

SUMMARY OF THE RESEARCH ON HEATING PRACTICES IN THE RESIDENTIAL SECTOR OF KOSOVO*

Single family houses, which include residential houses and buildings with up to 2 separate apartments constitute large majority (85%) of the housing stock in Kosovo*¹; the remaining are mostly **collective housing buildings**, i.e. buildings with 3 or more apartments (14%). Large majority of the respondents (71%) have noted to live in houses or apartments **built since the 1990**. In fact, almost half of the families (48%) lives in buildings built between 1991 and 2013. Additional 23% lives in buildings built after 2013. In buildings built between 1981 and 1990 lives 16% of families, while 7% in buildings built between 1971 and 1980². **Average living area** of households is 130m². **Thermal insulation (facade)** is missing on 29% of the households. The facade is missing more frequently on single family houses (31%) than on apartments in collective housing buildings (18%). In terms of districts, households in Gjakova (50%), Prizren (47%) and Peja (41%) more often do not have a finished facade, while households without a facade in Prishtina (14%) and Gjilan (17%) districts are rare.

Overwhelming majority of households in Kosovo* have **PVC joinery** (62%). It is followed by wooden (20%) and aluminum (4%) joinery. Multiple types of joinery can be found on 14% of households. Among the households which have wooden joinery, older wooden joinery accounts for 58%. Although respondents are generally **satisfied** (73%) **with the quality of their joinery**, with 28% being very satisfied and 45% being mostly satisfied, 13% remains dissatisfied and 14% neither satisfied nor dissatisfied. However, there are some important exceptions. First of all, significant majority (62%) of users of older wooden joinery are unsatisfied with the its quality. On the other hand, users of newer wooden joinery (10%), aluminum joinery (11%) and especially PVC joinery (5%), are far less often dissatisfied with their quality. It should then come as no surprise that dissatisfaction with the quality of joinery is highest in Prizren (27%) and Gjakova (26%), where households have older wooden joinery significantly more often with 23% and 28% respectively. In addition, members of single parent households (30%), single households (22%) and socially vulnerable³ (22%) are in general more often dissatisfied with the quality of their joinery than respondents on average.

Wood and coal stove is used as the main heating device in the households in Kosovo* more frequently than any other device. Almost two thirds of households (63%) use these devices as their primary source of heat. **District heating via the heating plant**, used by 15% of the households, comes second. Wood or coal boilers (7%), pellet boilers (4%), air-conditioning (2%) and quartz heater (2%) are also some of frequently used devices. The remaining 7% use other devices⁴. Solid fuels, which include wood, coal and pellet are being used for heating considerably more, than other energy sources including electricity and gas. In 77% of households in fact, main heating appliances burn **solid fuels**. Members of single family houses, tend to use wood and coal stoves (71%) and devices which burn solid fuels in general

¹ This designation is without prejudice to positions on status, and is in line with UNSCR 1244/1999 and the ICJ Opinion on the Kosovo declaration of independence.

² The remaining 6% of respondents have noted either to live in buildings older than 1971 (4.8%) or that are unable to provide an adequate assessment regarding the age of their house (1.6%).

³ “Socially vulnerable” are referred to as respondent who thinking about their household's total income find it “very difficult” or difficult” to make ends meet, namely, to pay for its usual necessary expenses. This is 26% of all respondents.

⁴ Other devices include room pellet heaters (1.3%), fan heaters (1.3%), storage heaters (1.1%), room wood or coal heaters (0.5%), heat pumps (0.5%), gas heaters (0.4%), masonry heaters (0.1%), oil or mazut boilers (0.1%) and other (1.9%).

