

Attitude of Warsaw inhabitants and Polish public authorities towards climate change and adaptation

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Abstract: *Authors of the article try to answer the question whether it is true, that importance, knowledge about climate and readiness to act on climate change is rising in the Polish society? The analysis narrow the perspective to two target groups: local authorities of Polish cities having more than 50 thousand inhabitants and Warsaw citizens. Authors use the comparison between the results of first and second rounds of opinion polls among this target groups, that took place in 2014 and 2019 (local authorities) or 2016 and 2018 (Warsaw inhabitants). Opinion polls give a picture of target groups awareness about climate change. Results of analyzed opinion polls show considerable changes in the perception of climate change among target groups. Climate change and climate change action is much more recognized especially by local authorities, but Warsaw inhabitants also stopped having doubts about the climate. Both groups are ready to act more on climate, but they face troubles from other institutions, mostly national authorities. Local authorities call for more effective climate education in Poland.*

Key words: Warsaw, Adaptation Strategy, public opinion, climate awareness

1. Introduction

Awareness of climate change and support for climate protection is one of the most popular topics in public space nowadays. Since Paris Agreement was signed in 2015, and even more after COP24 round of climate negotiations in Katowice, many people publicly speak about their fear of the future of a mankind in the face of climate change. Streets of many cities are the arena of demonstrations for ambitious climate policy, not to mention Polish Youth Climate Strike on 15th March 2019 or global road blockades organized by Extinction Rebellion since 15th April 2019.

Awareness of climate change and support for climate policy is therefore under investigation of politics, business and scientists. One of the longest series of research in this respect is Special Eurobarometer "Climate change". It checks how important is climate change for European Union citizens and how much they personally do for climate. According to Special Eurobarometer research from 2017, Polish people were one of the least climate sensitive populations in Europe. In many characteristics measured with Eurobarometer Polish population was less sensitive than the average European. About 16% less Poles than European average, which was 74%, thought in 2017 that climate change is a very serious problem. Only 30% Poles declared, that they did something to save climate in last 6 months, whereas almost half Europeans, which was 49%, did it [11].

Research realized in 2018 by IKEA among its clients in 14 countries, where IKEA shops are present, has shown that Poland has the smallest group of people who actively support climate action. It was only 24% of the researched population. On the other side however, the same research has shown, that Polish citizens are on 4th place out of 14 in taking, maybe not fully consciously, climate friendly everyday activities. Poland has been worse than India, China and France only [7].

Already in 2018 research about Polish people ecological awareness realized for the Ministry of Environment as registered some positive move in the attitude towards climate change actions. The group of Polish citizens, who think climate change is important or very important has rose from 86% in 2014 to 91% in 2018. Also in 2018 a record number of 50% Polish people said, that Poland should reduce greenhouse gases from now on. In 2014 there were only 32% of Polish people thinking the same way, and earlier it was 42-43%. Between the same years climate change has moved from 5th to 3rd position among ecological problems, which Polish people regard as very important, getting 39% of choices. Earlier, in 2014 this problem was chosen only by 22% respondents [6].

2. Research subject and methods

All research results analyzed in this article have been done as a part of the project “Preparation of a strategy for adaptation to climate change of the city of Warsaw with the use of city climate mapping and with public participation – ADAPTCITY” [2]. They go deeper into the changes diagnosed in the studies mentioned in the introduction, but narrow the perspective to only two target groups: local authorities of Polish cities having more than 50 thousand inhabitants and Warsaw citizens. These are not just target groups, because they are very important ones. Examined local authorities are responsible for taking climate actions in 50 Polish cities, which are inhabited by ca. 10 million people, that is about 25% of Poland population. Warsaw citizens are the people, who are followed by others in the sense of well-being and success. If those two groups does not act climate-friendly, chances that we will make in in the whole Poland are small.

Research results come from three sets of separate opinion polls:

- Results concerning local authorities come from two polls realized chronically in October-November 2014 and January-February 2019. Polls were taken on the very similar populations dispersed in Poland. The population was local authorities, administration and institution directors. First poll from 2014 researched 300 people from 50 cities, and second poll – 253 people from the same 50 cities (except Lublin). Polls were realized with individual questionnaire interview [9, 10].
- Results concerning Warsaw inhabitants are taken from:
 - a) Quantitative polls realized two times in spring 2016 and 2018 on the population of 1100 Warsaw citizens aged 15 and older. It were Computer Aided Personal Interview (CAPI) polls. Questions concerning climate change were added to the bigger series of research which started in 2003 under the name “Warsaw Barometer” [5,8].
 - b) Qualitative polls realized two times in autumn 2016 and 2018. Those were Focus Group Interviews (FGI) polls, where Warsaw citizens took part divided in groups of 6-8 persons: youth, parents, seniors, representatives of building communes and city institutions [3,4].

