DROUGHT & FROST 2015: AGRICULTURAL COPING STRATEGIES

Sergie Bang, NARI DG
2015 El Niño is here and is ‘Serious'

- Current forecast – Drought to last until June 2016
- NARI’s Role - Agricultural Coping Strategies
  - Mid Drought Coping Strategies
  - Post Drought Rehabilitation
- NARI seeks Partnering In Multiplication and Distribution of Planting Materials.
Impact of Drought in 1997/8

November 1997

- At least 150,000 people were in life-threatening situation with no food other than dwindling bush or famine foods
- 175,000 people were eating only small amounts of rapidly diminishing garden food
- Across highland provinces, remote low lands and other outer islands, a total of 545,000 people (13% of PNG population) had insufficient food to live

February 1998

- 260,000 with almost nothing to eat
- 980,000 with shortage of food
- Most seed material had been consumed, large quantities of seedlings were needed in the affected areas in the event of rain
Agric Rehabilitation Post Drought 1998

Requirements for Planting Materials

Lowland Region:

<table>
<thead>
<tr>
<th>Serial</th>
<th>Crop</th>
<th>Requirement</th>
<th>Cost (USD)</th>
<th>Locations for Stockpiles</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Sweet Potato</td>
<td>15 million cuttings</td>
<td>104,000</td>
<td>Bueba, Kerevat, Laloki</td>
</tr>
<tr>
<td>2</td>
<td>Taro</td>
<td>1 million suckers</td>
<td>26,000</td>
<td>Bueba, Kerevat, Laloki</td>
</tr>
<tr>
<td>3</td>
<td>Cassava</td>
<td>200,000 cuttings</td>
<td>5,000</td>
<td>Bueba, Kerevat, Laloki</td>
</tr>
<tr>
<td>4</td>
<td>Yam</td>
<td>200 MT</td>
<td>15,000</td>
<td>Bueba, Kerevat, Laloki</td>
</tr>
<tr>
<td>5</td>
<td>Corn/Maize</td>
<td>10 MT</td>
<td>30,000</td>
<td>Erap, Kerevat, Laloki</td>
</tr>
<tr>
<td>6</td>
<td>Vegetables</td>
<td>imported seed</td>
<td>3,000</td>
<td>Bueba, Laloki</td>
</tr>
<tr>
<td></td>
<td><strong>Subtotal</strong></td>
<td></td>
<td><strong>183,000</strong></td>
<td></td>
</tr>
</tbody>
</table>

Highland Region:

<table>
<thead>
<tr>
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<th>Cost (USD)</th>
<th>Locations for Stockpiles</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Sweet Potato</td>
<td>25 million cuttings</td>
<td>200,000</td>
<td>Aiyura, Kondiu</td>
</tr>
<tr>
<td>2</td>
<td>Potato (Irish)</td>
<td>120 MT</td>
<td>83,000</td>
<td>Mt. Hagen</td>
</tr>
<tr>
<td>3</td>
<td>Potato Plantlets</td>
<td>150,000 plantlets</td>
<td>70,000</td>
<td>Aiyura</td>
</tr>
<tr>
<td>4</td>
<td>Corn/Maize</td>
<td>10 MT</td>
<td>24,000</td>
<td>Mt. Hagen</td>
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<td>imported seed</td>
<td>20,000</td>
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<tr>
<td>6</td>
<td>Cassava</td>
<td>50,000 cuttings</td>
<td>6,000</td>
<td>Menifo</td>
</tr>
<tr>
<td></td>
<td><strong>Subtotal</strong></td>
<td></td>
<td><strong>403,000</strong></td>
<td></td>
</tr>
</tbody>
</table>

total cost, including distribution of these materials at USD 195,000, is estimated at USD 781,000.
Southern Oscillation Index (SOI)
Drought set in June 2015

First Frost occurred on 19 July and 7 more times to 14th Sept

Temperatures have been at 7 degrees celcius at midnight and down to -2 degrees celcius at 4:30am

Mild to moderate frost as Cabbage, wheat and peas are still growing

Staples sweet potato and Irish potato destroyed

Mostly Food crops in Valleys destroyed
The update showed that in the Drought Category of 1-5:

- Two provinces are in **Category 1**: Milne Bay and West New Britain.
- 7 provinces are in **Category 2**: Madang, East Sepik, West Sepik, Morobe, New Ireland, Gulf and Autonomous Region of Bougainville.
- 8 provinces are in **Category 3**: Western Province, Eastern Highlands, East New Britain, Manus, Jiwaka, Western Highlands, Central, and Oro, and
- 3 provinces are in **Category 4**: Simbu, Southern Highlands and Enga.
> 800, 000 People Affected in August