(84%) much more often compared to residents of collective housing buildings, who are mostly reliant on district heating (40%) for heat. Wood and coal stoves are most often used in the Ferizaj district (78%), followed by Peja (70%) and Prizren (67%) districts. In these three districts, devices which burn solid fuels are also the most represented. The percentage is highest in Prizren, where 92% of households use such devices, while in the other two it is 85%. The use of wood and coal stoves (84%) and devices which burn solid fuels (93%) is also much greater among the socially vulnerable. District heating is most widely used by households in Prishtina (31%), Gjilan (19%) and Mitrovica districts (16%). Majority of the **main heating devices (73%) in households are newer**, meaning not older than 10 years. Between 11 and 20 years of age are 17% of the main heating appliances, while 4% is older than that. The remaining 6% could not provide an assessment regarding the age of their main heating device. More than one fourth (27%) of households, **uses more than a single appliance for heating**. Only 10% of households whose main heating device is pellet boiler required additional heating, which is considerably less compared to households with other devices. Significant majority (84%) of households does not have **air-conditioning**. On the other hand, 7% use it for cooling and heating. Only for cooling is used by 6% of households, while 3% use it only for heating.

Almost two thirds of the households (65%) in the country **uses their heating devices for cooking** as well. This is due to their overwhelming reliance on solid fuels devices, but mainly wood and coal stoves. In fact, 80% of users of wood and coal stoves aside from heating, use these devices for cooking as well.

The majority of respondents (54%) have stated that they are able to **maintain equal levels of heating in several rooms of their household**. On the other hand, 43% heats only the rooms in which the residents spend most of their time, while 3% only has a single room which is also the only one being heated. The ability to maintain equal heating in the household is lowest among single households (20%), households of socially vulnerable (32%) and households which use wood and coal stoves (38%). Users of pellet boilers (97%) and district heating system (96%) are much more successful in maintaining equal levels of warmth in several rooms in the household.

Large majority of the respondents in Kosovo* are very (24%) and mostly (46%) **satisfied with the quality of their heating**, while 6% are dissatisfied. The remaining one fourth (25%) of the respondents are neither satisfied nor dissatisfied. Dissatisfaction is slightly higher among the residents of Ferizaj (13%) and socially vulnerable (12%) in general. **The quality of air** in their household is perceived by respondents as very (28%) and mostly (48%) satisfying. Respondents who are neither satisfied nor dissatisfied constitute another 21%, while only 4% are dissatisfied.

The most **affordable energy source for heating**, in opinion of respondents is wood (62%). It is followed by electricity (16%) and coal (14%). Pellet (5%), gas (3%) and other fuels (1%) are seen as most affordable to much lower percent. **Wood is widely used**, with 79% of households consuming it for heating. Households in rural areas (90%) use it much more frequently than households in city areas (62%). The districts in which wood is consumed to a greater extent includes Ferizaj (88%), Peja (86%) and Prizren (86%). Below average, but not by a high margin, are Prishtina (72%) and Gjakova (72%) districts. Wood is also consumed above average in households whose members are unable to maintain equal levels of heating in several rooms of their household (92%), households of socially vulnerable (90%) and (un)married couples with children (85%).

Despite wide consumption, large majority of wood burned is inadequately dried, which leads to greater air-pollution, worsening public health and decreased thermal comfort. Among the households which use firewood, 30% **has not acquired it for the upcoming heating season** by mid of September 2021. In addition, 65% of the respondents with experience of burning wood have shown **insufficient knowledge in regard to what type of firewood should be used**. When asked about the best type of firewood for consumption, these respondents stated that it is wood dried for 2-3 months after cutting (25%), dried for 2-3 weeks after cutting (19%), fresh (5%) or that they do not know (16%). The correct answers, given by only 35% of the respondents, were wood dried for more than 6 months (23%) and dry wood, which was dried for more than a year (12%).

