LIVING CONDITIONS IN RURAL AREAS IN ROMANIA FROM 1990 TO 2020

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The paper looks into the main trends of living conditions in rural areas in Romania from 1990 to 2020. The first part of the paper deals with housing. It features issues and indicators concerning housing supply, the breakdown of the housing stock by building material, overcrowding, vulnerable groups, and housing cost overburden. The second part focuses on access to public utilities: water, sanitation, natural gas, electricity and the Internet. The third part looks into the policy and financing concerning living conditions in rural areas. We use national time series, objective data from census and statistical surveys for observing long term trends. Cross-sectional, objective data from European statistical surveys is used for international comparisons.

According to the main findings, living conditions in rural areas in Romania experienced a marked improvement over the thirty year period, especially in terms of reduced housing overcrowding, increased access to water, sanitation, and the Internet. However, this statement requires nuances and caveats. Despite the progress made, the gap compared to Western Europe persists. The suburbanisation of rural areas and the variance between and within communes in terms of dwellings' access to water, sanitation, and natural gas are two trends that point to the increased heterogeneity of rural communities in Romania. Looking forward, there are sustainability and affordability risks concerning the expansion of public utilities in rural areas.

Keywords*: living conditions; quality of life; Romania; rural; water supply; sanitation; natural gas; internet; housing; dwellings.*

INTRODUCTION

Quality of life has differed markedly by place of residence in the modern and contemporary history of Romania. Due to structural causes, rural areas feature lower development levels. Accordingly, the rural/urban divide has played an important role in the ordinary lives and life chances of Romanians. Among quality of life indicators, the ones concerning standard of living, such as income and employment, which are strongly linked with social stratification and social class, are most widely used to highlight the rural/urban divide (Zamfir 2019; Pasti 2006; Stănescu 2018).

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This paper seeks to identify the main trends concerning living conditions in Romanian rural areas from 1990 to 2020. In terms of historical events, this three-decade long period starts from the aftermath of the Romanian Revolution of December 1989 up to the months preceding the outbreak of the COVID-19 pandemic. In terms of economic and social system, this interval covers two distinct periods, roughly equal in length. Firstly, the transition from a Soviet style society and economy to capitalism, a period that lasted from 1990 up to the mid to late 2000s. Romania's NATO membership in 2004 and European Union (EU) accession in 2007 are the main political reference points for the end of the transition (Pasti 2006; Stănescu 2014; Georgescu 2018). The second period features the new economy and society that resulted from the transition period, characterized by Cătălin Zamfir (2015, 42) as an "underdeveloped capitalist society".

Unlike Western and most other Central European countries, Romania features a high share of the population residing in rural areas. In fact, the rural population formed the majority in Romania up to 1984. Since 1990, it has remained a sizeable minority, relatively stable around 45% of the total resident population. The urban/rural breakdown in official statistics is based on Romanian administrative law. The rural population resides in administrative divisions called communes (*comune*), while the urban population resides in administrative divisions called towns and municipalities. Communes feature one or (usually) more villages. All three types of local government entities, communes, towns, and municipalities, are subordinate to counties, with the exception of the capital. In total, there were 2,862 communes in Romania as of 2020.

The peculiarity of Romanian rural areas is that they do not cover places with low population and/or low density, but larger communities. Moreover, the legal definition of rural areas is not based on the population total, but on density, economic and occupational structure (with an emphasis on agriculture), and also sociocultural factors, such as common traditions. The difference between urban and rural administrative divisions comes from the legacy legal definition of the town, which emphasized its higher level of economic, sociocultural, and public utilities development (Mihalache 2020). The latter factor points to a critical difference between urban and rural areas in terms of living conditions. As we shall see, this refers to housing quality and access to key public utilities, such as water, sanitation, natural gas, and, in more recent times, the internet.

The first part of this paper deals with housing and features issues and indicators, such as the breakdown of the housing stock by building material, overcrowding (rooms per person, housing area per person), vulnerable groups, and housing cost overburden. The second part of the paper focuses on access to public utilities: water, sanitation, and natural gas. Highly relevant for the 21st century, we also look at the internet. The third part focuses on the policy and financing of increased access to utilities in rural areas. National time series data from census and statistical surveys is used for analyzing long term trends. Cross-sectional data from European statistical surveys is used for international comparisons.

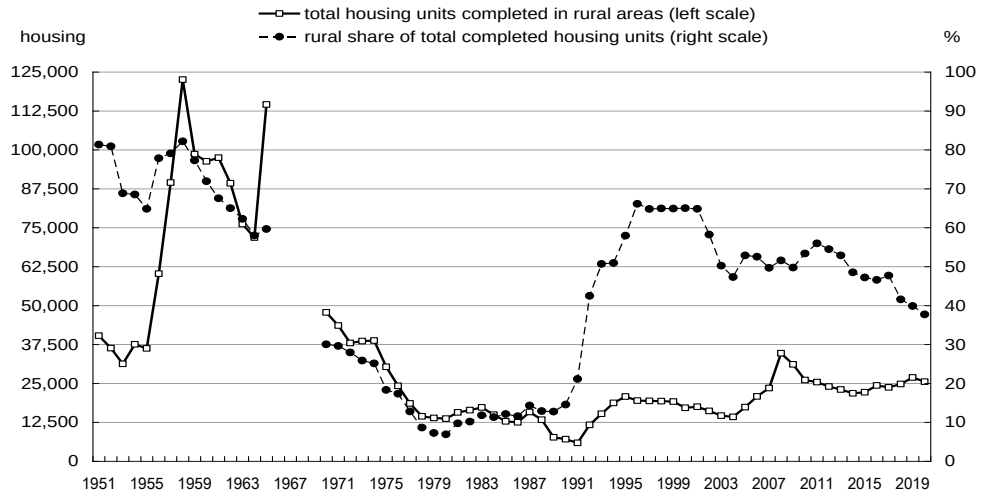
HOUSING

The overall trend in rural areas from 1990 to 2020 is more and better housing, more spacious and more comfortable, although the gap compared to Western Europe persists. However, this broad statement requires several caveats.

That more housing is available in rural areas is clear form the housing stock total, which increased from 3.71 to 4.12 million dwellings during 1990−2019. This amounts to an 11.1% increase in relative terms. In terms of volume, new built dwellings averaged around 20,000 units per year or an average of about seven new dwellings per commune each year. This building pace is about 40% higher than during the late 1970s and 1980s, when the economy was experiencing a structural crisis (Georgescu 2018) and the rural population started to decline due to urbanisation (*Figure 1*). A closer look reveals several peculiarities.

