



SMOKELESS KITCHENS REPORT

April - December 2019

The present report complements the previously posted **Annual Report of 2019**, but focuses only on the **implementation of the smokeless kitchens (SLK)**.

The Awasuka Program has been promoting safe houses in rural areas of Nepal since 2011. It has developed projects related to water, health and earthquake-resistant houses. Its “confined concrete block” prototype was approved by the NRA and its own “retrofitting system” was successfully implemented and accepted by the local communities.

However, during the course of these projects, a far more serious problem was discovered: **indoor air pollution (IAP)**. While the earthquake killed 9000 people in 2015, toxic gases in the kitchens kill prematurely 24.000 every year and 226.000 have pathologies related to toxic fumes’ inhalation, women and children being the most affected. (WHO 2019). The program was resilient and by 2016 incorporated smokeless kitchens’ installation as a response to the high prevalence of upper respiratory diseases caused by the use of fossil fuels for cooking and the lack of adequate ventilation.

Apart from good health and wellbeing (#3), the smokeless kitchens provide positive impact on other **SDGs** (United Nations’ Sustainable Development Goals): poverty reduction (#1), gender equality (#5) and climate action (#13).

IMPLEMENTATION

1. Smokeless Kitchen Design

The smokeless kitchen (SLK) we are installing consists of a stone and mud improved cooking stove (ICS) at the base (3) and an upper metal chimney-hood (CH) (1+2). The operation of this set is highly optimized: **more than 90%** of the **indoor smoke** is expelled to the outside, creating a clean and healthy environment inside, where mothers and children can cook without suffering the effects of the smoke in their health.

This model was designed 10 years ago by **Bundeswehr University**, Germany, in collaboration with **Bosch-Siemens**. It was tested in the field for 1 year, after which it was adjusted and perfected according to the local user’s feedback.

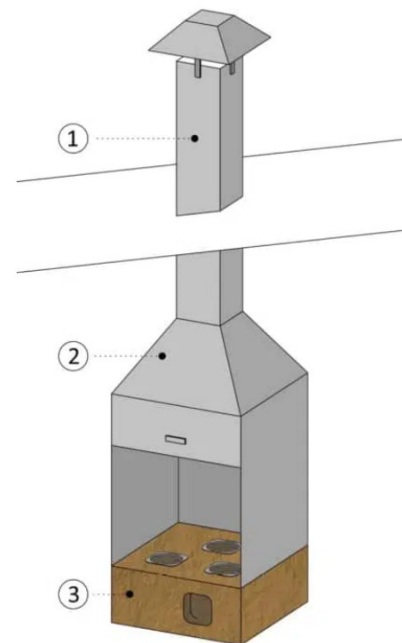
2. Location and Dates

Awasuka Program, in partnership with Rotary Club of Kantipur and Practical Action, implemented through Amics del Nepal, Base-A and CCD-UPC University, concluded the SLK project by November 2019, within Bhimpheedi Gaupalika (Bhimpheedi Rural Municipality). The preparation works started early April and the construction process in May 20th. The first construction stage ended in September 25th – just before Dashain holidays. The second one took place after Tihar holidays: the last SLKs were installed in Ipa-Panchakanya, a remote area which was unreachable during monsoon period.

3. Installed Units & Beneficiaries

The first construction stage included **297** installed SLKs and the last stage included **36** social ones in vulnerable communities, meaning that they were fully covered by the Program. Once the last stage was finished, the grand total of installed SLKs was of **333** units, all of them within Bhimpheedi Rural Municipality, completed in a total working time of **5 months**. During this time, the local organization **MRC from Hetauda** was doing the verification process for Practical Action and Awasuka.

This means that **333 beneficiary families**, equivalent to about **1700 people**, will have a **cleaner cooking environment** from now onwards.



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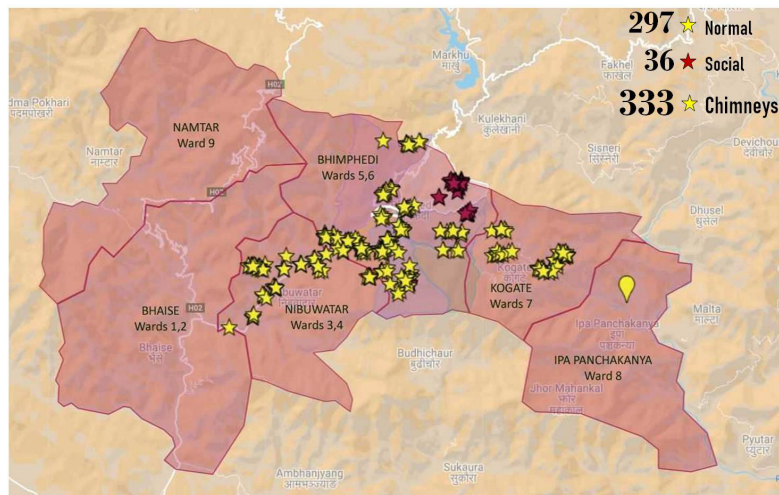


