

## **Report of the Promoting Lung-Health using Safe, Clean and Reliable Energy sources (PLuS-CaRE) event that was organized to mark the World Lung Day (25<sup>th</sup> October, 2022) in Kano state, Nigeria**

### **Introduction**

I received an email on the 24<sup>th</sup> of June 2022 to apply for a Healthy Lungs for Life event grant by the European Respiratory Society office. Luckily for me, my application was successful after I received a congratulatory mail on the 22<sup>th</sup> of August, 2022. My Healthy Lungs for Life event titled, “The Promoting Lung-Health using Safe, Clean and Reliable Energy sources (PLuSCaRE)” took place on the 25<sup>th</sup> of September 2022 in commemoration of the World Lung Health Day.

The Promoting Lung-Health using Safe, Clean and Reliable Energy sources (PLuSCaRE) event was conceived with the aim encouraging local food vendors who own local restaurants in Bayero University Kano community to utilize clean and reliable cooking energy sources. The major aim of our talk was to increase awareness the negative impact of using unclean energy on their lung health via one-on-one, face-to-face campaign talks. The PLuSCaRE project also featured distribution of use of educative materials (FLYERS), one-on-one, face-to-face campaign talk, air quality measurement around cooking areas, distribution of information on printed leaflets for onward distribution to their customers, fixing of banners within premises, distribution of five pieces of 6Kg cylinder filled with liquefied petroleum gas (LPG)+ accessories to select participants well as distribution of other gift items such as face masks, face-caps t-shirts, and kitchen aprons branded with the theme of the project.

### **Recruitment and training of volunteers**

Prior to our event 12 volunteers were recruited from amongst students of Bayero University Kano. The volunteers were trained on the 24<sup>th</sup> of September at the conference room of the Physiotherapy Department, Bayero University, Kano, Nigeria. The training proper commenced with the introduction of volunteers to the project by indicating that it was a Healthy Lung for Life campaign funded by the European Lung Foundation. Thereafter, an introductory session on clean energy sources, as well as unclean energy sources and their impact on the lung health was given by the principal investigator using the information already printed on the flyers to demonstrate what was expected of the volunteers on the main day. The volunteers were asked to demonstrate what they had learn during pilot trials and were given the opportunity to ask questions and answers.

Finally, all participants (facilitators and volunteers) were provided with refreshments (drinks and snacks).

At the end of the training, each volunteer was given a Health Lungs for Life branded face-cap, several leaflets/flyers containing information about PLSuCaRE and a set of gifts comprising a cooking gas cylinder (2 per one), aprons, t-shirts. There was also a demonstration of using the LPG gas cylinders at the cooking spots. A token was paid to the volunteers to facilitate transport to event venue, and communication with the project principal investigator.



*Cross-section of participants (volunteers and facilitators) during the training and preparations for the event*

### **Printing of educative leaflets/flyers, and branding of gas cylinders, Kitchen aprons, face caps and other gifts items**

The principal investigator of the PLSuCaRE project and with the assistance of the facilitators produced and revised the content of the draft flyer for weeks ahead of the event proper. The final version was printed in form of educative leaflets. About 500 copies of the foldable colored flyers/leaflets were printed. 5 6kg LPG filled cylinders, 40 aprons 35 face-caps, 25 t-shirts where also branded with the Healthy Lungs for Life theme and the event acronym.



6. Produces high levels of PM2.5, CO and other health damaging pollutants such as formaldehyde, polycyclic aromatic hydrocarbons, sulfur dioxide (SO<sub>2</sub>) and nitrogen oxides above recommended levels

**CONSEQUENCES OF UNCLEAN ENERGY SOURCES ON LUNG HEALTH?**  
Here are some of the problems that can occur as a result of prolonged exposure to unclean energy sources

1. Aggravated respiratory disease such as emphysema, bronchitis and asthma.
2. Lung damage,
3. symptoms such as coughing
4. Wheezing,
5. Chest pain
6. Reduced resistance to infections
7. Risk for lung cancer

**DO YOU KNOW THAT?**  
\* Inhaling chemical-filled air with things like noxious gas, chlorine, cleaning supplies and more can lead to threatening lung diseases.  
\* Lung tissues can collect dust and particles over time

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which ends up injuring the airways.  
\* Burning gasoline releases several harmful chemicals, one of which is carbon monoxide.  
\* Carbon monoxide is a colorless, odorless gas that can be deadly when a person inhales it in high concentrations or for a prolonged period of time.

**WHAT CAN I DO TO PREVENT THE PROBLEMS ASSOCIATED WITH USING UNCLEAN COOKING ENERGY SOURCES?**  
\* USE clean cooking sources  
\* Avoid using unclean cooking sources like charcoal, tyres, etc.  
\* Avoid smoke associated with cooking, especially in an enclosed setting, including the "so called" smokeless stoves.