Figure 1

New build dwellings in rural areas 1951−2020



Source: author calculations based on data from Romanian Statistical Yearbook 1955−2020.

The urban/rural breakdown of new build dwellings (*Figure 1*) reveals the major patterns in terms of new housing supply. In turn, these patterns are based on the ups and downs of the economy during the three decade interval. From 1990 up to 2019 the economy experienced three recessions: 1990−1992, 1997−1999, and 2009−2010.

The first period covers the early 1990s, when new housing supply was based on dwellings left unfinished when the Communist regime fell in 1989. These were exclusively in urban areas (Dan 2006). The freefall of the economy following the

breakup of the Soviet bloc and the beginning of the transition to a market economy meant that households did not have money to spend on new housing (Zamfir 2004). New build dwellings in rural areas halved in absolute terms compared to the late 1980s. However, their share remained about the same or even increased as a result of the cessation of new housing projects in urban areas.

The second period is from the early to mid 1990s up to the early 2000s. Overall, the new housing supply remained depressed to about 10% of the number of dwellings completed in the last year of the Communist regime. This was the period of the full retreat of the state from its role as new housing supplier. In addition, the economy experienced the second traumatic recession of the transition period. Compared to the early 1990s, new build dwellings saw a modest increase in rural areas, while in urban areas their total remained depressed. As a result, the rural share of new built dwellings reached about two thirds of the nationwide total during 1996−2001.

The third period covers the prolonged economic boom of the 2000s, when Romania exited the transition period. This period featured a housing boom. In the new, post-transition, capitalist economy, the private sector undertook real estate development, especially in urban areas. As a result, the rural share of new build dwellings decreased to around 50%, although the volume of new dwellings steadily increased compared to the previous period. At the peak of the housing boom in 2008, the new housing supply was double in size compared to the 1990s and even surpassed 1989, the low point of the period from 1957 to 1989.

The fourth period was brought by the 2009−2010 recession, which ended to the housing boom and crashed the housing market. Subsequently, a new trend emerged. For the first time since the fall of the Communist regime, new housing supply in urban areas was once more in the majority. The rural share of new housing supply featured a clear downward trend. For the first time since 1991, it declined below 40%. Moreover, there was also a marked decrease of some 25% in the volume of newly build dwellings as compared to the 2000s.

Besides usual housing stock replacement, new housing supply in rural areas had additional basis during the 30-year interval. Firstly, the Communist regime's limitations on home ownership of maximum one dwelling per household disappeared. Therefore, more affluent households were able to build vacation houses. Secondly, the growing imbalance between housing demand and supply set the stage for the housing boom experienced from the mid 2000s, as mentioned above, when Romania entered the new capitalism that followed the transition period. As available land for housing was limited in cities, which maintained their administrative areas from the Communist regime, one solution was to build in rural areas close to the cities. In other words, Romania experienced suburbanisation (Dumitrache *et al*. 2016). Thirdly, yet another peculiarity of rural homebuilding came from Romanians that experienced labour migration to Western Europe. Some of the villages with high labour migration saw large houses built, which match the

owners' need for social prestige. However, these new, large houses marked a break with local architectural tradition. Also, there are big question marks about their long term sustainability, especially regarding the coverage of heating costs. Certeze in Northern Romania is a prime example of a village dominated by such large, mansion-type dwellings that are left uninhabited most of the year or in which only the elderly generations live, but in a small annex (Moisa 2011).

The fact that more housing has been available for the rural population could also be shown through the overcrowding indicators, such as the population per housing ratio. There are two very different sources for this dynamic. Besides the increase in housing supply, discussed above, there is also the fact that the rural population declined by almost 16% during 1990−2019. This decrease came from a negative natural change, brought upon by a decline in fertile population cohorts, lower total fertility and birth rates, and higher mortality, but also from emigration (Rotariu 2015; Rotariu *et al*. 2017). In other words, the decline came both from negative natural change and negative migration change. The depopulation of rural areas is also showcased by the increase in the share of unoccupied dwellings (*Table no. 1*). In 2011, it reached almost a fifth.

Table no. 1

Unoccupied dwellings in rural areas

Census year	Total dwellings	Unoccupied dwellings	Percent
1992	3,582,668	319,038	8.9
2002	3,847,540	575,587	15.0
2011	3,958,141	785,079	19.8

Sources: population and housing census of 1992 (Comisia Naţională pentru Statistică 1994-1995), 2002 (Institutul Naţional de Statistică 2003), 2011 (Institutul Naţional de Statistică 2013).

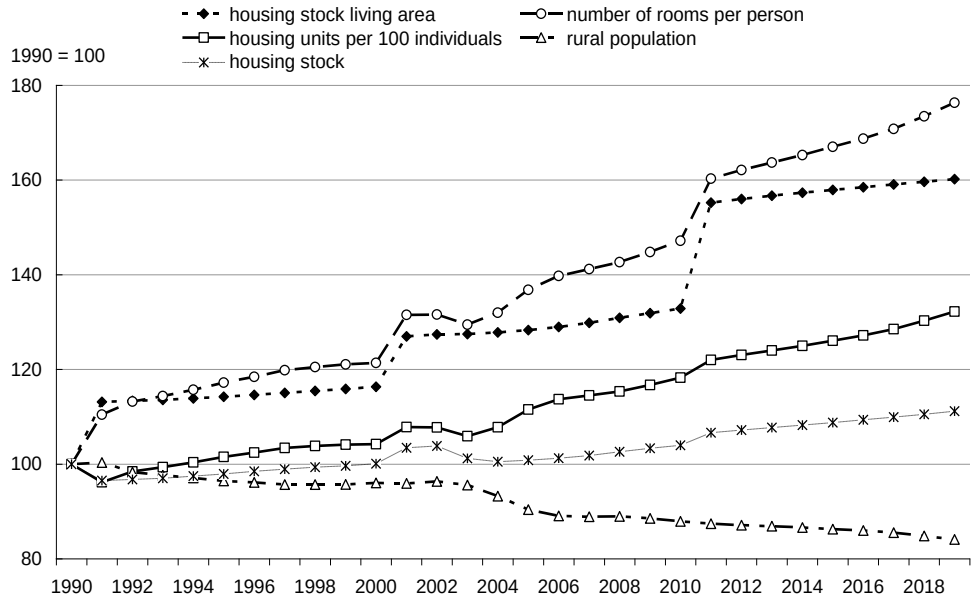
Looking at the big picture, the downward demographic trends were linked to Romania's traumatic transition to a market economy and mirrored trends in other Central and Eastern European countries (Stănescu 2015a). However, this population decline is uneven across the rural landscape (Mihalache 2015; Hărăguş and Foldes 2020). Moreover, the future trend is even more population decline because of persistent low fertility rates that do not seem to be on the path of recovery, plus further emigration. Only suburban communes, *i.e.* in so called functional urban areas, buck this trend (Hărăguş and Foldes 2020), a point to which we will return.

