Rejuvenating resilience in the agrarian livelihood of Western Indian Himalayan region - A water perspective

Mr Partik Kumar - Revitalising Rainfed Agriculture Network
Mr Mohit Rangi - Maharshi Dayanand University, Rohtak
Mr Kulvinder Singh - Tata Institute of Social Sciences, Mumbai

IWRA Online Conference - 2021
Introduction

- How climate change is impacting the production of Nutri cereals in the state of Himachal Pradesh
- How protective irrigation can be enhanced through the mountain springs system to achieve the nutrition security and food sovereignty of the state with the preview of state financial viability
Context

- Climate Change
- Agrarian production system
- Community Nutrition

Extremes of MARGINALITY

- Women farmers
- Small land holding
- Dalit Farmers
- Fragile agro-ecology
- Child and Pregnant women

Rainfed
Only 10% of the state’s total geographical area is under any sort of agricultural or cultivational use.

Further, out of total NSA, only 13% is irrigated by any sort of mechanism. Which makes HP one of the most rainfed dependent state in India.

Source: Statistical abstract of Himachal Pradesh 2019-20

Average annual rainfall has decreased significantly

Significant variation in the timing of the occurrence of precipitation

The average frequency of rainy days has significantly decreased

Significant variation in the timing of the occurrence of precipitation

The frequency of dry days has increased throughout the state

Source: Observed Rainfall Variability and Changes over Himachal Pradesh - India Meteorological Department, 2019
Area under different crop cultivation

- In the last four decades the area under the food crops (including vegetables) is continuously decreasing. The worse situation in with the nutritional crops such as millets which decrease to 1/6th of its total in the same period.

- Almost all prominent food crops in the state are cultivated under rainfed conditions making them prone to multistage challenges as well as desiring the special attention and attribution to the same.
**Nutrition security and food sovereignty**

**The state of Hidden Hunger**

<table>
<thead>
<tr>
<th>Indicators</th>
<th>NFHS - 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Children under 5 years who are stunted (height-for-age)</td>
<td>30.8%</td>
</tr>
<tr>
<td>Children under 5 years who are wasted (weight-for-height)</td>
<td>17.4%</td>
</tr>
<tr>
<td>Children under 5 years who are underweight (weight-for-age)</td>
<td>25.5%</td>
</tr>
<tr>
<td>Children age 6-59 months who are anaemic</td>
<td>55.4%</td>
</tr>
<tr>
<td>Non-pregnant women age 15-49 years who are anaemic</td>
<td>53.4%</td>
</tr>
<tr>
<td>Pregnant women age 15-49 years who are anaemic</td>
<td>42.2%</td>
</tr>
<tr>
<td>All women age 15-49 years who are anaemic</td>
<td>53%</td>
</tr>
<tr>
<td>Men age 15-49 years who are anaemic</td>
<td>18.6%</td>
</tr>
<tr>
<td>Elevated blood pressure</td>
<td>23%</td>
</tr>
</tbody>
</table>

**Himachal Pradesh is not only one of the states with the highest percentage of PDS using households (90%) in the country.**

**The percentage of heavily dependent households (who get more than 70% of their grains from PDS) is greatest here, comprising 33.2% of the state’s population.**

**A bigger chunk of state’s food security is dependent on the imported grains from the neighboring states.**

Source: National Family Health Survey – 5, 2019-2020
At present, around 50% of springs are either dried or their discharge reduced significantly.

Springs are the decentralized nature water source holding the gravity potential.

The revival of springs and providing the localized conveyance system can be vital in Himalayan rainfed agriculture.

There is a little use of springs in agriculture at present owing their current state and non-availability of desired infrastructure.
Securing crops for ensuring Nutrition

Providing protective irrigation to millets crops as a mechanism for enhancing the productivity as well as climate proofing.

Himalayan millets consume almost 60% less water as compared to other major crops.

Protective irrigation can help the millets in bearing the unusual longer dry speels.

Critical stage irrigation can enhance the millets productivity by 20% to 30%.

A spring based protective irrigation had a net potential of enhancing the community nutrition by 15% to 25%.
The comprehensive approach

Reconfiguring the NRM and Production approach

Prioritization in State Policy

An Inclusive growth

- Revival of Mountain Spring System
- Spring-fed Protective irrigation
- Promotion of Millets
- Procurement of millets by state
- Placing millets in the mainstream food security program
- Health and Happiness
Thank you

Partik Kumar
State Coordinator
Himachal Pradesh - RRA Network
pkunj5512@gmail.com