Aim of each research was to assess the level of awareness of the respondents to the climate protections and adaptation to climate change. Local authorities were asked more about actions to protect the climate in the city and adapt the city to the climate change. Warsaw inhabitants were asked more about their attitude to selected actions that would adapt city to climate change. Comparison between the results of first and second rounds of polls give a picture of changes in people awareness. Is this true, as the ministerial opinion poll suggests, importance of climate change is rising, just as the knowledge about climate and readiness to act? We try to answer this questions in this article.

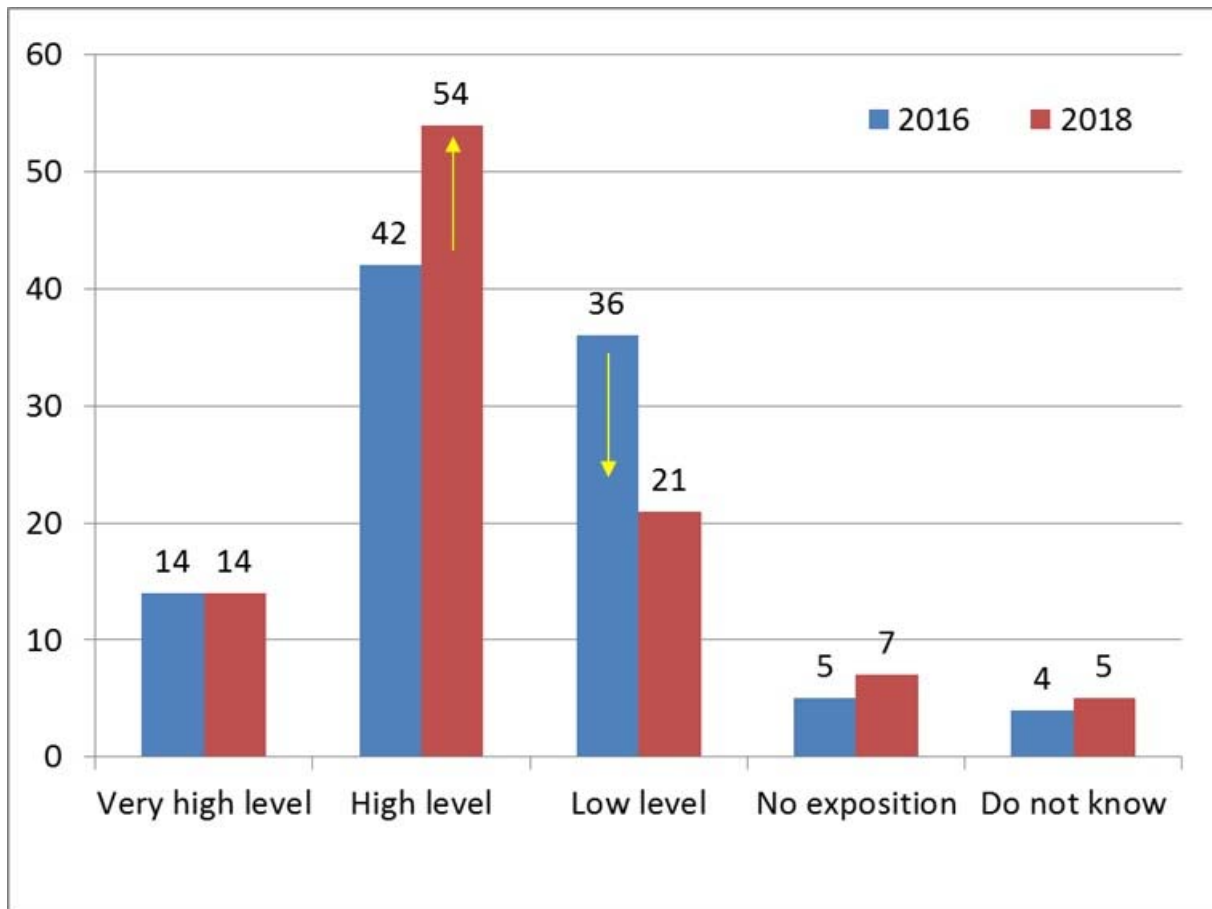
The team of Institute for Sustainable Development Foundation from Warsaw initiated, idealized and supervised all the described research. Polls aimed at local authorities were created in cooperation with Ewa Ryłko, the psychologist, who also interpreted the results. Quantitative polls aimed at Warsaw inhabitants were done by Warsaw subcontractors Danae Sp. z o.o. and Realizacja Sp. z o.o. Qualitative polls were done by ARC Rynek i Opinia Sp. z o.o. in cooperation with Institute for Sustainable Development Foundation team and Dorota Stempniak, an employee of Warsaw City Hall.

3. How do we learn about climate change?

Respondents, both local authorities and Warsaw inhabitants, when talking about sources of their knowledge on climate change, where mostly pointing out at mass media: TV, Internet, press and radio. This has not changed between the rounds of polls.

