Inception Workshop for Regional TCP on Creating Enabling Environments for Nutrition-Sensitive Food and Agriculture to Address Malnutrition, 30 March 2017, Bangkok

Selected NUS and Preliminary Proposed Sites Option for Field Survey

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Working Team
Working Crop Groups

- Cultivated species: 350
- **Major food crops**: Rice, wheat, maize, potato
- Neglected and Underutilized Crop Species (NUS): >200
- Future Smart Food Crops: 50

- NUS: Not released and registered crop species
- FSF: High potential for food, nutrition security and high adaptability (at current knowledge)

- Workshop for developing basis of working crop groups and listing crops
Food and Nutrition Insecurity and Crop Diversity Zones

Altitude: 70 - 8848 m
Crop cultivation: 70 – 4200 m

Tarai: Medium insecurity and crop diversity
Mid Hill: Less insecurity, high crop diversity
High Hill: Food and nutrition insecurity, less crop diversity

Vulnerability: Climate, food and nutrition security
Selected 5 Crops as FSF

1. Tatary Buckwheat, **Tite Phaper**
2. Grass pea, **Khesari**
3. Taro, **Pidalu**
4. Drumstick, **Sital Chini**
5. Jackfruit, **Katahar**
Areas, Production and Productivity of 5 Crops

Areas, Production and Productivity of 5 Crops

Sources: MoAD 2015

Grass pea (1985/86): 53330 ha, 28120 t, 527 kg/ha
Tatary Buckwheat (*Fagopyrum tartaricum* Gaertn.)

- Grain as cooked rice (Bhate Phaper)
- Flour as pancake or porridge
- Tender leafs and tips as vegetable
- A short duration crop grown in marginal land
- Adapted to mountain ecosystem
- Healthy food among urban population
- Good source of rutin (that reduce cholesterol count in the blood) and dietary fiber
**Major Problems: Tartary Buckwheat**

- Difficult for processing
- Low yield
- Small grain size
- Water log and frost susceptible
- Damping off, powdery mildew and rust
Grass Pea (Lathyrus sativus L.)

- Pulse grain as vegetable soup
- Young leaves as vegetable, rolled and dried for off-season use
- As fodder
- Cheaper than other grain legumes and mostly consumed by rural poor
- Tolerant to drought, waterlog and low fertility
- Rich in protein
Major Problems: Grass pea

- Health issues due to high toxin (ODAP): Lathyris due to neurotoxin, ODAP, 0.6-0.8% in traditional varieties
- Low yield
- Imposed a ban on marketing of grass pea since 1991/92 that led drastic reduction in area (the number one pulse in terms of area and production during 1970s)
Taro (*Colocasia esculenta* Schott)

- Corm, petiole and leaf as vegetables
- Tuber steamed and eat with honey
- Tuber cooked with black gram as soup
- Leaf and stem as dried vegetables
- Distributed widely across the country
- Taro park
- Corms rich in carbohydrate, and leaves rich in Ca and vitamin A
Major Problems: Taro

- White grub
- Wilting
- Cooking quality (itchy, stinging, and very irritating sensation to the throat)
Drumstick (*Moringa oleifera* L.)

- Young pods and shoots as vegetables
- Low cost feed
- Used for water purification, hand washing
- Cooling effect after eating seeds
- A fast-growing drought-resistant tree and widely cultivated
- Year-round flowering
- Nutritious vegetable (medicinal value, rich in vitamin A)
Major Problems: Drumstick

- Propagation
- Hairy caterpillar
- Tall, difficult to harvest
- Low yield
- Expensive
Jackfruit (Artocarpus heterophyllus Lam.)

- Unripe fruit as vegetables
- Ripe fruit as fresh
- Matured seeds as vegetables, roasted, and boiled
- Wood for Theki (making ghee from yogurt)
- Year round fruiting
- High yield potential
- Treating dysentery and diarrhea
- Very nutritious fruit
- Rich in carbohydrates and protein; calcium and potassium; Vitamin A, B and C
**Major Problems: Jackfruit**

- Poor quality for table purpose and green vegetable
- Processing
- Propagation, need many years to fruit
- Borer
- Pink disease, leaf spot, collar rot, and rust
- Low amount of eating portion
Common Intervention Areas

- Base line survey (focusing on food, nutrition, health and climate changes)
- Assessing crops status and diversity
- Crop improvement (breeding)
- Germplasm introduction (exchange)
- Nutrient analysis
- Processing and food recipe
- Market
Potential Sites for Field Survey

- Tartary buckwheat
- Grass pea
- Taro
- Jackfruit
- Drumstick
Lead Organization

HRD: Taro, Drumstick, Jackfruit

GLRP: Grass pea

HCRP: Buckwheat
## Collaborators (NARC Stations)

<table>
<thead>
<tr>
<th>SN</th>
<th>Crop</th>
<th>Lead organization</th>
<th>Collaborators</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Tartary buckwheat</td>
<td>HCRP, Dolakha</td>
<td>ARS Jumla, ARS Dailekh, RARS Lumle, FRD Khumaltar, Genebank Khumaltar, SARPoD Khumaltar (6)</td>
</tr>
<tr>
<td>2</td>
<td>Grass pea</td>
<td>GLRP, Banke</td>
<td>RARS Parwanipur, NORP Nawalpur, FRD Khumaltar, Genebank Khumaltar, RARS Doti, SARPoD Khumaltar (6)</td>
</tr>
<tr>
<td>3</td>
<td>Taro</td>
<td>HRD, Khumaltar</td>
<td>FRD Khumal, Genebank Khumal, SARPoD Khumal, HRS Malepatan, GRP Kapurkot, CRP Gulmi, RARS Nepalgunj (7)</td>
</tr>
<tr>
<td>4</td>
<td>Drumstick</td>
<td>HRD, Khumaltar</td>
<td>RARS Tarahara, ARS Belachapi, FRD Khumal, Genebank Khumal, SARPoD Khumal, ARS Pakharibas (6)</td>
</tr>
<tr>
<td>5</td>
<td>Jackfruit</td>
<td>HRD, Khumaltar</td>
<td>FRD Khumal, Genebank Khumal, SARPoD Khumal, RARS Tarahara, RARS Nepalgunj (5)</td>
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