Let us now return to the issue of overcrowding in rural areas (*Figure 2*). As stated above, the marked improvement in overcrowding indicators is the result of a combination of increased housing stock (+11.1%) and declining population (-15.9%). In relative terms, the 30-year gains are significant in size. From 1990 to 2019, the number of dwellings per 100 inhabitants increased from 35 to 46

(+32.2%). The population per dwelling, a similar indicator, decreased from 2.9 to 2.2. The average number of rooms per person improved from 0.8 to 1.4 (+76.3%). The housing area per person more than doubled from 10.3 sq meters to 21.9 sq meters (+112%).

Figure 2

Housing and demographics indexes 1990−2019



Source: Author calculations based on data from Romanian Statistical Yearbook 1990−2020.

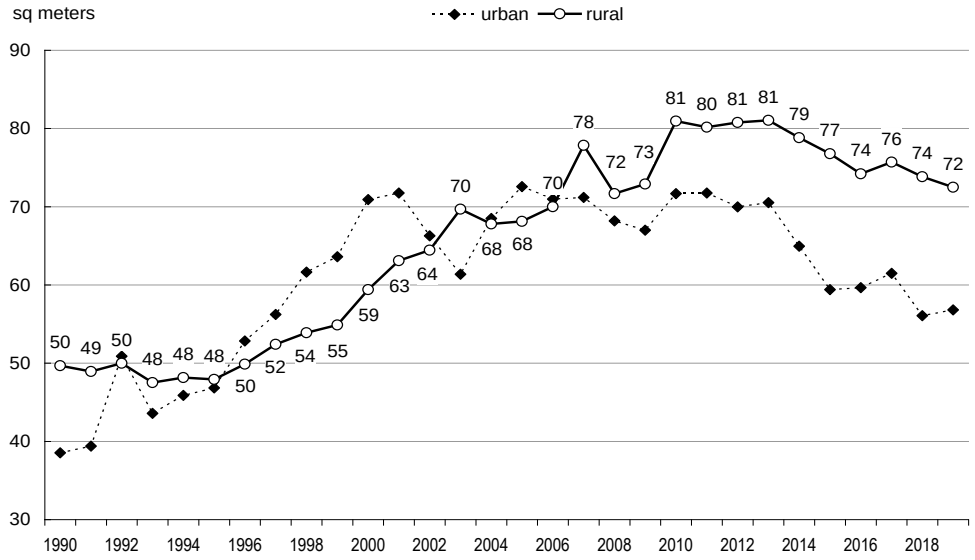
Regarding the average number of persons per rooms in rural areas indicator, there is a small, but nonetheless noteworthy difference between Eurostat and national statistics data. The data points for 2019 are 1.1 (Eurostat 2021a) for the former and 1.4 for the latter, a relative difference of more than a fifth. Moreover, Romania ranks last in the EU, according to Eurostat data. Regarding the difference between Eurostat and national statistics data, more likely than not, the explanation comes from the different definition of rural areas. Eurostat uses three categories – urban, towns and suburbs, and rural. The towns and suburbs category includes localities that in Romania are both urban (towns) and rural (communes with high population density, usually close to cities). On the other hand, national level statistics feature only urban and rural categories, the latter likely including some of the data used in the suburbs category by Eurostat. As mentioned at the beginning, although overcrowding declined significantly over a 30-year period, the gap compared to Western Europe persists. The average number of rooms per person in

rural areas is double in the Western part of the continent and only marginally higher in other Central and Eastern European countries.

The housing stock in rural areas is also more spacious. This is especially due to new build dwellings in the last three decades (*Figure 3*). The average area of newly build dwellings increased in the late 1990s. By the early to mid-2000s it reached an all time high. At that time, the average area of new build housing was some 60% larger than in 1990. The mid to late 2010s saw a marginal decline. Another interesting peculiarity is that since 2007 new homes in rural areas have been larger than their urban counterparts. A new trend has emerged since the mid 2010s. New build dwellings are less spacious, especially in urban areas. This is explained by the fact that new housing supply is no longer dominated by individual projects, but by real estate developers.

Figure 3

Average area of completed housing in urban and rural areas 1990−2019



Source: Author calculations based on data from Romanian Statistical Yearbook 1990−2020.

Housing in rural areas is also more comfortable due to the gradual improvement of the building materials of outside walls. Census data shows a steady rise in the share of housing stock built with bricks, stone or substitutes (*Table no. 2*). Conversely, dwellings built with wood, abode or similar materials, which are representative of pre-modern building techniques, saw their share decline. Once more, the whole story is more nuanced. In the 1990s, the share of the housing stock built with adobe and similar materials actually increased, even by the

tiniest of margins. According to Dan (2009), poverty and not a traditional lifestyle was the most likely cause. In the 2000s, as the economy improved, the share of the housing stock built with bricks stone or substitutes markedly increased. This steady change towards homes with better insulation is expected to continue due to a combination of suburbanisation, population decline, which means more unoccupied (and older) housing, and widely available modern building materials and techniques, whereas wood is less available and the traditional technique for adobe build dwellings is disappearing.