Among local authorities in 2019 the indicator „from talks with people and own observation” is higher, what can probably mean, that those respondents have an opportunity to experience phenomena connected with climate change. Somewhat weaker change in this respect can be shown in the qualitative research on Warsaw inhabitants. Quantitative research however, had a special question, that measured the declarations on exposition of the respondents to climate change. Results for this question show that the number of people, who declare that their level of exposition to climate change is very high or high (the sum of both possible answers) has risen considerably from 56% to 68%. This result has been shown on the figure 1.

Figure 1. Warsaw citizens opinion about exposition to climate change in 2016 and 2018.
(Source: Own study based on [5] and [8])



In the group of local authorities in 2019, much more frequently than in 2014, trainings are stated as a source of information. This indicates intensification of education efforts about climate change directed towards this target group – grown up local authorities representatives and employees of local administration.

4. Do we know more about climate, than before?

About considerable rise in knowledge on climate change already in 2018 we can learn from few different outcomes taken from each analyzed poll.

Perception of climate change

The first outcome touches upon change on perception of climate change. The change of perception has been reported in each research.

Let's start from the analysis of local authorities research. Respondents were to speak freely about the phenomena they connect with phrase "climate change" in 2014 and 2019. This exercise show that local authorities have very different perception of climate change now, than 5 years ago. Before, climate change were perceived mostly through global phenomena, which may occur on the other side of Earth (eg. glacier melting, volcano eruptions) and were described very generally (eg. general climate change, change in climate zones). Whereas, respondents in 2019 have totally different experience with climate change. They more frequently talk about severe weather, rising temperature, changes in seasons, heavy rains or hurricanes. They more often point out also smog and water scarcity. These are the opinion of people who experience climate change on their own in last few years. This perception is additionally confirmed with answers to questions about risks from climate change in the perspective of their own city. The most frequent answers are phenomena which can be directly observed and experiences in their city. Marginally global climate change phenomena were pointed out. The most important began to be local indicators: heavy rains and gales or longer drought periods. Probably because of the dry year 2018 floods are less popular answer. The picture of Polish cities is the one of flooded with heavy rains, but more prone to drought than river floods. In 2019 results smog appeared as a phenomena important for the cities. This results are shown on figure 2 and figure 3.

Figure 2. Frequency of cities authorities choice of global phenomena of climate change in 2014 and 2019.
(Source: Own study based on [9] and [10])