4. Location Map

Awasuka has recorded the **locations** of all the installed **smokeless kitchens** on a **MAP**. This is useful for many different purposes:

- to **visualize** the installed SLKs and note their remoteness degree
- to **scout** the populated remote areas where SLKs are still missing
- to prove the **enormous efforts** required to **reach these remote areas** in order to conduct different local managing and mobilization tasks: awareness sessions, beneficiaries' registration, materials' transportation, SLKs' verifications... Mr Hareram Pudassaini, our local manager, has traveled to all these remote areas at least thrice for all the mentioned matters.
- to confirm **the difficulties of the installation process**. Mr Bhume Lama, the SLKs' manufacturer, manages the whole process: materials' purchase from nearby providers, CHS' manufacture in Bhimpheedi's workshop, materials' transportation to the different households and eventually the SLKs' installation by his specialized mistris.

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5. Cost Funding

The cost of the SmokeLess Kitchens was covered 45% by Practical Action, 45% by Awasuka and 10% by the users themselves, which means that each user contributed with 1000NRS to the final cost to create ownership (as cited earlier). However, during the last stage -Ipa Panchakanya- the cost was fully covered only by Awasuka and the users, as Practical Action did not participate anymore in the program, due to internal changes in the INGO. Nevertheless, they continue to support the program in other ways.

Awasuka has collaborated with 1.000NRS per SLK for the **36 Social Chimneys** (as mentioned earlier) that have been installed in **poor areas**: Kitvanjhang, Ullaghari, Kaphalchur and Mathillo Suping, This amount is the user's contribution, which yields 36.000NRS.

The beneficiaries were from vulnerable communities, so they could not afford to pay 1000NRS for a SLK, which is what regular beneficiaries pay as a contribution to the cost - to create an ownership.

AWARENESS RAISING

1. Smokeless Kitchens Benefits

The Women Cooperative was our best partner to locate our beneficiaries: they facilitated Awasuka to accompany them in their money collection meetings, held at the different wards of Bhimpheedi. It took one whole month to cover all the wards of Bhimpheedi Gaupalika. For the sessions, the social mobilizer used different materials: videos, a presentation (A3 format cardboards) and also some humorous skills to attract people's attention with some theater activities. Art is always a good companion in these kinds of events, as it expands the impact of messages through emotions. Awasuka conducted awareness sessions as well in local schools, health centers and other interested organizations. Some of the materials used can be found in our website: <https://awasuka.org/en/cuines-sense-fum/>

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Awasuka social mobilizer explaining the benefits of chimney hoods and water treatment.

2. Water Treatment

Taking advantage of the awareness meetings organized for the SLKs, Awasuka Program also gave some training on how to purify water in order to make it safe for drinking. The easiest system in rural areas is to use Piyush (chlorine) to disinfect drinking water: only 2 drops in a liter make water safe after 30 minutes. This is what all Awasuka cooperators use as well while working in the field.

The awareness sessions were conducted with **Water Paani song** and the presentations related to it. Music and Images contribute to remember new knowledge efficiently. These learning activities are included within the **STEAM** educational initiatives: Science, Technology, Engineering, Arts and Mathematics. More information on these activities, as well as the song's video, can be found in our website: <https://awasuka.org/en/aigua-de-beure/> Presentation, Lyrics, Chords and Audio tracks can be downloaded from the website as well.

1. WATER CYCLE & HUMAN BODY

"WATER PAANI" SONG LYRICS

1st VERSE:

Water is something that we need for *living*,
It's good for our *body*, it's good for our soul,
Water starts flowing when the *skies* do their draining,
And runs *through the valleys* like fresh liquid gold.