Table no. 2

Housing stock by building material of outside walls

	1929	**1977**	**1992**	**2002**	**2011**
Urban					
Reinforced concrete, prefab concrete, brick, stone or substitute	50.0	55.2	76.5	90.0	85.5
Wood (beams, logs)	20.0	4.7	2.3	2.1	2.1
Adobe and other similar materials	30.0	17.1	8.0	7.8	6.6
Other, no information					5.8
Rural					
Reinforced concrete, prefab concrete, brick, stone or substitute	30.5	33.4	39.7	41.0	43.6
Wood (beams, logs)	33.0	20.3	15.8	15.4	12.1
Adobe and other similar materials	36.0	46.3	43.3	43.6	36.9
Other, no information		0.0	1.2		7.4

Sources: Academia Română (2003, 159), Axenciuc (1999, 381), population and housing census of 1977 (Direcţia Centrală de Statistică 1980-1981), 1992 (Comisia Naţională pentru Statistică 1994-1995), 2002 (Institutul Naţional de Statistică 2003), 2011 (Institutul Naţional de Statistică 2013).

The rural housing stock by period of construction provides an added layer of insight on housing issues, with data available only from population and housing census. According to the 2011 census, the post-war decades were the period with the highest construction rate. About half of the rural housing stock dates back to the 1946−1970 period. During the 1970s the construction rate declined due to the massive urbanisation process. Modern building materials are in the majority in dwellings build after 1970. The age of the housing stock and the building material of the walls are highly relevant, as we shall see, when it comes to the decision to modernise the dwelling by connecting it to the public water, sanitation, and natural gas utilities.

Table no. 3

Distribution of dwellings by period of construction and building material of outside walls

	Total, of which	Concrete, brick, stone or substitute	Wood	Adobe and similar	Other/ no information
before 1919	4.0	29.3	18.4	41.6	10.7
1919−1945	11.3	28.4	16.8	48.2	6.5
1946−1960	24.4	31.2	13.9	49.5	5.4
1961−1970	25.5	41.3	12.2	41.2	5.3
1971−1980	9.5	57.4	10.7	26.8	5.0
1981−1990	5.5	68.4	9.8	17.7	4.1
1991−2000	7.5	56.2	9.4	30.4	4.0
2001−2005	3.7	66.5	7.7	21.4	4.3
2006−2011	6.5	80.7	5.5	9.6	4.2
no info	2.1				100

Source: 2011 census (Institutul Naţional de Statistică 2013).

UTILITIES: WATER, SANITATION, ELECTRICITY, NATURAL GAS, INTERNET

The main source of the urban/rural divide in terms of living conditions in Romania comes from access to public utilities, especially water, sanitation, and natural gas. Access to utilities is linked to an improved quality of life, increase in life-years, easing the burden of disease, and, in broad terms, development. This is why there are a strong social and economic arguments for improving access to utilities in the developing world, where the rural population is still in the majority (Hutton *et al*. 2007). While access to the most basic utility associated with modern life, electricity (to which we will return later on), was almost closed by 1990s, the most salient are water and sanitation, closely followed by natural gas.

In the 1970s and 1980s, the priority of the Communist regime in terms of water and sanitation systems was to improve access in urban areas. This was an era when Romania was experiencing its twin processes of industrialisation and urbanisation (Zamfir 2019). Accordingly, the share of urban population was expanding rapidly by an average of more than 200,000 people each year and to the detriment of rural areas. Despite this drive for modernisation and urbanisation, by the late 1970s about one fourth of the urban population was still not connected to water and sanitation utilities. Coupled with the austerity in public works investment in the 1980s (Văcărel 2001), this meant that investment in water and sanitation systems in rural areas lagged far behind up to the fall of the Communist regime in 1989 (*Table no. 4*). As we shall see in the following section, an uptick in investment for water supply and sanitation in rural areas would have to wait yet another decade. The 1990s saw the low points in living standards for a quarter of century from 1980 to the mid 2000s (Zamfir 2019). Public finances would be in

better shape from the early 2000s and investment poured in rural infrastructure, boosted by EU accession.

By the early 2010s, the share of population with access to water and sanitation improved to in the low 90s in urban areas. In rural areas, it reached almost 38.8%, compared to 10−11% in the early 1990s, close to 3.5 times higher, according to census data (*Table no. 4*). In real life, access to water and sanitation means that bathrooms, water closet (WC), and kitchens could be moved in the dwelling. This is a major break with traditional peasant housing, which usually featured a two or three-bedroom house and a pit latrine (dry toilet) in the backyard, relatively distant to the dwelling due to obvious hygiene reasons. In 1992, 83.8% of dwellings from rural areas had at most three bedrooms and 53.8% has at most two bedrooms (Comisia Naţională pentru Statistică 1994−1995).

A closer look at how the water and sanitation access is actually carried out reveals an important distinction between dwellings connected to public water supply and sanitation utilities or systems versus dwellings with so-called "individual solutions" in official statistics, namely septic tanks for sanitation and various types of domestic water pumps for running water. The increased share of dwellings with water and sanitation access was achieved by a combination of (1) expansion of public water and sanitation systems and (2) individual solutions, i.e. domestic water pump and/or septic tank, the latter either as improvements to the existing dwellings or via new build dwellings, especially by suburbanisation.

Table no. 4

Main utilities and facilities (amenities) of dwellings

Nationwide, combined urban and rural

	1977	**1992**	**2002**	**2011**
Running water, total	29.5	51.6	53.2	79.0
From public network	28.8	48.7	48.7	58.4
Hot water, total	20.2	43.1	43.4	59.5
Sewage, total	29.5	50.7	51.1	68.5
From public network	25.6	44.3	44.6	48.8
Natural gas from public network	18.7	32.2	40.5	45.3
Bathroom	26.4	47.0	50.0	64.2
In the dwelling	24.4	46.3	49.1	62.4
Water closet (WC)	22.5	47.1	50.5	61.2
In the dwelling	21.6	45.0	47.3	59.4
Electricity	85.2	96.7	96.3	98.9
Air conditioning			0.5	6.6
Heating				
District heating	20.4	30.9	30.7	19.6
Combi boiler		8.1	5.7	26.1
Gas stoves	5.8	4.4	8.5	3.0
Solid fuel stoves	71.8	55.8	52.4	46.3