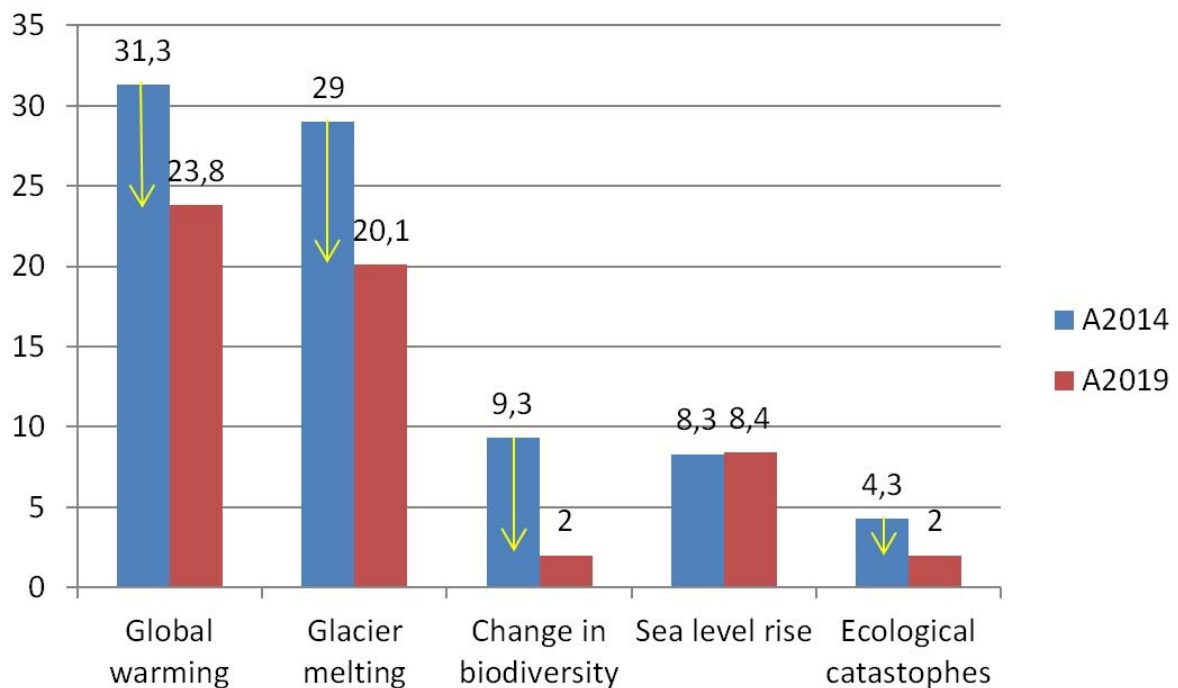
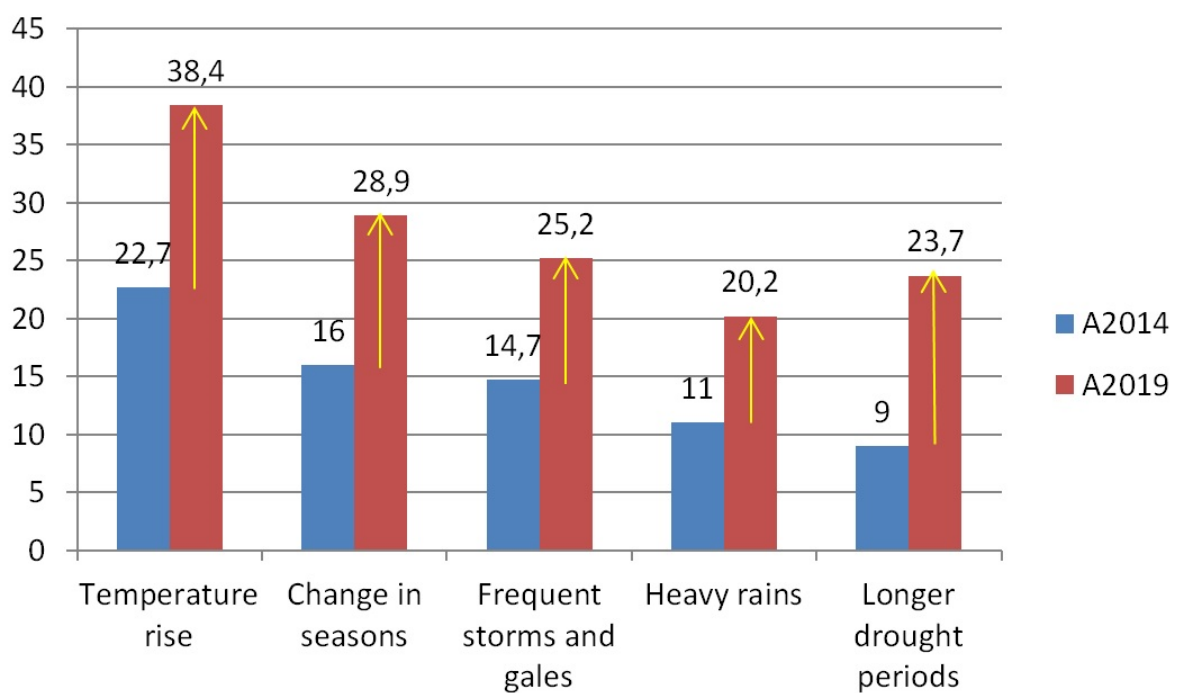


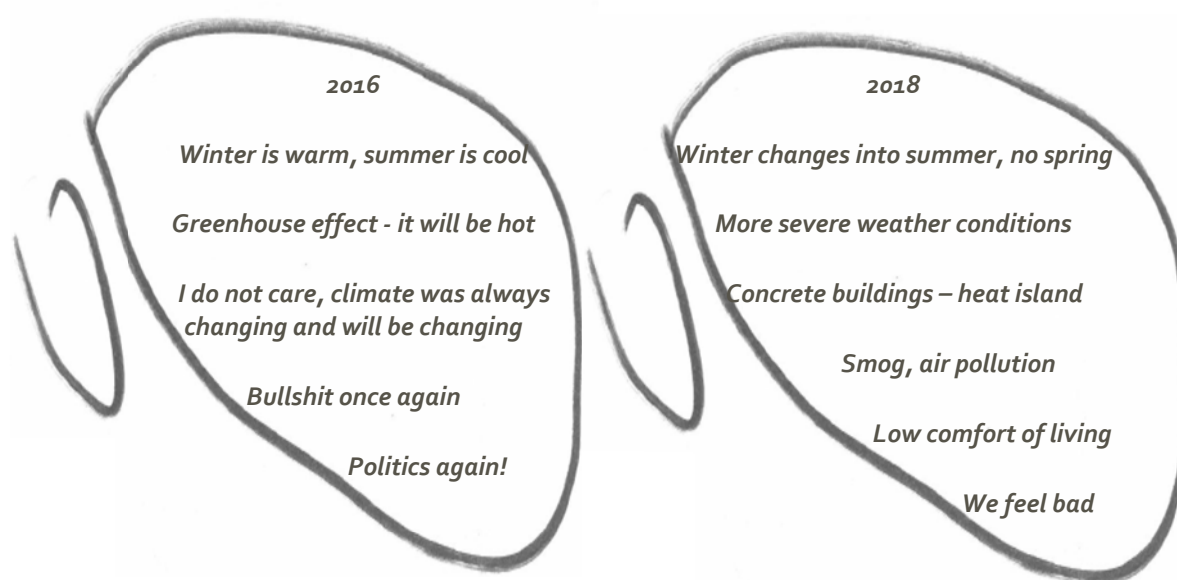
Figure 3. Frequency of cities authorities choice of local phenomena of climate change in 2014 and 2019.
(Source: Own study based on [9] and [10])



