

## Key messages and conclusions

### Conference on Open Burning of Agricultural Residues in the Himalayan Region

Kathmandu, Nepal, 20-21 February 2015

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The Conference was organized by ICCI and ICIMOD as part of the CCAC Agricultural Initiative's project "Mitigation of emissions from Open Agricultural Burning in the Himalayan region".

The objectives of the conference were:

- Characterizing burning using completed mapping combined with regional expert input: who burns what, where and why
- Identifying potential mitigation options and barriers
- Identifying key actors and stakeholders as well as establish partnerships
- Help in raising regional awareness of the impacts and importance of open burning and the general work of the CCAC in the region

The results of the conference will primarily be used for designing at least two local pilot projects in the region demonstrating alternative methods to burning, in a fashion that allows broad action in the region and scaling up of the methodologies demonstrated; as well as creating a regional network of those interested in addressing the issue.

The conference successfully addressed all of these objectives and there was general consensus on the conclusions drawn at the conference. A total of 54 experts, scientists, representatives from governments and international organizations, and farmers participated in the conference from almost all countries in the region. This conference shortly followed a similar regional conference focused on open burning in the Andes region in Lima, Peru on February 12-13, 2015, and presentations from both conferences, including regional and burning maps are available on [www.openburningcryosphere.org](http://www.openburningcryosphere.org)<sup>1</sup>

The following are key messages and conclusions of the conference as summarized by the moderators of the conference:

1. There was a strong consensus about the importance of stopping agricultural open burning, recognizing the harmful impacts of open burning in terms of causing local and regional health problems and premature deaths, threatening food security and enhancing climate change, in particular melting of the Himalayan glaciers when soot (i.e. black carbon) is deposited on snow and ice. Open burning is not a sustainable practice since it also adversely affects soil quality over time.

2. The MODIS data gives a good picture of where and when agricultural fires occur. While they do not give an absolute number for the actual number of fires, the general opinion is that the real number of fires and their distribution are proportional to the MODIS-data. There were about 2 million fires detected over the ten year period 2003-2013 in the region (comprising Bangladesh, Bhutan, China, India, Mongolia, Nepal and Pakistan).

There are small fires that may not be detected by MODIS sensors, primarily in the foothill regions and slopes of the Himalayas.

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<sup>1</sup> ICCI also is actively engaged in open burning projects in Russia and Ukraine, background available at [www.iccinet.org](http://www.iccinet.org)

3. In some regions the number of fires has gone up and the reason for that is believed to be the more extensive use of combines for harvesting. There is higher stubble left after using these harvesters. In other regions it seems to be a small decrease over the last ten years.

4. The data used for the analysis connected to this project are freely available for all interested persons and institutions in order to encourage further studies of open burning. Data are also available for South America.

5. Changes in agricultural practices are prompted by clear evidence of the benefits of non-burning methods for agricultural productivity including improving soil conditions, air quality, and reduce climate change progression in the greater Himalayas. It was concluded that the co-benefits of action are obvious enough to pave the way for progress.

6. There are different reasons for burning in different parts of the region. There is general belief that burning is good for the soil, e.g. preserving nutrients or providing ash fertilization while the truth is actually the opposite. Burning decreases humus content and lessens the nutrient retention capacity of the soil. In northern India and Pakistan the change from summer rice to winter wheat is taking place during a very short period of time and burning is seen as the only fast alternative to prepare the fields for sowing wheat. But there are also other reasons for burning, e.g. tradition is a strong motivating factor.

7. Legislation in form of bans on open burning has had little or no impact on open burning activities in the region. The meeting agreed that approaches based on showing benefits to farmers of not burning combined with demonstration of effective alternatives to burning that also increase yield and decreases costs are the most promising. There are different incentives that can be used to make farmers stop burning and turn to alternative, sustainable practices.

8. There was strong consensus that methods that originate in *conservation agriculture* seem the most effective means of achieving change that benefits the farmers and makes agriculture sustainable. There are intermediate steps to adopt some elements of conservation agriculture that will create benefits to the farmers, such as no-till, strip-tilling, direct sowing etc. Ploughing should be avoided in all cases.

9. Both market and regulatory solutions should be encouraged. Financing and micro-financing opportunities should be regionally adapted to meet demands for initial investments to turn to alternative methods.

10. Awareness of this issue should be raised including the benefits of non-burning and damages of burning across the region. As wide as possible participation from all Himalayan countries in awareness raising activities should be encouraged.

12. It was strongly underlined that activities have to start with farmers involved from the beginning. The farmers present at the meeting generally endorsed the results of the discussions and expressed their satisfaction with having been invited to the conference. They also wanted to see future results and actions.

11. The CCAC project should identify and study previous or on-going local, government initiated pilot projects to help farmers stop burning in the region

12. The conference constituted the start of an agricultural burning network that can be extended to include all potential stakeholders for action on open burning. This network should be oriented towards changing agricultural practices with a multipronged approach based on the findings of the conference and other relevant knowledge in the region.