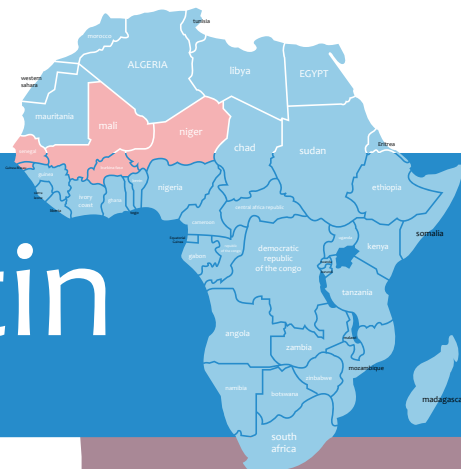




AKADEMIYA

The Expertise We Need. The Africa We Want.

Covid-19 Bulletin

Assessing community vulnerability to Covid-19 in the Sahel

John M. Ulimwengu and Julie Collins, Senior Associate Scientist, AKADEMIYA2063

The Sahel region of West Africa has long been subject to periodic food insecurity crises.

The spread of the Covid-19 pandemic in the region presents a new and worrying threat to food security. As for any shock, the effects of the pandemic will vary across locations. Moreover, early findings indicate that multiple factors determine which communities are the most susceptible to the spread and indirect effects of the pandemic. In this bulletin, we identify areas within four Sahelian countries—Senegal, Burkina Faso, Mali, and Niger—which are particularly vulnerable to negative impacts of Covid-19 on food security. We overlay indicators of food and nutrition security, health infrastructure and outcomes, and population density to create a composite indicator of overall community vulnerability.¹

Patterns of vulnerability in the Sahel

The composite indicator reveals that multi-dimensional vulnerability is highest in Burkina Faso, followed by Mali and Niger. Vulnerability is lowest in Senegal. The areas with the highest vulnerability levels compared to the regional average are the Plateau Central, Sud-Ouest and Centre-Sud regions of Burkina Faso, followed by several other regions of the same country. The highest-vulnerability areas outside of Burkina Faso are Tombouctou in Mali and Zinder in Niger. Most of the lowest-vulnerability areas are concentrated in Senegal, with Niamey in Niger and Bamako in Mali also ranking as much less vulnerable than the regional average.

¹ We define vulnerability as the propensity of an area to be exposed to the spread of Covid-19 combined with limited capacity to control the pandemic and care for infected people, as well as high exposure to negative food security impacts. For each sub-indicator as well as for the composite vulnerability index, we classify areas as “much less”, “less”, “more”, or “much more” vulnerable compared to the four-country Sahel average. For a more detailed description of the methodology, please see AKADEMIYA2063’s COVID-19 Bulletin 2, available at <https://akademiy2063.org/uploads/Covid-19-Bulletin-002.pdf>.

GETTING AHEAD OF THE CURVE

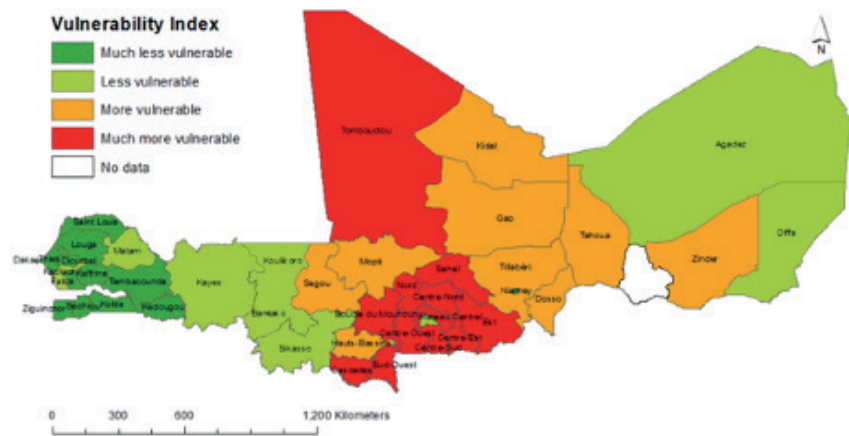
The Covid-19 pandemic has disrupted lives across the globe in just a few months. And yet, there are no effective vaccine or treatment to contain its spread. A very likely scenario for African countries is a continued battle with the disease over the next year at least, with steady spread of infections to larger parts of countries, including into more remote areas. While we are dealing with the immediate and multifaceted effects, we need to also look ahead to bolster preparedness to tackle the crisis in likely future hot spots. An important part of country strategies and readiness in fighting the pandemic is therefore to anticipate where the pandemic is most likely to spread and, more critically, where there is least capacity to absorb the shock if and when it hits.