"WATER PAANI" ACTIVITY

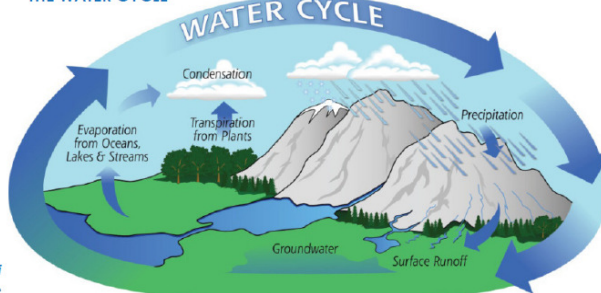
The social mobilizer shows a slide with the 1st verse of *Water Paani* lyrics and plays it - he has separate audio files for each part of the song. Then he talks about the two main topics mentioned this verse: the benefits of water in human body and the water cycle. Following, he organizes interactive activities and games related to these topics, with the help of slides and cardboards where all the information is displayed. At the end he plays the 1st verse again and they sing it all together. This time, the audience relates the lyrics of the song to this recently acquired knowledge. It will remain fixed in their minds.



Water Paani_01-Cut.mp3

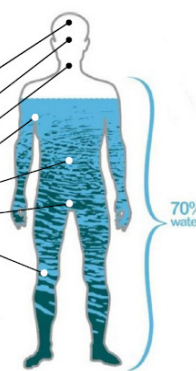


THE WATER CYCLE



WATER BENEFITS IN THE HUMAN BODY

- Needed by the brain to manufacture hormones & neurotransmitters
 - Acts as a shock absorber for brain and spinal cord
 - Forms Saliva (digestion)
 - Regulates body temperature (sweating & transpiration)
 - Converts food for survival (digestion)
 - Flushes Body waste, mainly urine
 - Lubricates Joints
- Water is the major component of most body parts:**
- Helps deliver oxygen all over the body
 - Allows body's cells to grow, reproduce and survive
 - Keeps mucosal membranes moist



English version of one of the slides of Water Paani activities, related to the first verse of the song.
The slides used in the communities are in Nepali

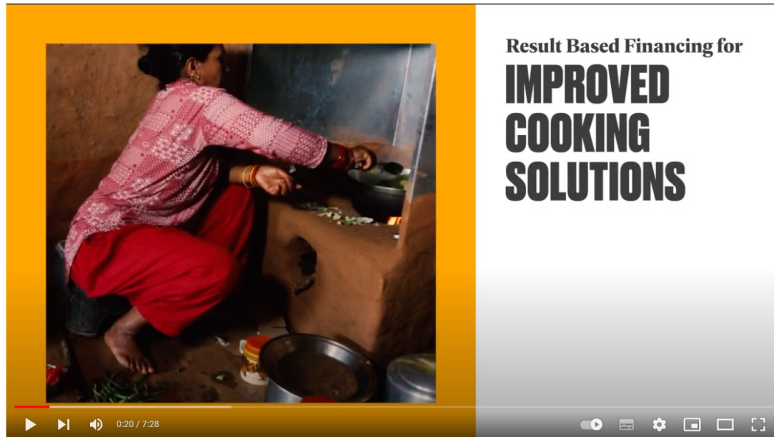
3. Video by Practical Action

Practical Action hired Onion Films Production Company to prepare a video about the clean cooking solutions they had been fostering for the last 5 years in different districts. Awasuka Program was featured in it, mentioning the hood-stoves installed in Bhimphedi, Makwanpur. The video was shot in English, for western countries' awareness raising: <https://www.youtube.com/watch?v=LCTli8Fa8aI>

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Practical Actions video about Improved Cooking Solutions in Nepal

4. Videos by Awasuka

Awasuka Program shot two different videos with its local manager Mr Hareram Pudassaini interviewing a hood-stove manufacturer and some of the first beneficiaries in Bhimphedi. The goal of this video was to dispel the doubts many people had about these stoves: how they work, how the roof leakages are prevented, which are the major advantages, etc... The videos were shot in Nepal, for local communities' awareness raising: <https://www.youtube.com/watch?v=M5zO71zxAQ4> (Long Version)
<https://www.youtube.com/watch?v=Ee9i2ZuGKDY&t=s> (Short Version)



Two different images of the local awareness videos, where the manufacturer and the local manager explain the different features of a hood-stove kitchen and its benefits.



MONITORING

1. Third Party Assessments

Subarna Consultancy, a third party consulting company, was hired by Practical Action to perform a survey within a wide span of different types of Clean Cook Stoves users, all fostered by Practical Action. After being asked about these different clean cooking systems, the majority of respondents concluded that Hood Stoves (ICS + CH = Improved Cooking Stoves + Chimney Hood) are one of the best ways to eliminate the toxic smokes while cooking. These results only reaffirm us in our project, as all the users coincided in recognizing: smoke reduction, fuel efficiency and safety.