When it comes to **willingness to replace their current heating appliance**, most of the respondents (52%) are opposed to such idea. The main reasons they stated are that their current appliance heats well (36%), that they could not afford replacement (19%), that they have that appliance for a long time (17%) and that they already have a new and modern device (16%). On the other hand, **45% of the respondents would be interested in replacing their main heating appliance**. The most frequent reasons mentioned by these respondents were that the appliance in use requires too much work to operate (54%), that it does not provide adequate heat (41%) and that its cost of operating is too high and not worth it (23%). Among the respondents interested in replacing their device, 56% would **pursue replacement only if they were to receive financial assistance**. It should be noted that 4% of respondents were unable to provide an answer on whether they would change their device. In comparison to female respondents (40%), men (50%) are somewhat more interested in pursuing replacement of their heating device. More interested are also residents of Gjilan (60%), Gjakova (59%) and Prishtina (53%) districts, as well as socially vulnerable in general (56%). In addition, above average interest in replacement is seen with users of wood and coal stove (54%) and quartz heaters (53%). On the other hand, respondent who use pellet boilers (10%) and district heating (24%) are far less interested in a potential replacement.

If there was an option to take out **a loan in order to replace the heating device** in the household, large majority of the respondents (85%) would not be interested in it. While 71% would oppose to taking out this loan in general, 14% would not want because they see their appliances as efficient enough. Only 10% of respondents would be interested. In addition, 5% of respondents could not provide an answer.

When choosing their heating device, families remain very constrained by **inadequate financial resources**. In fact, if they were forced to change their heating appliance, 28% of families would not be able to afford a new one at all. The most frequently stated price ranges are also the lowest ones: up to 300 Euros (20%), from 301 to 500 Euros (14%) and from 501 to 1000 Euros (10%). The devices in the price range of 1001 to 1500 Euros could afford 4% of the respondents, while additional 4% could afford devices in the price range of 1501 to 3000 Euros. Devices more expensive than 3001 Euros, would be affordable to only 2% of the respondents. The remaining 18% of the respondents could not provide an assessment in this regard. The groups which are at the biggest risk are members of single (48%) and single parent households (40%), as well as socially vulnerable in general (42%), as they are much more often unable to afford the new heating devices at all. More vulnerable in this regard are also residents in collective housing buildings (50%) compared to ones living in single family houses (24%), as well as residents of districts of Gjakova (42%) and Prishtina (41%) in particular.

If a system of support were to be established, it should mainly target users of devices which burn solid fuels such as wood and coal in order to alleviate the negative effects of their consumption, but also because the energy poor tend to use these devices more frequently. For such a supporting schemes to function, **obsolete devices need to be removed from use and eventually from the market**. This would entail that households which would receive financial assistance in purchasing new devices, would have to give up on their old devices. This measure would not pose a problem to the successful implementation of the replacement scheme as only 21% of respondents who burns solid fuels for heating, would **oppose handing out their old device**. On the other hand, 65% of the potential beneficiaries would be interested in replacement under this condition, while 13% could not provide an answer.

Respondents were **not particularly familiar with some of advanced heating technologies**. When asked about their familiarity with the **inverter air-conditioning**, 66% had little to no knowledge⁵ about them, while in case of **heat pumps** (84%) the percentage was even higher. Less familiar with both inverter air-conditioning and heat pumps are on average older respondents, especially the ones older than 65 years (82% and 87%), respondents with lower levels of education⁶ (78% and 87%), and socially vulnerable (70% and 92%) in general. In addition, women (72% and 87%) stated more frequently they are not familiar with these two technologies compared to men (62% and 81%).

Among the respondent interested in replacing their main heating devices, there are **two types of heating systems which are the most popular alternatives**. These include the district heating (53%) and electricity heating (39%). Very popular are also pellet boilers (11%), modern wood and coal stoves (8%) and gas heating (6%). Pellet stove (5%), inverter air-conditioning (5%), heat pumps (4%) and modern wood or coal boiler (3%) are seen as less popular alternatives among respondents interested in replacing their heating devices. Members of collective housing buildings are mostly interested in district heating systems (74%), electricity heating (23%) and inverter air-conditioning (9%). Despite being less popular, district heating also comes first in case of single family houses (51%), followed by electricity heating (42%) and pellet boilers (13%). All devices on solid fuels including wood, coal and pellet are much more popular among members of single family houses then collective housing buildings. When respondents interested in replacement were asked to **select only one device which they would agree to replace their current main heating device with, regardless of the cost**, the order stayed pretty much the same. District heating system (42%) came first, followed by electricity heating (29%). Modern wood and coal stoves (6%), pellet boilers (4%), inverter air-conditioning (3%), pellet stoves (2%) and heat pumps (2%) were mentioned less frequently. The remaining types of devices were stated by 2% of respondents, while 11% could not provide an assessment on the spot.