Crises like the current one often only bring to the fore the manifestation of long term, chronic vulnerability. Most communities that bear the brunt of the suffering from crises are communities that have been plagued by chronic threats to their livelihoods long before the shocks occur. These pre-existing conditions erode the communities’ absorption capacity and magnify the impact of shocks. Early identification of such communities and a better understanding of the nature of their vulnerability, particularly with respect to specific shocks, in this case the Covid-19 pandemic, make it possible to craft response strategies long before the crisis hits.

In the current work stream of the AKADEMIYA2063 Covid-19 program, we rank communities across regions and countries against a range of key livelihood and threat indicators to determine the ones that are likely to suffer the most, should the pandemic reach them. The findings can help governments, non-state actor organizations and the development community to forge proactive responses to contain the propagation of the disease and mitigate its effects.

Ousmane Badiane, Executive Chairperson

Geographic distribution of community vulnerability to Covid-19 in the Sahel



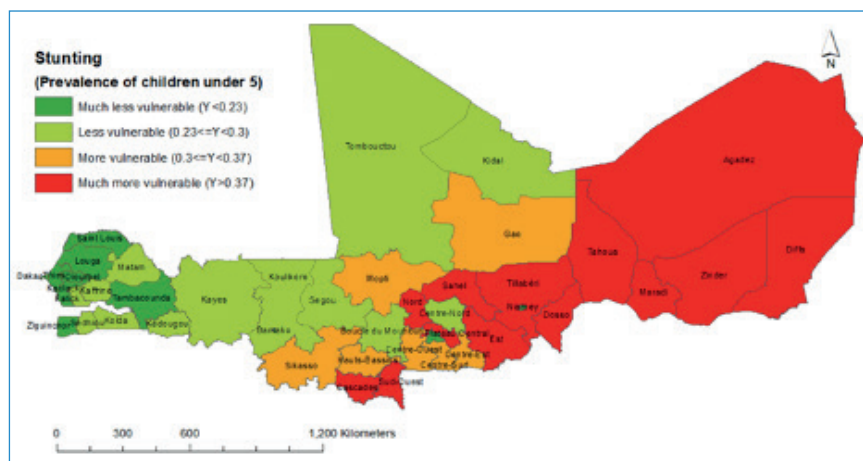
Nutrition and food security indicators

While the composite indicator helps highlight areas with multiple forms of vulnerability, it is important to look further at individual indicators to better understand the profile of individual communities and the factors contributing to vulnerability. Some areas are more vulnerable than the regional average on all or most indicators, but others, such as Niger's Agadez region and

Burkina Faso's Centre-Nord region, show sharply contrasting patterns across indicators.

Existing levels of malnutrition and food insecurity provide a strong indication of vulnerability to future crises. Three food security and nutrition variables are included in the composite vulnerability indicator: the prevalence of child stunting, average household food consumption expenditure per adult equivalent in US\$PPP, and the Harmonized Framework score. The Harmonized Framework is itself a composite indicator developed by the Permanent Interstate Committee for Drought Control in the Sahel (CILSS) and its technical partners (FAO, WFP and others) to monitor the current and projected food and nutrition security situation in the Sahel and West Africa. It includes dietary diversity, livelihood strategy changes, observed coping strategies, nutrition status, and mortality indicators.²