**WHAT IS THE QUALITY OF AMBIENT AIR QUALITY THAT IS RECOMMENDED?**  
The World Health Organization recommends an annual mean concentration of PM2.5 not exceeding 5 µg/m<sup>3</sup> and NO<sub>2</sub> not exceeding 10

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**PROMOTING LUNG-HEALTH USING SAFE, CLEAN AND RELIABLE ENERGY (PLUS-CARE) PROJECT**

The PLUSCARE (2022) project sponsored by the European Lung Foundation, which is a non-profit organization founded by the European Respiratory Society under the Healthy Lungs for Life campaign

**HEALTHY LUNGS FOR LIFE**

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**INTRODUCTION**

Indoor smoke is a serious health risk for some 2.4 billion people who cook and heat their homes with biomass, kerosene fuels and coal. In many developing countries including Nigeria local food vendors form an integral part of the food supply chain and have contributed immensely to both human and economic development. Food vendors can be found either on the street, construction sites, institutions, markets, schools, etc. Their trade offers a cheap, easily accessible meal option for many individuals who rely on them for freshly cooked food. Unfortunately, a significant proportion of these food vendors utilize solid biomass for cooking. Moreover, the cooking-energy market in Nigeria is dominated by wood, charcoal and traditional-stoves.

Exposure to air pollution especially, household air pollution (HAP), has many substantial adverse effects on human health. Air pollutants contribute to onset and can induce acute exacerbation of chronic respiratory diseases, thereby increasing morbidity and mortality rates. In order to reduce the detrimental effects of air pollution, people especially those with or at risk of chronic respiratory diseases should be aware of air quality and take extra measures such as reducing the time spent around outdoor smoke and wearing masks when necessary. For reducing the air pollutants indoor, the use of clean fuels and stoves that burn fuel more efficiently and vent emissions to the outside are used.

Currently, due to the climate impacts of deforestation and cooking emissions, a number of international organizations have recommended measures including use of healthy cooking fuels such as

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liquefied petroleum gas (LPG) cookstoves. However, there seems to be little focus on the impact of clean cooking energy on lung health. Hence, many local food vendors may remain unaware of the immediate and long-term dangers of exposure to unclean cooking emissions to their lung health. This project was conceived to create awareness and encourage local food vendors within the Bayero University community to adopt a safer, cleaner and more reliable source of energy with the aim of promoting lung health.

**THE PLUS-CARE PROJECT**  
The Promoting Lung-health using Safe, Clean and Reliable Energy sources (PLuS-CaRE) project will take place on the 25th of September, 2022. The target beneficiaries of the project will be local food vendors in the Coke Village Market within the new campus of Bayero University, Kano (BUK), Nigeria.

**EXAMPLES OF CLEAN COOKING ENERGY SOURCES?**

1. Liquefied Petroleum gas,
2. Biogas
3. Electricity (hot plate)
4. Ethanol

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**EXAMPLES OF TRADITIONAL/UNCLEAN COOKING ENERGY SOURCES?**

1. Wood
2. Charcoal
3. Animal dung
4. Straw
5. Leaves
6. Kerosene
7. Plastic
8. Polythene
9. Paper
10. Saw dust

**WHAT ARE THE RISKS OF USING UNCLEAN ENERGY SOURCES FOR COOKING?**

1. Air pollution (including from unclean cooking sources) currently ranks fourth among major risk factors for global disease and mortality and it is the single most important adverse environmental health risk
2. Accounts for about 4.3 million premature deaths annually especially in low and middle-income countries (LMIC)
3. Outdoor and household air pollution together accounted for approximately 12% of all deaths in 2019.
4. Can cause lung diseases such as pneumonia (in children) and non-communicable cardiorespiratory diseases in adults
5. They emit high levels of pollutants such as fine particulate matter (PM2.5) and carbon monoxide (CO)

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*Pictures showing the leaflets/flyers and branded face-cap, and air quality meter that were used for the events*



## Main event

The main event took place on Sunday 25<sup>th</sup> of September 2022 at the Coke Village Market of the New Campus of Bayero University Kano, Nigeria. Since the event was also in commemoration of the World Lung Day, our event banners and other event items also reflected these wordings. Volunteers arrived the venue of the event shortly after midday when the market had more traffic. They proceeded to all the restaurants in the market as instructed by the facilitators. Here, each volunteer then took their time to explain the objective of the campaign, the importance of using clean cooking energy, and also highlighted the dangers of using unclean and unsafe energy sources on the lung health. The volunteers were also tasked to measure the air quality of the cooking areas again. Thereafter, they proceeded to distribute all the branded items, accordingly.







*Pictures showing volunteers and facilitators and select beneficiaries during the PLuSCaRE event (see distribution of LPG cylinders)*

### **Dissemination and sustainability of the PLuSCaRE project!**

The PLuSCaRE project successfully created awareness to all the direct beneficiaries present at the coke village market on the day. The facilitators, volunteers' other onlookers and even the target indirect beneficiaries of the event (that will continuously see our project banners and flyers) subsequently. Those who received (especially the 6kg filled cooking cylinders) were very excited. And those who didn't receive them wished such opportunity would present itself in the future. The event was covered by a Premier Radio Kano (<https://zeno.fm/radio/premier-radio-kano/>) and broadcasted in the news in Hausa language. The principal investigator, a facilitator (medical doctor) and two direct beneficiaries were interviewed (see attached audio clips). The Bayero University weekly Bulletin also covered the event. Finally, a social media post containing some

pictures and videos were uploaded onto the Facebook account of the grant recipient, with the European Lung Foundation tagged in the post (<https://web.facebook.com/jibrin.mohammed.33>). There is a need to continually create and enhance awareness among local food vendors using projects like PLuSCaRE with a view to achieving better lung health.

### **Acknowledgements**

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