Urban and rural areas

	urban				rural			
	1977	**1992**	**2002**	**2011**	**1977**	**1992**	**2002**	**2011**
Running water, total	65.2	88.2	87.9	93.1	3.0	11.4	14.4	38.8
From public network	64.7	86.9	86.4	89.7	2.2	6.6	7.0	20.7
Hot water, total	46.5	76.7	75.4	84.7	0.7	4.9	7.0	29.1
Sewage, total	65.2	86.4	87.9	93.1	3.0	10.0	14.4	38.8
From public network	58.9	80.7	82.5	84.8	0.9	2.8	2.8	5.4
Natural gas from public network		57.7	70.7	74.8		3.0	7.0	9.7
Bathroom	57.1	81.3	84.5	89.5	3.6	8.0	12.6	33.8
In the dwelling	55.0	80.3	82.8	88.1	1.7	7.5	11.8	31.4
Water closet (WC)	51.3	83.4	86.9	89.8	1.2	5.8	10.1	26.9
In the dwelling	49.3	80.1	82.6	88.0	1.0	5.1	8.3	25.1
Electricity	97.2	99.5	99.2	99.6	76.3	93.6	94.8	98.0
Air conditioning			0.8	11.3			0.1	0.9
Heating	46.8	71.9	67.6	75.4	0.7	1.7	1.7	10.0
District heating		57.5	57.9	35.7		0.7	0.5	0.2
Combi boiler		14.4	9.8	39.7		1.0	1.2	9.8
Gas stoves	10.3	6.0	11.1	3.4	2.6	2.7	5.7	2.6
Solid fuel stoves	40.8	21.4	17.1	15.3	94.9	94.9	91.5	83.6

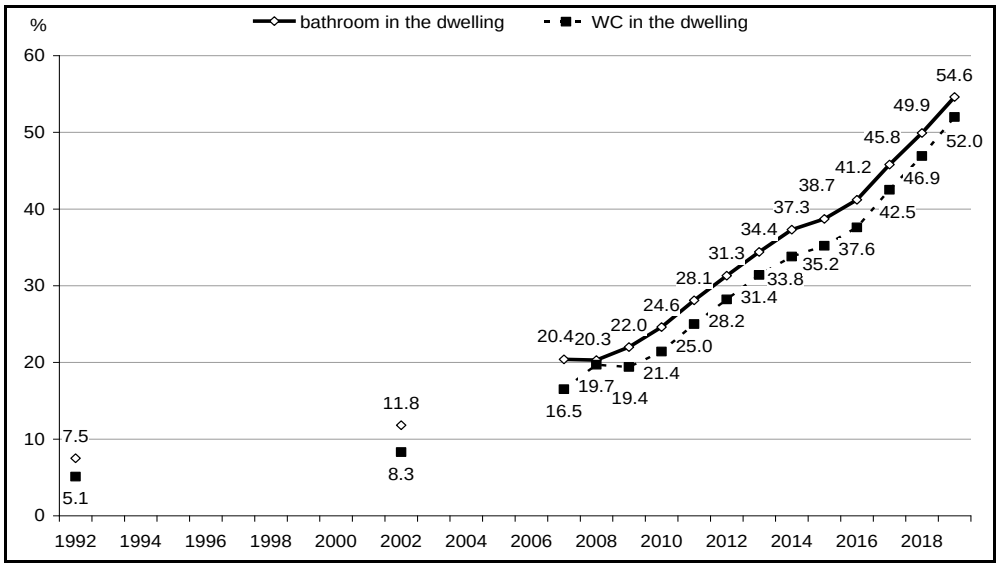
Sources: Population and housing census of 1977 (Direcţia Centrală de Statistică 1980-1981), 1992 (Comisia Naţională pentru Statistică 1994-1995), 2002 (Institutul Naţional de Statistică 2003), 2011 (Institutul Naţional de Statistică 2013).

A closer look at census data (*Table no. 2*) reveals that access to running water, regardless of its source (public system or individual solutions) does not automatically mean that the dwelling also features a bathroom and a water closet (WC) or flushing toilet. In 2011, a bit more than one in ten (12.9%) dwellings in rural areas had access to running water, but did not have bathroom. Moreover, almost one in five dwellings (19.07%) had access to running water, but not a bathroom inside the dwelling. In real life, this means that there is a water tap in the yard, with water coming from the public system or from a domestic water pump, and that the dwelling's owners decided either not to convert one of the rooms into a bathroom or not to build an additional room connected or not to the dwelling. Age of household members and/or the cost for the conversion or building project are the most likely reasons. These households use the running water in the kitchen, usually by carrying from the tap with buckets and for watering their produce garden. The same explanation covers another apparent oddity: dwellings with access to sanitation, either via public system or septic tank, but without a water closet (WC). In 2012, close to a third (30.67%) of rural dwellings with access to sanitation did not have a WC and more than a third (35.3%) did not have a WC inside the dwelling. In these cases, the same cost reasons apply to the decision not to build or convert a room for the installation of the flushing toilet. Instead, the sanitation system is used for wastewater.

Besides the census, the other main source for data concerning water and sanitation access is the European Survey for Income and Living Conditions (EU-SILC), a mandatory statistical survey for all EU member states, carried out by the national statistics office. However, the census collects data at household and individual level, while EU-SILC only at individual level. Moreover, the census collects data regarding overall access to water and sanitation, as well as the existence of bathroom and WC in the dwelling, whereas EU-SILC only for the latter. Even with this caveats, EU-SILC data from 2011 onwards shows a remarkable increase in the share of individuals with access to water and sanitation inside their dwelling. By 2019, more than half of individuals residing in rural areas in Romania had a bathroom with running water (54.6%) and WC (52.0%). As we shall see, this is an outcome of high public investment in water and sanitation systems coupled with household investment. Even so, Romania ranks a distant last in the EU regarding the share of total population having neither a bath, a shower in their dwelling. In 2019, 22.8% of the total population faced this type of housing deprivation. Latvia was second with 10.2%, with Lithuania a close third with 9.6%. The EU average was just 1.8% (Eurostat 2020).

Figure 4

Share of rural population with bathroom and flushing toilet in their dwelling



Sources: Population and housing census of 1992 (Comisia Naţională pentru Statistică 1994−1995) and 2002 (Institutul Naţional de Statistică 2003); EU-SILC data for 2007−2019.

Further data highlights the difference between access to water and sanitation *via* public utilities or individual solutions. Especially during the 2000s and 2010s,

the share of communes with water and sanitation networks increased (*Table no. 5*). For instance, the length of the water system pipes trebled from 16,000 km in 2000 to more than 54,000 km in 2018 (Mihalache 2020). However, this increase of the public networks was at a higher pace than the share of rural dwellings connected to water and sanitation *via* public utilities. In other words, there are many instances of water and/or sanitation systems being available in the commune, but the households' decision to connect to the public water and/or sanitation system is avoided or postponed, especially due to the costs entailed (Mihalache 2020). The same is true for natural gas.