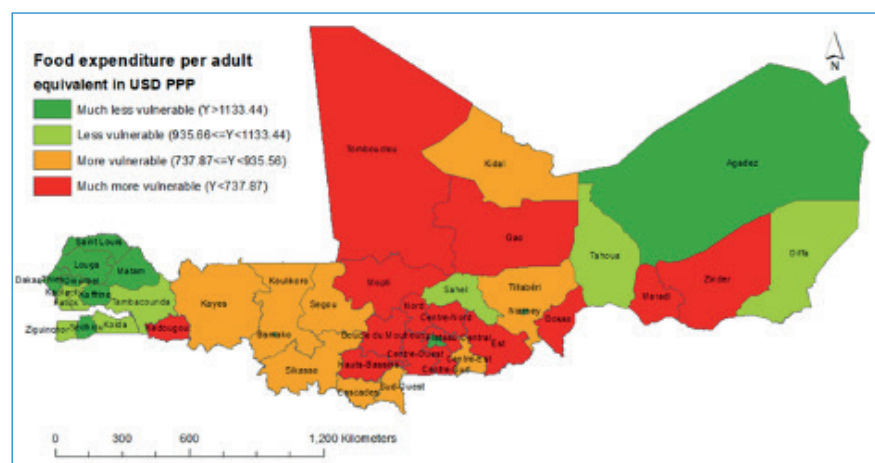
Nutrition status and Covid-19 vulnerability



The prevalence of stunting is notably higher in the eastern Sahel region than in the west, with the highest rates concentrated in Niger and the lowest in Senegal. Burkina Faso, in the central Sahel, tends to have higher-than-average stunting prevalence, with areas of lower and much higher rates. Pockets of lower stunting in Niger and Burkina Faso are located in urban areas (Niamey and Centre regions, respectively).

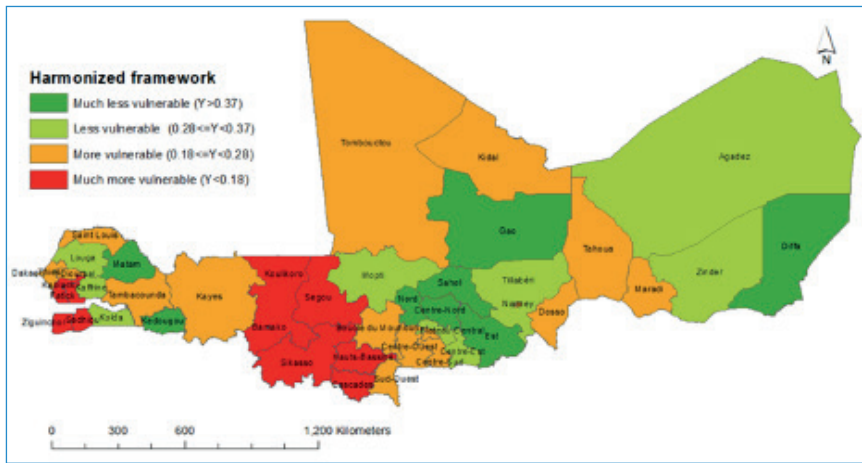
The highest vulnerability in terms of food expenditure is concentrated in Burkina Faso and Mali, with every region of the two countries except for Centre and Sahel in Burkina Faso and Bamako in Mali classified as more or much more vulnerable than the Sahel average. Pockets of high vulnerability are also found in Senegal and Niger despite their overall higher expenditure levels. The lowest levels of vulnerability with respect to food expenditures are in western Senegal, the Centre region of Burkina Faso, and the Niamey region of Niger.

Food consumption expenditure and Covid-19 vulnerability



² For more information, see the Cadre Harmonisé Manual 2.0, available at <https://www.cilss.int/index.php/2019/10/04/cadre-harmonise-manuel-version-2-0/>.