- Western Province = 62,500 people affected
- Eastern Highlands = 35,000
- Simbu Province = 403,700
- SHP = 70,000
- Enga = 60,000
- Madang = 1000
- ESP = 70100
- WSP = 20,000
- Morobe = 20,000
- ENB = total population of the province
- WHP = 40,000
Potato destroyed by Frost in Kagul, Tambul (but cabbage survived)
Sweet potato destroyed by Frost in Tambul
Women see sweet potato killed!
> 1 million Highlands People Affected in Sept

- **Category 5: Districts**
  - **WHP:** Tambul/Upper Nebilyer,
  - **Enga:** Lagaip/Pogera, Kandep,
  - **SHP:** Imbongu, Ialibu/Pangia,
  - **Simbu:** Gumine, Kundiaawa/Gembogl,
  - **Hela:** Magarima
> 600, 000 NGI People Affected in Sept 2015

- **Category 4:** Districts Affected
- **Manus:** Manus District because of the Islands
- **WNB:** Bali/Vitu
>500,000 people in Southern Region affected in Sept

- **Category 4: Districts Affected**
  - **Central:** Goilala (Cat 5) & Rigo
  - **Gulf:** Malalauwa & Kaitiba
  - **Western:** Middle Fly and South Fly
  - **Milne Bay:** Alotau, Misima, Woodluck, Trobriands
  - **Oro:** Igifitari, Sohe
Momase people Affected in Sept

- **Category 4: Districts Affected**
  - **WSP** - Telefomin District
  - **ESP** - Wewak District- especially WWK Islands
  - **Madang** - Bogia District especially Manam Care Centres & Manam Island, Rai Coast District Long Island & Tep Tep
  - **Morobe** - Bulolo District (Waria LLG), Menyamya District (Kome, Wapi & Kapao LLGs), Finschafften (Yabim/ Mape LLG) Kabwum District (Yus LLG)
NARI’s Objective

- Farming communities in 30 Districts most affected by 2015 El Nino induced drought and frost have improved knowledge on and access to agricultural based measures supporting agricultural production in mid-drought/frost and post-drought situation.
Expected Outputs

- Dissemination and raising awareness on drought and frost coping strategies, technologies and practices to affected communities and wider public.

- **Building of capacity of target communities** in the use and application of drought and frost coping strategies, technologies and practices in most affected areas.

- Production of foundation planting materials of key crops and breeding stock for post-drought rehabilitation at NARI Centers and District Resource Centers.
Mid Drought Copping Strategies

1. Water Management
   1. Simple Irrigation systems
   2. Crop mulching
2. Fire Management
3. Livestock Management
4. Sago – as energy source for coastal people
5. Sweet potato - weevil management
Bamboo Drip Irrigation – for broccoli
Mid Drought Coping Strategies

- High Altitude Highlands (above 2000 masl)
  - Temperate crops which stood up under frosts, included brassica (cabbage, broccoli & cauliflower), pea and wheat.
  - Cabbage as a cash crop for Tambul and other high altitude places for generating income during the drought period.
  - During the 1997 Drought/Frost, cabbage generated much needed income in Tambul
Post Drought Rehabilitation

- Planting materials of Crops to be multiplied:
  - Early maturing Crops - Potato, Sweet potato, Bean & Corn
  - Medium Maturing – Rice, Wheat, Cassava, taro & Livestock

- NARI can multiply foundation planting materials in its Centres

- Further Multiplication in Districts and Resource Centres for Distributions
30 NARI Resource Centres

- Ialibu, SHP
- Gumine, Simbu Province
- Korefegu, EHP
- Obura – Wonerara – 3 schools/Rcs
- Duke of York, ENBP
- Abau, CP
- Manus
- New Ireland – 3 places
- Domil in Jiwaka
- CLTC – Jiwaka
- Milne Bay – 2 (Rabaraba)
- Oro – UNRE Campus & NBOP
African Yam in Gumine, Simbu
Food Processing Duke of York
Information in Ialibu Resource Centre
Soil Fertility and Moisture Conservation Training- Korifegu, EHP
Early Maturing sweet potato and Wheat in Ialibu, SHP
Partners

- AUSAID
- FAO
- CARE
- OXFAM
- WCS
- CDA
- Taiwan Technical Mission
- GIZ
- JICA
- KIPA
- UNDP
Some Key Points

- Funding Support

- What is the outlook for the Monsoon period?
  - Window for food cultivation (early maturing crops).

- Immediate Target are Districts Assessed as being in Category 4 & 5.
Future

- We need Adequate Early Warning = 6 months.

- Strategic Interventions on Irrigation and Agriculture
  - Water sheds/dams and Irrigation
  - Integrating Cereals & Legumes into Food Gardening
  - Food processing and/or Storage
Thank you for Listening!