In the quantitative research on Warsaw inhabitants there is also a visible change in perception of climate change. It also becomes a more local problem. In 2016 the most recalled associations with climate change were global warming, rise of temperatures, heat waves, drought and water scarcity, greenhouse effect and ozone hole. In 2018 the most frequently named were drought, water scarcity, heat waves, rise of temperatures. In the line are also air pollution and smog. It is visible that less frequently global phenomena are recalled.

Similarly qualitative research among Warsaw inhabitants from 2016 were showing, that knowledge about climate change was uneven, often poorly established and needed more education (in each group of respondents). On the contrary poll from 2018 show, that Warsaw inhabitants taking part in the focus groups are able to find in their everyday life and observe many phenomena, which are connected with climate change. Loose of seasons (spring and autumn) is mostly remarked, just like weather extremes (heat, storms, gales) and all the anomalies of weather (eg. high temperatures in October). Phenomena remarked also as a climate change was higher level of air quality. Change in the attitude of Warsaw inhabitants really occurred – now most of the respondents does not have doubts about climate change and talk about adaptation to climate change as a serious problem to the city and its citizens. They also perceive it more locally, than globally. In connection with annoying everyday phenomena in city life, respondents do not negate climate change. It is a visible turnabout in comparison to opinions measured during earlier edition of the poll in 2016. This result have been shown on figure 4.

Figure 4. Perception of climate change in qualitative research in 2016 and 2018.
(Source: own study based on [3] and [4])



This considerable turnabout in perception of climate change in both target groups can be connected with a transition from theoretical to practical picture of climate change – from imagined picture of the changes (influenced by various sources of information) to the picture based on peoples own experiences and observations of nature around them. On one hand, it shows that Polish people sees climate change in everyday life and around themselves, on the other hand – that those changes really happen, can be easily spotted, named and recalled in the interview.

Knowledge about climate change

Second outcome is connected with getting more in depth knowledge on climate change issue. In each of researched groups between two analyzed periods a rise in the level of knowledge occurred, but it was different in depth.

The group of local authorities was asked separately about actions for mitigation and adaptation to climate change with the same cafeteria. When we compare the answers it is clearly visible, that much more expected segregations of the actions have been done by 2019 respondents. In 2014 local authorities were pointing out the same actions as mitigation and adaptation measures. Whereas in 2019 in adaptation they chose only actions that prevent (eg. better anti-flood measures), protect (eg. better crisis management services) or save (eg. water saving). Nevertheless in both groups of actions respondents pick up education about climate change as a

necessary complement to the investment measures. This visible distinction between climate change and mitigation in the answers is no doubt a sign of better knowledge, reflection and experience about climate change.

The group of Warsaw inhabitants in quantitative research there was a question about knowledge of adaptation measures. In 2016 about 89% of people asked were saying that they do not know of any measures, whereas in 2018 it was less people - 83%. However, in the category "I do not know, it is hard to say" the biggest rise occurred – from 3% to 8%. This may mean, that the knowledge was somehow delivered to the people, but it was not sufficiently grounded or understood. Especially, that the data shows in 2016 and in 2018 almost the same level of good knowledge, respectively 8% and 9%. The people who have shown good knowledge in 2016 were pointing out adaptation measures such as waste segregation, but in 2018 it was mostly use of renewable energy, replacement of coal furnaces, water saving. This results probably tell us more about the recent campaigns or actions taken by the city before the poll, than about the real knowledge of Warsaw citizens.

In quantitative research Warsaw inhabitants could not explain adaptation to climate change in 2016 and in 2018 still some people are not able to do this, but it is the smaller group. Actions undertaken by the city are perceived by the respondents as an answer to the ongoing changes (eg. hybrid buses, ring roads development, weather alarms, or water curtains, open swimming pools). There are explicit opinions that more actions like that should be realized. Respondents have in the 2018 poll enumerated many measures they would like to see implemented as adaptation to climate change. The most important needs concern protection of green areas and introduction of new plants, better rainwater management and circulation of the air in the city (eg. air ventilation corridors), as well as reduction of air pollution from cars in the city center. In the context of the certain adaptation measures the people were asked to assess, the most popular where ideas easy to implement and less expensive (eg. rain gardens, community gardens), as well as with fast effects (eg. public drinking water taps or water curtains during heat waves). Very positively people react on increase of greenery in the city.