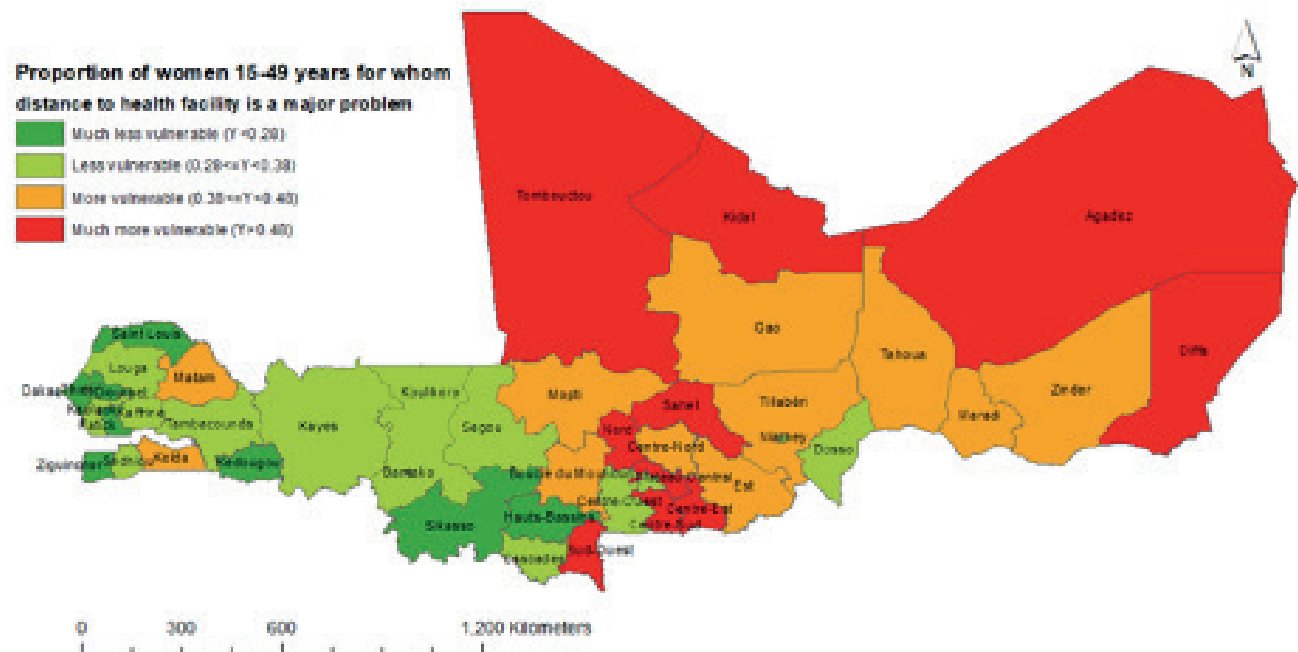
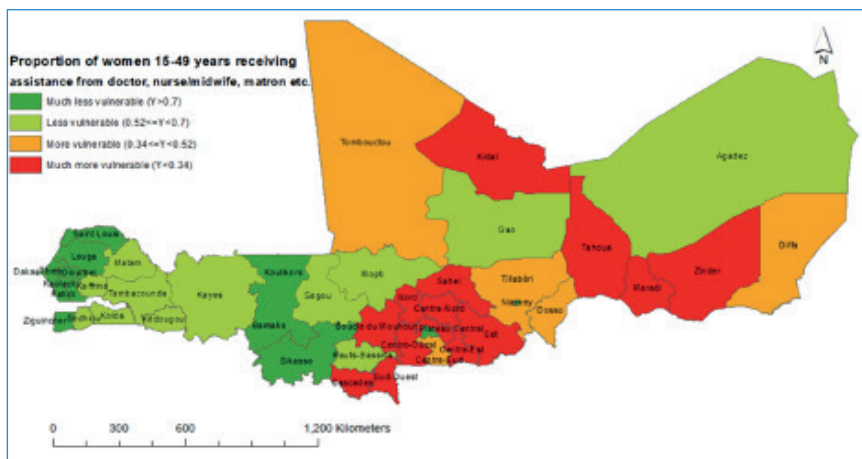
Food and nutrition security and Covid-19 vulnerability



Nord and Sahel regions in Burkina Faso and Kédougou region in Senegal. However, all four countries have at least one region that is much less vulnerable than the regional average.