Table no. 5

Percentage of communes with public utilities

	2000	**2005**	**2010**	**2015**	**2019**
Water system	50.4	56.8	67.6	75.4	79.3
Sanitation system	14.0	13.5	17.1	28.3	36.3
Natural gas	13.9	18.4	21.9	23.2	24.7

Sources: Tempo Database matrixes GOS106C, GOS110C, GOS117A, ADM101A (Institutul Național de Statistică 2021b).

Another issue is the breakdown of the territorial access to water and sanitation, especially to public networks. There are regional and county level disparities. According to census data (Institutul Naţional de Statistică 2013), the share of dwellings connected to water, sanitation, and natural gas is, as expected, much higher in more urbanised counties. Of course, this is because the data includes urban areas, but also because of the expansion of water, sanitation, and especially natural gas systems from cities to suburban communes. Our hypothesis, which would require further testing, is that if a county is more urbanised, i.e. more cities and towns, then chance of public utilities expansion into nearby communes is higher. Looking and the map, this means that some provinces or areas feature a much higher share of dwellings connected to water, sanitation or natural gas. This is observable on the map (Ministry of Regional Development and Public Administration, 2012−2015). For instance, the share of population with access to sanitation is higher in the development region around the Capital (Bucharest-Ilfov), in Transylvania (Centre), and Banat (West) than in the more rural development regions in the South (South-Muntenia) and Moldavia (North East), according to Frone (2015). As we shall see, another layer of county and regional level variance comes from the patronage of national-level funding for local development (Mihalache 2020).

Let us now return to electrification. Modern life is very much defined by access to electricity. It relieves the household from cooking meals each day due to the refrigerator, dramatically improves artificial lighting, compared to gas lighting, makes ironing and doing the laundry much more easy. Communication and

entertainment needs also require electricity. In the early 1990s, 93.6% of rural dwellings had access to electricity (*Table no. 4*). Some 409,000 people from rural areas lived in pre-modern conditions, according to census data (Comisia Naţională pentru Statistică 1994−1995). By the 2011 census, the share of rural dwellings with access to electricity improved to 98%, largely due to an electrification drive in remote rural areas during the pre-accession years from 2002 to 2004. Still, close to 90,000 people were deprived of access to electricity, many of them from remote rural areas, others from deep poverty households (Institutul Naţional de Statistică 2013).

Access to natural gas has a double relevance. In terms of living conditions, it relieves the household from the chore of obtaining, purchasing, and cutting firewood, as well as round the clock care of the solid fuel (wood) stoves, especially during the cold season. Premodern rural dwellings usually featured both a summer and a winter kitchen. The former reduced the risk of catastrophic fire to the dwelling. At that time, bread was still baked daily or almost daily in high temperature ovens. The summer kitchen also made the discomfort of cooking with a stove more bearable during the hot season. While the summer kitchen was outside the dwelling, in the cold season one of the rooms performed as winter kitchen, with a stove being used both for heating and cooking. In terms of income, natural gas opens the way for intensive vegetable growing in greenhouses. This means more time available for work and even leisure. While the share of dwellings connected to the natural gas network trebled from 3% in 1992 to 9.7% in 2011, this still leaves out the great majority of households (*Table no. 4*). According to the 2011 census, 83.6% of rural dwellings still used solid fuel (wood) stoves. A closer look to the data in *Table no. 4* shows a higher share of dwellings with combi boiler or gas stoves used for heating than dwellings connected to the natural gas network. This is because some dwellings use firewood as a fuel for boilers.

Access to the Internet is the key indicator for 21st century living conditions. In rural areas, the level of internet access for households increased in the mid to late 2010s. Starting from EU accession in 2007, when data was first collected *via* EU-SILC, the share of rural households with internet access increased from 3% to 36.3% in 2014 and 69.7% in 2020 (Institutul Naţional de Statistică 2021a). In EU rankings, Romania is in the bottom five member states with 79% (Eurostat 2021b). However, Romania is in the upper tier of average Internet connection speed in Europe. The country ranked first in the continent and 10th in the world in the third quarter of 2016 (Akamai 2016), due to its early adoption of fiber-optic cabling instead of legacy technologies, such as copper wires or dial-up methods.

Housing deprivation, as measured by Eurostat methodology, is linked with topics covered in this paper, such as overcrowding and poor amenities as a result of lack of access to water, sanitation or a poor condition of the dwelling. The severe housing deprivation rate covers the share of population living in the dwelling in an overcrowded dwelling and that also features at least one housing deprivation

measure – a leaking roof, no bath, shower and no indoor (flushing) toilet, or a too dark dwelling. According to data collected via the EU-SILC survey, the housing deprivation in rural areas in Romania was 23.5% in 2019. Although the housing deprivation rate has declined, compared to 30.7% in 2011, Romania ranks first in the EU, far ahead of second-placed Latvia. Once more, one should take into account that the EU definition of rural areas is much narrower than the Romanian one and that areas considered as rural in Romania also fit in the EU suburban bracket. Nevertheless, the gap compared to second placed Latvia remained steady around 10 percentage points throughout the 2010s. Two neighbouring countries, with a comparable development level, Bulgaria and Hungary have a much lower household deprivation rate of 14.0% and 13.2% (Eurostat 2021c).

Another indicator regarding housing vulnerability is the housing cost overburden rate, which is defined as the percentage of the population living in a household where the total housing costs (net of housing allowances) represent more than 40% of the total disposable household income (net of housing allowances) presented by age groups. In 2019, the housing cost overburden rate in rural areas (as defined by the EU) was 11.3% in Romania, according to EU-SILC survey data. Once more, this places Romania in the relatively few group of countries above the EU average, but with a housing cost overburden rate significantly lower than in Bulgaria or Greece, which stand in around 20% and around 30% respectively (Eurostat 2021d).

The two abovementioned indicators, severe housing deprivation rate and housing cost overburden rate, coupled with the distribution of the rural housing stock by period of construction provide a useful insight regarding the existence of a limit to water, sanitation, and natural gas access, especially if one takes into account the costs of required improvements and modifications to the dwelling that befell the households' budget. In other words, if almost one third of the rural population lives in a dwelling that is overcrowded and that features poor amenities, and more than one in ten rural residents are overburdened with the housing costs, than it is more likely than not that, at least from an economic perspective, these households would not be able to meet the costs of having a bathroom and toiled inside the dwelling.