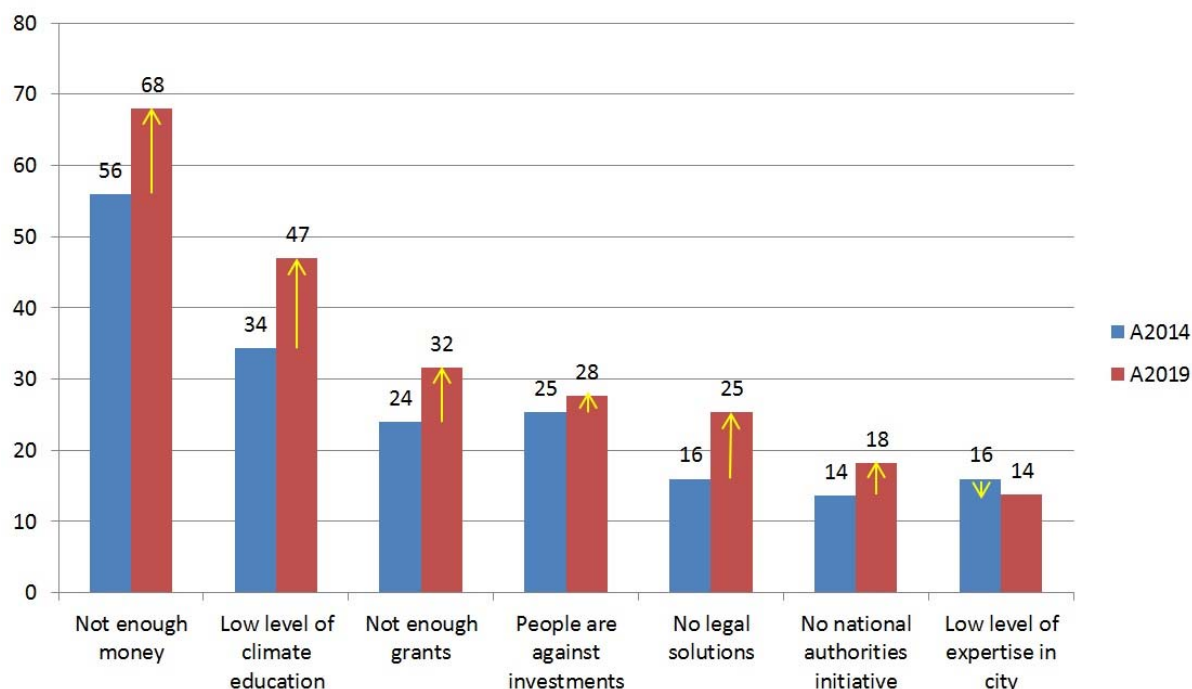
Perception of barriers to climate action

The third result is about the perception of barriers on the road to implementation of climate change mitigation or adaptation measures.

When local authorities were asked in 2019 to list barriers against climate action spontaneously they remind themselves mostly about human factor, what can be linked with many issues, especially lack of good will of inhabitants (eg. low level of ecological awareness, reluctance to investment). They remind also about the financial factor. The same barriers were associated by local authorities in 2014. Meaningful change in answers to this question took place by the issues "low expert knowledge in the city about climate change and mitigation". In 2014 this was pointed out as third in the importance by 15,7% of respondents. In 2019 this issue was pointed out only by 4% of respondents. All that were barriers in the general context.

Barriers perceived from the perspective of the certain city the people live and work in, are mostly the same as in general context – lack of finance (own city resources 56% in 2014 and 68% in 2019; EU grants 24% in 2014 and 31,6% in 2019) and lack of awareness of the problem (34,2% in 2014 and 47% in 2019). However, in comparison to 2014 the barriers are much more visible to the respondents. This may mean both: number of barriers has risen or their severity has risen in the situation when local projects are realized, in result the barriers are more often on the see. This result is shown on figure 5.

Figure 5. Cities authorities choice of barriers to implement actions against climate change in 2014 and 2019.
(Source: Own study based on [9] and [10])



The biggest deficiency is financial resources (also from EU) for investments of a different kind. Worth to mention is, that very enigmatic answer “money is needed for everything” (36,6%) that dominated in 2014, in 2019 is a very low percent of answers 5,5%. Local authorities are much more certain for what is the money needed, because they list investments such as replacement of coal furnaces (26,1%), thermal modernization of buildings (9,5%), water management (11,1%), sustainable transport (6,7%), communal heating systems (4,7%), renewable energy (5,9%). That is another proof of the thesis, that Polish cities do much about climate change, many things have been started and the appetite is growing.