Health infrastructure and access indicators

Access to health services and Covid-19 vulnerability

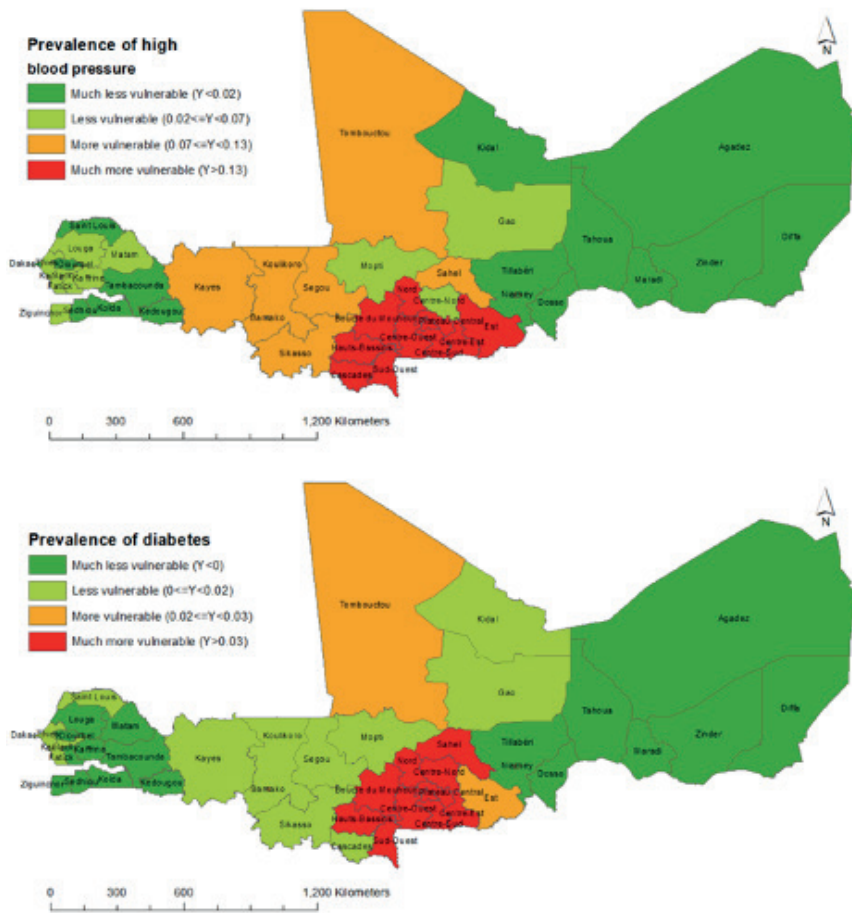


similarities in the distribution of access to health facilities and access to care by medical professionals. Most regions of Burkina Faso, western Mali, and Niger are more or much more vulnerable than the regional average with regard to both indicators. Some differences emerge as well, with several regions—for example Agadez in Niger and Centre-Ouest in Burkina Faso—rated as less vulnerable than the regional average for one indicator

The Harmonized Framework presents a contrast with several of the other component indicators, with several regions of Niger and Burkina Faso classified as relatively less vulnerable compared to the regional average, and with higher vulnerability in western Senegal and western Mali. The regions that appear the most vulnerable with regard to the Harmonized Framework are Cascades in Burkina Faso and Bamako and Sikasso in Mali. The least vulnerable regions are the Centre-

Limited access to health care is expected to increase the severity of Covid-19 impacts. We use two indicators as proxies to measure health infrastructure and access to healthcare: (i) the percentage of women aged 15-49 receiving assistance from a doctor, nurse, midwife or similar medical professional during childbirth, and (ii) the percentage of women aged 15-49 reporting that the distance to a health facility poses major problems. There are several

Disease burden and Covid-19 vulnerability



but much more vulnerable for the other. Both indicators show significant variation within countries, especially distance to health facilities.