POLICY AND FINANCING

In Romania, the transition period marked the retreat of the state from the forces of globalisation (Zamfir 2004; Zamfir 2015; Georgescu 2018). This retreat also included housing policy and especially public housing projects (Dan 2006). The main focus of policy regading living conditions in rural areas included the expansion of water, sanitation, and natural gas networks, as well as broadband Internet. As we have seen above (*Table no. 44*, *Figure 4*) this policy has been successful in markedly improving the connectivity of households and dwellings to

running water and the Internet, and to a lesser extent sanitation. Natural gas connectivity was far less successful. Despite the progress made, Romania still registers a development gap concerning living conditions in rural areas compared to Western Europe and the EU average.

Table no. 6

Total length (km) of the simple drinking water distribution network in rural areas

Year	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Km	9,807	9,683	10,221	10,937	11,643	12,184	12,987	13,551	14,453	14,974
1990=100	100	99	104	112	119	124	132	138	147	153
Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Km	15,616	16,155	17,062	18,428	20,340	22,607	24,868	26,942	30,414	33,599
1990=100	159	165	174	188	207	231	254	275	310	343
Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Km	35,869	38,427	40,619	43,685	45,941	48,166	50,201	51,998	54,089	55,581
1990=100	366	392	414	445	468	491	512	530	552	567

Source: INS TEMPO, matrix GOS106A (Institutul Naţional de Statistică 2021b).

In terms of financing, the thirty year interval could be divided in two broad periods. The first is from the 1989 Revolution up to the early 2000s, which corresponds to the midpoint of the pre-accession period (1999−2006). The second covers the timeframe from the closing years of the pre-accession period up to 2020. Public financing for expansion of utilities is all but impossible to single out from the much broader category of public services and development, housing, environment, and water that is used in the Romanian statistical yearbook. Therefore, an useful indicator deals with the direct effect of public investment in terms of utilities coverage expansion, such as the total length of simple drinking water distribution systems in rural areas (*Table no. 6*). From 1990 up to and including 2002, the yearly increase of water distribution network in rural areas varied from just above 500 km to 900 km. Starting with 2003, the yearly average increased threefold to about 2,200 km, compared to less than 700 km during 1992−2002. The all-time high topped 3,471 km of new water distribution network in 2008. Two very different sources in funding contributed to this increase.

First, EU funding for water and sanitation projects. These funds covered both the pre-accession period and the post-accession multiannual financial frameworks 2007−2013 and 2014−2020.

For instance, the pre-accession SAPARD programme provided financing for 4,918 km of water distribution network and 863 km of sanitation network (Government of Romania and Ministry of Agriculture and Rural Development 2015).

The post-accession cohesion funds included the Operational Programme Environment from the 2007−2013 multiannual financial framework, which featured in its main objectives more efficient public water, sanitation, and heating

networks. Through Priority axis 1, Expansion and modernization of water and wastewater systems, the programme allocated 3.2 billion euro, with 85% EU financing of 2.77 billion and the rest co-financing from the national government. According to an ex-post evaluation (Georgescu 2018), the programme attained or exceeded targets in terms of number of regional water companies (123%, +8 units) and wastewater treated (101%). However, it felt short of its targets regarding water utilities in regional system (91%) and the number of localities with new or modernised regional water services (96%). The main underachievement was in the number of new wastewater plants (-71% or minus 58 plants). In other words, the program created more companies with more overhead than needed, but failed to reach critical targets, including the number of wastewater plants that end the cycle of the water and sanitation systems, while also removing pollutants.

Another important post-accession source of EU funding for public utilities in rural areas came from the European Fund for Rural Development, which underpinned the National Rural Development Programme. Through its priority axis, *quality of life in rural areas and diversification of rural economy* from the 2007−2013 multiannual financial framework, the programme achieved just 48% of the target for water supply pipelines (3,289 km less than the target) and 90% for sewage pipelines (522 km less than the target). The programme was intended to reach 200 communes with less than 10,000 inhabitants and to improve living standards for at least 50% of their population, i.e. public utility connection.

The follow-up National Rural Development Programme from the 2014−2020 multiannual financial framework featured submeasure 7.2, which provided funding for the construction, extension and/or modernization of the public water or sanitation networks for communes between 2,000 to 10,000 equivalent inhabitants. The funding was unavailable for communes from areas previously included in the regional water and sanitation projects from Operation Programme Environment 2007−2013.

The second financing source features development grants from the national government to local government. This type of financing is part of a wider decentralisation trend in Romanian government and politics that started in the late 1990s and gained momentum from the mid 2000s (Stănescu 2015b). The results of decentralisation in terms of the relative structure of public expending saw an increase in the share of local government spending in both total public spending from around 13% to about one quarter and in capital expenditure from around one quarter to more than half. This process was intertwined with an increase in the political importance of mayors and other local government elected positions. Starting with the early 2010s, regional and local development programmes funded by the central government changed their philosophy into grants programmes open to project proposals submitted by local government.

The first such programme was the National Infrastructure Development Programme, acronym PNDI, (Emergency Ordinance no. 105 from 2010). This programmes bundled several ongoing central government programmes from the 1990s and 2000s concerning rural public water and sanitation utilities, wastewater

systems, roads, sports infrastructure, environment and water management (Mihalache 2020). For instance, PNDI budgeted 10-year funding for sanitation, wastewater systems (RON 1.94 billion or 0.46 billion euro in 2010 prices), water supply systems (RON 1.08 billion or 0.25 billion euro in 2010 prices), environment and water management (RON 1.3 billion or 0.3 billion euro in 2010 prices). Much of this funding remained unspent, as PNDI was superseded with a different, but very similar programme in 2013. The lasting impact of PNDI was a change of philosophy towards local government driven projects, with central government providing only the financing. The PNDI successor was called the National Local Development Programme, acronym PNDL, (Emergency Ordinance no. 28 from 2013). PNDL featured part I (2013−2020) and part II (2017−2020). Out of its sub-programmes, one was called "Modernisation of the Romanian village" and another "County level infrastructure", the latter also financing inter-communal associations. According to public data from early 2020 (Ministry of Development 2020), PNDL part I financed 995 water system projects, out of which 639 were completed, 48 combined water and sanitation projects, out of which 16 were completed, and 585 sanitation system projects, out of which 297 were completed. The multi-year budget for these projects totalled RON 5.59 billion. PNDL part II financed 546 water system projects, out of which 50 were completed, 253 combined water and sanitation system projects, out of which 13 were completed, and 522 sanitation projects, out of which 44 were completed. The multi-year budget for these projects totalled RON 8.62 billion.