Polish cities respondents on the lower level than 5 years ago complain about lack of experts and expertise in climate change. Besides cities authorities are expecting much more legal actions supporting climate action from the national authorities. This builds a picture of local managers, who know what they want, know how to make it, but wait for the good conditions and chances. That may be the reason to recall more often than in 2014, as one of the barriers, the trouble in cooperation between local and national authorities. This trouble may be inconsistency in decision-making, disagreement between institutions and decision making levels in the process of implementing climate actions. This is the additional indicator of action state – it shows again, that the cities take up many things for the climate and those disagreements and inconsistencies in cooperation of institutions and levels of decision-making are everyday hurdles in the practical city authorities job. This is the reflection of people who work inside this administrative machine. As they are in, they see shortcomings and opt for them to subdue.

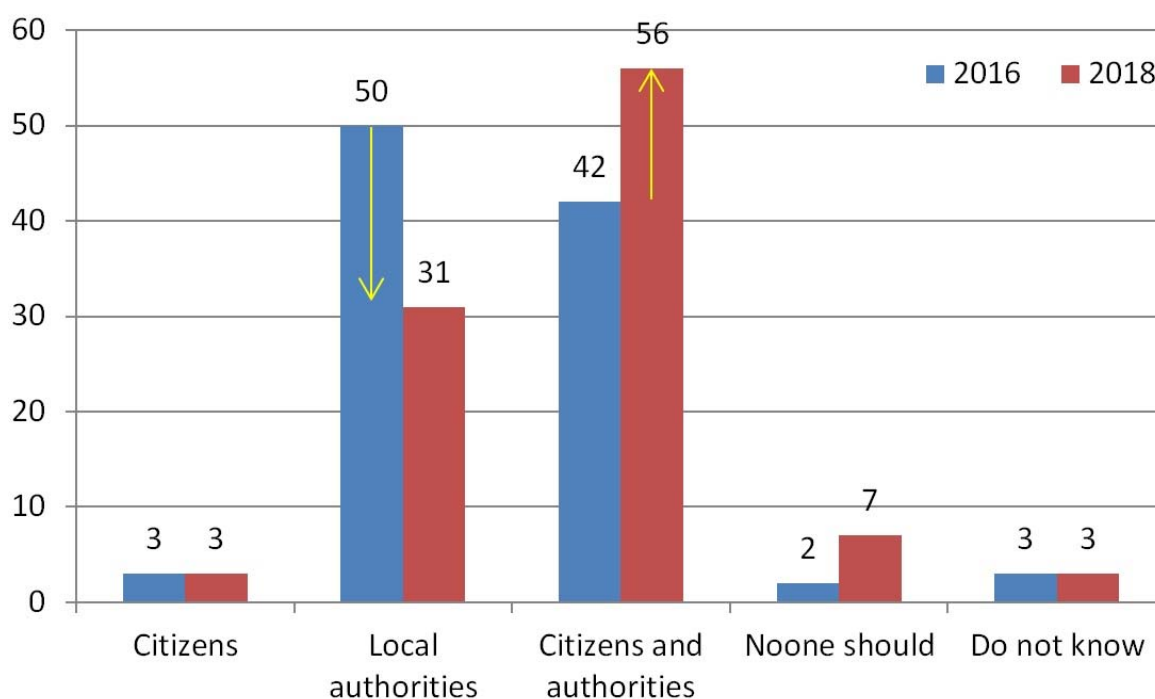
Barriers were not researched in quantitative research among Warsaw inhabitants, but they appeared in qualitative research. In the pool from 2018 respondents recalled postulates to ease implementation of measures aiming at mitigation or adaptation to climate change: less procedural hurdles, better communication and information, more cooperation between stakeholders and expert support (from the local authority also). This is a proof of barrier that are on the road to implement the actions. Such elements did not appeared in 2016 poll.

5. Do we want to act and how?

Results already described in this article shown, that local authorities are much more active in 2019, than in 2014, when implementing climate actions. There was a special question on this issue in the questionnaire about whom the respondents give the biggest responsibility for the climate action: mitigation and adaptation treated separately in this respect. This responsibility is assigned mostly to local authorities and citizens in cooperation in 2019. In comparison to 2014, this poll is more often certain that responsibility has to lay in both local authorities and inhabitants for successful cooperation in adaptation to climate change (67,7% in 2014 and 79,4% in 2019). This tendency is also visible in mitigation actions. That local authorities and citizens should both be responsible for mitigation, about 70% respondents pointed out in both 2014 and 2019 polls.

What is more interesting, that Warsaw inhabitants have more or less the same attitude in this respect. Quantitative research brings data to analyze it. The analysis show a significant turnabout in the inhabitants opinion in last 2 years. In 2016 most people – 52%, were saying that adaptation should be the solely local authorities responsibility, and only 42% said it is the common authorities and inhabitants responsibility. In 2018 this turned on the other side and 56% of inhabitants chose common responsibility of authorities and citizens, whereas only 31% solely responsibility of the authorities. This result have been shown on figure 6.