The greatest amount of **trust, when it comes to influencing their decision about potential appliance replacement**, respondents have in word of mouth, i.e. family and friends (66%). They are followed by doctors (27%), appliance manufacturers and vendors (18%), media (16%), politicians from the Government and the Assembly (8%), neighbors (7%) and representatives from public institutions (7%).

⁵ This included responses “does not know, cannot assess”, “not at all” and “little”. Respondents who stated “moderately”, “well” and “excellent” were not included in the count.

⁶ Respondents with lower levels of education are the ones who only have completed elementary education or lower than that. This is 31% of total respondents covered through the survey.

Local politicians (5%), professor and academic community (4%), local energy managers (4%) and non-governmental organizations (1%) are seen as less influential in this regard.

No other information illustrates better the need for subsidizing the replacement scheme than the fact that more than a half (56%) of households **has never changed their main heating device**. On the other hand, households which did introduce a new device, in most cases sold the sold one to scrap metal (16%) or kept it (15%). Of those who kept them, 37% continues to use them occasionally. Another 5%, sold or gave away their old device. This entails that even when households in Kosovo* change their main heating device, they often do not remove the old ones from use, which highlights the need to confiscate old devices when implementing replacement schemes. Other respondents (2%) disposed the devices through different means, while the remaining 5% could not remember what they did with it.

Exposure to different forms of air pollution in households and in the open can have adverse health effects. Large contributor to air pollution, but mainly particulate matter in the district are individual heating devices which burn solid fuels. While the whole society is exposed to harmful effects of ambient air pollution, the members of households which burn solid fuels are even more vulnerable due to indoor pollution. **Average time spent daily by members of households which burn solid fuels in a room with the heating device** is approximately 7 hours and 45 minutes. At the same time, members of 41% of households spend more than 8 hours in a room with such a heater. Additional 34% spend between 4 and 8 hours per day. The members of every fourth household (25%) which burn solid fuels, spend between 1 and 4 hours in a room with the heater, while up to one hour only 0.3%. In more than a half of households (53%) which use solid fuels for heating, family members **sleep in a room with these heaters**. This is a more often practice in households of socially vulnerable (63%) and generally in city (65%) areas compared to rural areas (48%). Another cause for concern is **absence of ventilation** in households which use solid fuels. In only 54% of these households, members of the household ventilate their rooms often. In 43% they do so occasionally, while 3% does so rarely.

More than two thirds (70%) of respondents do not believe that their **heating practices can harm their health and health of their family members** and another 18% believes it has only a negligible impact. Moderate and severe impacts on health are recognized by 8% and 4% of respondents. Especially worrisome is that 75% of users room wood and coal stoves and heaters, who are especially exposed to indoor air-pollution denounce completely their negative effects. In terms of advice received, only 1% of respondents have claimed to have gotten some sort of **warning from their doctor** about possible adverse effects of their heating practices to their health. Majority of respondents (92%) have never been in a situation to **burn plastic, rubber and fabric** for heating purposes. However, 8% of respondents does so, in different frequencies. While the majority (84%) of respondents are **aware of the severe negative consequences** on health, associated with exposure to burning of these materials, 16% of the respondents is not.

Lastly, large majority of the respondents perceive coal (80%) to be the **greatest polluter among different energy sources**. Liquid fuels, namely, diesel (7%) and gasoline (3%) follow. Gas (3%), wood (3%) and pellet (1%) are seen as greatest polluters by a much small percentage of respondents. The remaining 4% could not provide an assessment.