Critics from the media and NGOs charged the PNDI and PNDL programmes with political patronage, lack of transparency in awarding the grants, and lax accounting practices, open to fraud and corruption. For instance, the 2015 PNDL audit report from the Chamber of Auditors identified many shortcomings (Mihalache 2020).

DISCUSSION

Over a thirty year period (1990−2020) living conditions in rural areas in Romania experienced a marked improvement. However, this statement requires nuances and caveats.

In terms of housing, the big picture is mixed because of countervailing factors.. For instance, overcrowding in rural areas decreased, but this is the twin effect of an increased housing stock (+11.1%) and a declining population (-15.9%). The housing stock is getting older and the share of uninhabitated dwellings was about to pass one fifth in the early 2010s. On the other hand, the rural share in the new housing supply was close to 50% over the three decade period. Moreover, in 18 out of 30 years there were more new build dwellings in rural than in urban areas. Suburbanisation is the main cause. In addition, new build dwellings in rural areas are more spacious than their urban counterparts. After a setback in the

economic challenging 1990s, the great majority of new build dwellings are from higher quality materials (concrete, brick, stone or substitute).

The major improvement in terms of living conditions comes from increased connectivity of rural dwellings and populations to water and sanitation networks. In the late 2010s, more than half of rural residents enjoyed the comfort of a bathroom and/or flushing toilet in their dwelling compared to less than 10% in the early 1990s. Arguably, this is one of the most important changes in living standards and, in a wider sense, in the quality of life, during the three decades since the Romanian Revolution. Less progress was made in terms of natural gas connectivity. While electricity connectivity was close to 99%, according to the 2011 census, close to 90,000 people were still deprived of access to electricity, many of them from remote rural areas, others from deep poverty households. Close to 70% of rural households were connected to the Internet in 2020. More importantly, Romania is in the upper tier of average Internet connection speed in Europe.

Changes in living conditions – water, sanitation, natural gas, electricity, the Internet – also mean a break with the past in terms of lifestyle and overall quality of life. Despite the progress made in terms of living conditions, especially water and sanitation connectivity, the gap compared to Western Europe persists. Comparisons with rural areas in Western Europe need to be taken with care, as rural areas in Romania encompass areas that are defined as both rural and suburban by Eurostat.

The suburbanisation of rural areas and the variance between and within communes in terms of dwellings' access to water, sanitation, and natural gas are two trends that point to the increased heterogeneity of rural communities in Romania. Over the next decade, the share of the rural population with access to water, sanitation, and natural gas is set to increase. On one hand, the water, sanitation, and natural gas networks are set to further expand. On the other hand, demographic trends will accelerate the process, as older cohorts that are unwilling or that could not afford the changes required to the dwelling for water, sanitation and/or natural gas connectivity are replaced with younger cohorts.

An important debate to this extent concerns the sustainability of public utilities expansion in rural communities that are facing demographic decline, especially those outside functional urban areas and/or with marginalised communities (Hărăguş and Foldes 2020). At least equally salient is the issue of rural household affordability of water and sanitation tariffs. For instance, actual price rises had a rate of 29% in Dâmboviţa County in the early 2010s, well above the projected 17% in the feasibility study (Frone and Frone 2015). In part, this is explained by the tendency of public utilities to abuse natural monopoly position to recover the investment and/or cover unjustified expenses or losses, despite being public sector companies. The paradox of utilities affordability in rural areas is that the strata with the lowest income would pay the highest tariffs for water and sanitation.

The crux of sustainability and affordability risks concerns the way connectivity to water and sanitation is achieved. For suburban or functional urban areas communities, public networks are more likely than not sustainable. In practice this would entail the expansion of utilities into communities where individual solutions for water and sanitation, i.e. domestic water pump and/or septic tank, are currently used. For communities facing demographic decline, usually outside functional urban areas, an alternative to the expansion of public utilities should be explored. One solution would be to offer grants to households for individual solutions, i.e. domestic water pump and/or septic tank. The policy and financing of dwellings' water, sanitation, and natural gas connectivity in rural areas of should take into account the increasing heterogeneity of rural communities in Romania.

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Articolul analizează principalele tendinţe privind condiţiile de viaţă din mediul rural din România din 1990 până în 2020. Prima parte a lucrării se referă la locuinţe. Sunt prezentate aspecte şi indicatori privind construcţia de locuinţe, situaţia fondului de locuinţe după materialul de construcţie al pereţilor, supraaglomerarea, grupurile vulnerabile şi costurile locuirii. A doua parte a lucrării se concentrează pe accesul la utilităţile publice: apă, canalizare, gaze naturale, electricitate şi internet. A treia parte a articolului tratează politicile şi finanţarea privind îmbunătăţirea condiţiilor de viaţă în zonele rurale. Pentru identificarea tendinţelor pe termen lung au fost utilizate serii de date obiective la nivel naţional provenite din recensăminte şi anchete statistice. Date obiective transversale din anchetele statistice europene sunt utilizate pentru comparaţii internaţionale. Conform principalelor concluzii, condiţiile de viaţă din zonele rurale din România au cunoscut o îmbunătăţire semnificativă în perioada de treizeci de ani, în special în ceea ce priveşte reducerea supraaglomerării, accesul sporit la apă, canalizare şi Internet. Această afirmaţie necesită însă nuanţări. Suburbanizarea zonelor rurale şi diferenţierea dintre şi în cadrul comunelor în ceea ce priveşte accesul locuinţelor la apă, canalizare şi gaze naturale sunt două tendinţe care indică eterogenitatea crescută a comunităţilor rurale din România. Privind în perspectivă, extinderea utilităţilor publice în zonele rurale prezintă riscuri de sustenabilitate şi suportabilitate în bugetul gospodăriilor.

***Cuvinte-cheie**: condiţii de viaţă; calitatea vieţii; România; mediu rural; apă curentă; canalizare; gaze naturale; Internet; locuinţe.*

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