Similar with the public water supply system, the sewage system in Moldova was continuously expanded. trough network length and the number of municipalities serviced, but nevertheless, the region is well below the EU regions.

If we analyze the relationship between the number of population that has a job and the percentage of dwellings connected to the sewerage system, it appears that the supply is closely linked with the main groups of occupations. Thus, a higher number of intellectuals of total employment, indicate a high percentage of connections to the sewerage system. In this case, a good example are poles of concentration represented by the universities from Iasi, Suceava, and Galati where the percentage of intellectuals from total employment is higher, which explains the high number of residences connected to the sewerage system.

But, in the case of rural settlements, the percentage of unskilled workers is quite high, which explains the low percentage of dwellings with access to sewer. Also, the rural settlements with a massive migration of young people abroad shows a very low percentage to access at the sewer system, since the vast majority of these villages are inhabited by an aging population, whose income does not allow installation of public drinking water and sewerage system, because both connections are very expensive. To this is added the low level of development of settlements in these areas.

The results presented indicate significant differences in terms of the number of villages that benefited from the financial support provided by the European Union through the two funds. But, these differences are manifested not only economically but also in terms of territorial, social and political.

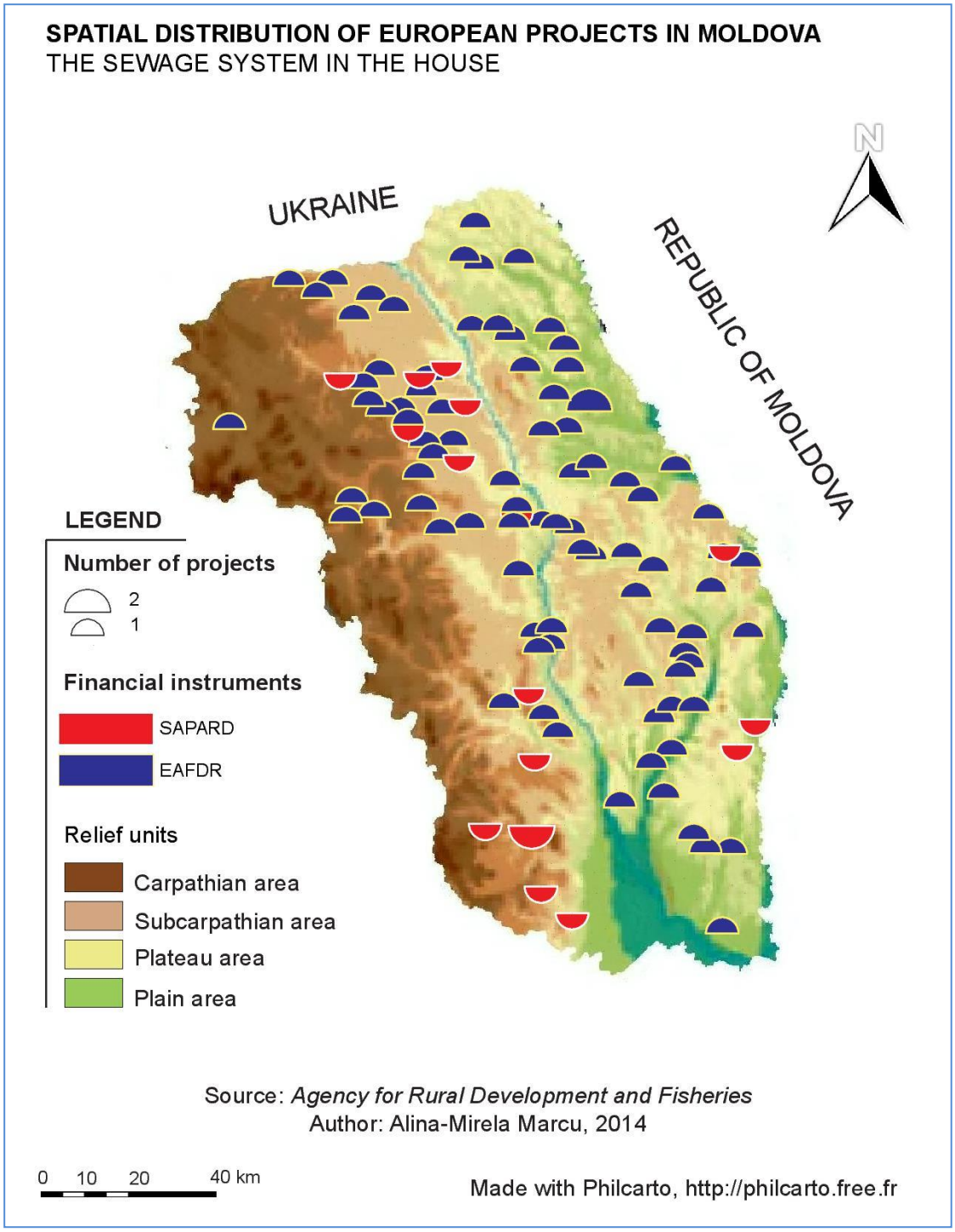

Figure 2: Spatial distribution of European projects in Moldova – the sewages system in the house

Conclusions

Finally, we consider that this water supply systems and sanitation systems realised in Moldova have a positive impact on the population and the rural economy. These correspond with qualitative and quantitative criteria of current european requirements, which refers to the health of population, at the standard of living, at the social and economic development of the localities, and at the environmental protection. Looking at figure 3, we see that the counties Suceava, Iași, Neamț and Vaslui have done most investments at the regional level.

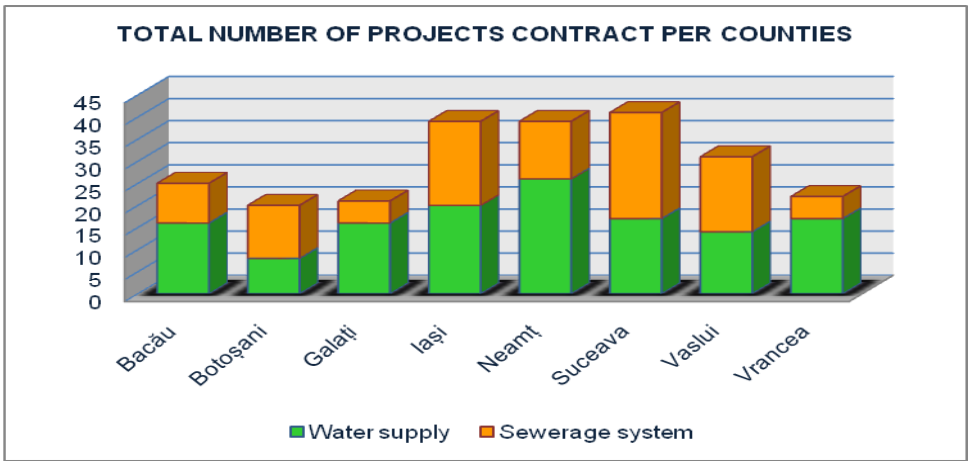

Figure 3: Total number of projects contract per counties in Moldova

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