Figure 6. Warsaw citizens opinion about responsibility on actions against climate change in 2016 and 2018.
(Source: Own study based on [5] and [8])



In this qualitative research there more questions that could measure readiness to act on climate. One of them analyzed importance of the adaptation actions taken by the Warsaw City Hall. The respondents are for the opinion, that this is important or very important task of Warsaw City Hall. This attitude is taken by 69% respondents in 2018, which is 9% more than in 2016. About 11% less people has been in 2018 in the group of people having negative attitude (less important and not important at all).

There have also been a question about how confident the people feel about taking up climate actions – do they feel their actions may bring change? Positive attitude, that respondents can influence the reality by taking up climate action, is shown little bit more often in 2018 (67%), than in 2016 (64% - sum of “rather yes” and “yes” answers). More visibly the group of people with little confidence has fallen from 34% in 2016 to 27% in 2018 (sum of “rather no” and “not at all” answers).

In the focus groups Warsaw inhabitants (the groups of Parents, Seniors and Building communes) were showing readiness to cooperate in actions that could solve the problems stemming from climate change. Citizens are very keen on sharing their ideas, but they fell lack of motivation from the city, that could end up in realization of

certain measures or investments. They declare, that some responsibility to keep up of the local solutions can be placed solely on them. Nevertheless, such opinion did not appear more often between 2016 and 2018.

6. What is missing to act more effectively?

Earlier we have described important barriers in implementation of climate actions, but here is one more issue of a barrier kind, that remains on the high level of visibility to the respondents in each year. This is the ecological education, especially in the topic of climate change.

Local authorities asked for assessment of their citizens awareness of climate change and the importance is on the average level. Climate change in this opinion is perceived as being too away from the everyday life – the citizen life. Respondents reasoning behind this opinion is that people does not have knowledge about the problem, does not have access to good information and are not guided by responsible ecological education actions. In more extensive answers people were pointing out, that the education should be of a special kind – easy to understand, motivating people on the level adequate to the climate change and climate action progress. Issue of lack of proper ecological education was assessed more important in many different answers to the questionnaire questions. For example in the question about barriers in implementation of climate action in 2014 lack of climate change awareness was pointed out by 20,7% of local authorities, but in 2019 it was already 34,4% of this target group.

Similar opinion cannot be found in the polls realized among Warsaw inhabitants. It is understandable, that respondents would probably not be so bold to assess their level of climate education as moderate. Nevertheless the summary of qualitative research from 2018 brings about the following assessment that corresponds to the aforementioned opinion of local decision makers: *“Among most of respondents the most important attitude is that they do not have influence on climate change phenomena, such as rising air pollution or more severe weather events. Respondents do not feel the sense to gather information, which could not be used in real, effective actions. This is connected with low awareness between local impact and global change. In the opinion of city institutions representatives it is important to underline in the information materials the personal influence on climate change”* [4].

7. Summary

Last 5 years brought considerable increase in Polish local authorities and Warsaw citizens awareness of climate change and climate actions, both mitigation and adaptation. Probably this outcome can be linked to the projects realized in the field of climate change, such as ADAPTCITY [2] or 44MPA (44 Municipal Plans for Adaptation)[1], as well as COP24 appearance in Katowice however, this was not the subject of analysis in this article. Analyzed 3 results of researches show, that higher awareness in both target groups is seen mostly through the following changes:

1. Local authorities and Warsaw inhabitants have built themselves a complex and real attitude, based on the knowledge, own experiences and assessment of changes perceived in the environment. This attitude has developed from less complex opinion in previous years, based mostly on theoretical knowledge and assessment of other people, namely various experts.
2. There is an evidence, that mitigation and adaptation measures are much more correctly recognized in the group of local authorities in 2019, than in 2014. In the earlier poll respondents were pointing out the same actions as mitigation and adaptation. Warsaw inhabitants also have more knowledge about climate change, but it has not been so well understood, as in local authorities group, what can be a result of difference in sources of information available for both groups. Especially, local authorities declared in 2019 much more trainings about climate change, that they attended. Distinction between mitigation and adaptation measures is a visible proof of the rising knowledge level on climate change.
3. Respondents in both analyzed groups, are more up to the opinion that citizens and authorities have to work together to succeed in climate action. Answers from the authorities group build a picture of responsible local manager, who knows what he wants, knows how to make it, but waits for good conditions and opportunities. Those opportunities are not often open due to legal framework build up by national authorities, lack of financial resources and low awareness of citizens. Answers from the citizens proof that climate action is more important to them and that they feel more confident in taking up the action.

What have not changed in the attitudes is that local authorities are still opting for more responsible ecological education that would: be easy to understand and motivating to people on the level adequate to the progress of climate change and climate adaptation action.

Information about source of funding for the research

The described research have been realized during the project LIFE_ADAPTCITY_PL co-financed by LIFE+ European Commission instrument and Polish National Fund for Environmental Protection and Water Management.

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