Relevance of cook stoves to target beneficiaries	
Portable cook stoves	Hood stoves
<ul style="list-style-type: none"> Remains a secondary stove in most households, stove stacking was found common (seasonal variation in use in terai and mountain, no ethnic variation) Portability frequently came up as the most valued attribute Other perceived benefits: Cleanliness, fuel efficiency, health benefits (primarily because it can be cooked outside) Feedback: Difficult to start a fire, ashes falls on the floor and makes it dirty; need to cut firewood into smaller pieces 	<ul style="list-style-type: none"> Primary cook stoves in majority of the households Smoke emission reduction is the most valued stove attribute Other perceived benefits: smoke emission reduction, clean kitchen, safety, room heating, fuel efficiency Feedback: Difficult to start a fire ; when more wood is inserted, fire comes out from the inlet; wood inlet is too small, its difficult to take out charcoal and ashes from the stove.
Discounted price: <ul style="list-style-type: none"> NRs. 3000-650 	Discounted price: <ul style="list-style-type: none"> NRs. 1000 – 5000

A page of Subarna Consultancy's Evaluation Report, presented in September 2019 at Practical Action's Workshop, held in ShangriLa Hotel, Kathmandu.

2. Awasuka's own Assessment

Awasuka performed its own survey amongst its beneficiaries about the SLKs use. The survey also included some questions about water treatment. Mr Hareram tried to call all 297 beneficiaries, as it is important for the program to be able to measure its impact. However, for a number of reasons (not having telephone, changing the number, illiteracy, etc...), only 228 users responded. These issues are frequent in rural areas and we are working on its betterment. These were the questions asked:

Hood Stove (SLK) <ol style="list-style-type: none"> 1. What is your opinion about the chimney: are you satisfied with it? 2. How has your health improved after cooking with the chimney? What problems did you have in the past that you are not suffering anymore? 3. In which percentage are you using the chimney in your daily cooking? 4. Post-Sale Service: Do you know the maintenance contact person and number, in case anything happens to your chimney? (*)
Water Treatment <ol style="list-style-type: none"> 5. How do you feel after some months using Piyush? 6. Is your bottle finished? 7. Are you planning to keep on using it? 8. Do you need a second bottle of Piyush? 9. Are you satisfied with Piyush and tell other people about it? 10. If you need another bottle, have you called Mr Sunil Jha from Bhimphedi Medical Shop? (**)

(*) Note on **question 4 Post-Sale Service**. Mr Bhume Lama, the SKL manufacturer, trained some local persons to install and maintain the smokeless kitchens. This was part of his training with Practical Action: apart from manufacturing smokeless kitchens himself, he also trains local people to do it, to become locally self-sustainable. But it was not sure all the beneficiaries got the message, so we added this information to our survey and gave this person's telephone number.

(*) Note on **question 10**. This question was done on a double purpose: to let people know where they could buy more Piyush bottles, and also to put some pressure on the local medical shop to have Piyush available.

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The survey's results were very satisfactory: 100% of the beneficiaries accepted these hoodstoves very positively, as they adapt to their traditional way of cooking and it gets rid of 90%+ of the toxic gases. Additionally, all users also agreed that these stoves allow them to save time during firewood harvesting and during cooking activities. This is because the improved cooking-stove is very efficient and uses 40% less firewood than an open fire.

3. Practical Action National Workshop

Practical Action organized a National Workshop at the end of their Clean Cooking Stoves Program. Since Awasuka had been one of their partners, the team attended the event: Mr Hareram Pudassaini, Mrs Monica Sans, Mr Bhume Lama from Awasuka, and Mr Prabhat Yonzon, as Rotary Club of Kantipur representative. It was very interesting and fruitful for all attendees to see Practical Action program's results and to meet people from different institutions and organizations, all involved and working on Energy alternatives.



Awasuka Team attending the Practical Action National workshop in September 2019, titled: Clean Cooking Solutions For All. ShangriLa Hotel, Kathmandu.

CONCLUSIONS

At the end of 2019 Awasuka Program is very pleased with the achieved goals, especially relating to the 333 smokeless kitchens. In only 5 months the Program was able to impact positively the lives of almost 2000 people, a much higher impact than the one achieved on the reconstruction side in the last 2 years. This point should be highly valued: it deserves special treatment and deep reflection.

From 2020 onwards, Awasuka will analyze its continuation. This program is the result of the joint work of many forces and, at the present moment, new alliances need to be formed.

ACKNOWLEDGEMENTS

Awasuka Program wants to thank Amics del Nepal, base-A and CCD-UPC, as developing entities; Rotary Club of Kantipur as implementing Partner in Nepal; Practical Action as collaborator and advisor, all the individuals who have worked for this program in a volunteer basis, and all the funding entities for their trust and dedication for this program.

* * * * *

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Smokeless Kitchens Manufacturer: Bhume Lama, Lama Metal Seat

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