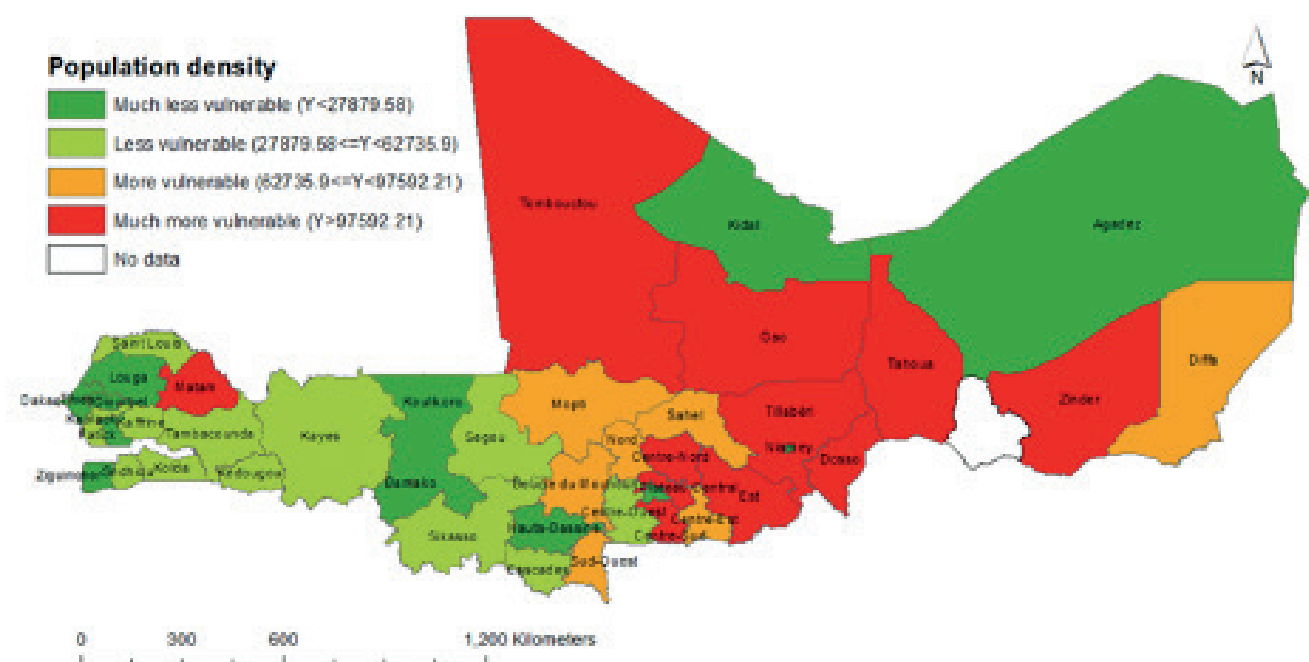
Disease burden indicators

In addition to health infrastructure and access, we also incorporate two measures of health outcomes: the prevalence of high blood pressure and diabetes. There is evidence that Covid-19 mortality is significantly higher among individuals with these and other pre-existing health conditions³, and areas with higher prevalence of comorbidities are expected to experience more severe impacts from the disease than other areas.

The distribution of vulnerability with regard to pre-existing health conditions in the Sahel is remarkably similar for the two indicators. Most regions of Burkina Faso have much higher prevalence of both diabetes and high blood pressure than the

regional average, while much lower rates are concentrated in Senegal and Niger. Most regions of Mali show higher than average rates of high blood pressure, and lower than average rates of diabetes. While we observe some variation in disease prevalence within countries—for example, Centre-Nord region in Burkina Faso has lower rates of high blood pressure than the regional average, while most of Burkina Faso has much higher rates—most of the variation in high blood pressure and diabetes prevalence appears between countries.

Population density and Covid-19 vulnerability



3 Centers for Disease Control and Prevention. 2020. “Evidence Used to Update the List of Underlying Medical Conditions.” 28 July. Available at <https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/evidence-table.html>

Population density

The final indicator included in the overall vulnerability index is population density in inhabited areas, which reflects the relative difficulty of maintaining the physical distancing required to slow the spread of the disease. Rather than measuring density based on the entire geographic area, we calculate the average density with respect to the inhabited area assessed using remote sensing. Areas of high vulnerability with respect to population density are distributed throughout the region, with each country having at least one location of much higher density and at least one location with much lower density than the Sahel average. However, Mali, Burkina Faso and Niger have the highest concentration of areas with much higher vulnerability.

In this bulletin, we examined the vulnerability of four Sahelian countries with respect to existing food and nutrition security, health access, health outcomes, and

infrastructure conditions. These factors are likely to raise the probability for a location to suffer more severe effects from shocks such as the Covid-19 pandemic. We find that vulnerable hot spots in the Sahel region are located in much of Burkina Faso, northern Mali, and southern Niger. National and regional decisionmakers should consider prioritizing these areas in the design of intervention efforts to mitigate the effects of the crisis on vulnerable populations.



Recommended citation: Ulimwengu, J. and Julie Collins. 2020. *Assessing community vulnerability to Covid-19 in the Sahel. Covid-19 Bulletin No. 10, October. Kigali. AKADEMIYA2063*

AKADEMIYA2063 is grateful to USAID for funding for this work through a Feed the Future grant with Policy LINK. Any opinions stated here are those of the author(s) and are not necessarily representative of or endorsed by AKADEMIYA2063.

a: AKADEMIYA2063 | Kicukiro/Niboye KK 341 St 22 | 1855 Kigali-Rwanda
p: +221 77 761 73 02 | p: +250 788 304 270 | e: hq-office@akademiya2063.org | w: akademiya2063.org