Sugarcane Cultivation for Flood Resilience

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Project Overview

Communities/settlements close to river banks are vulnerable to flood. Gradual siltation and river bank cutting is a major problem.
Loss of Land due to River Cutting and Siltation

621.73 Hectares of land
1193.74 Hectares of land
Disaster Risk Reduction

Traditional DRR Intervention

• Focused on saving lives (early response)
• Lack of economic incentive
• Less effective at mitigating the economic losses
• If ever, not tied to strategies that actually build economic security

So how do we make DRR activities attractive and sustainable???
Sugarcane Cultivation as Nexus Intervention

- Flood Resisting Crop
- Protect land against river cutting.
- Withstands inundation and helps to retain soil/trap sediment to build up the soil along river banks.
- Viable cash crop for growing market
Potential Area for Promotion of Sugarcane Cultivation

- Areas highly affected by flood
- Degraded barren land near the settlement areas
Issues:

Lack of information and skills related to the production and management of sugarcane related issues

Solutions:

Digital tablet based data collection system employed
Issues:

Why use Digital based data collection system??

• Android Based
• Offline Data Collection System
• Cloud Based Platform
• Multiple export formats
• Possibility of real time data collection
More Issues……

• Lots of problem with market study of the sugarcane as data was often inaccurate

• Farmers insecure about the sale and proper valuation of the sugarcane harvested.

• Lack of accessible service centers for farmers

• Weak market access of the sugarcane farmers to industry level buyers
Sugarcane Survey was existing and being done by both the sugarmills.

Methods:
1. Paper based system
2. Commercial High End GPS equipped data collection machine
Challenges with the current survey techniques

1. Paper based system
   - Manual
   - Time consuming
   - Not portable
   - Higher human Error Potential
   - Difficult to map
   - Survey records were difficult to validate

2. Commercial High End GPS
   - High cost of Equipment
   - Regular charges for the services
   - Lack of trained human resource to work with the data collected.
   - Difficult to manage the database; Corruption of Data
Better Alternative for Sugarcane Survey?????

- Low Cost
- Reliable accuracy
- Ability to map cultivated plots
- Easy to use
- Replicable
- Sustainable

Integrate both ability of Data collection and Mapping

ONA has the capacity to geo-locate a point coordinate. Why not utilize this potential to map sugarcane plots?
Integration with QGIS

ONA does not have dedicated functionality to map area or any region. So the next step was integrating with QGIS.

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**Diagram Notes:**
- Integration flow from Open Data Kit (ODK) to QGIS via CSV files.
- Data flow includes ODK, CSV, Excel, and QGIS.
- Key steps: ODK data to CSV, CSV to Excel, Excel to QGIS.
Results......

- The **mapping was possible** using the ODK collect and has potential to be replicated for larger survey purpose including calculation of the area based on the geopoints collected.
- Poor accuracy of coordinates
- Minimal Manual editing necessary during and post collection of data.
Sugarcane Survey Mapping Dissemination Workshop

- **Mapping of existing and potential areas** along the river banks for sugarcane cultivation explores the growth of sugarcane sector linking increase in livelihood of vulnerable population along the river banks.

- **Discussion** on productive estimate of farmers, crushing capacity of sugarmills and role of other stakeholders.

- **Service centers addition survey** and commitment on the basis of mapping results. Mapping helped to plan for the strategic location of the service centers.

- **Demo plots** established at strategic locations.

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**Survey Details**

<table>
<thead>
<tr>
<th>Survey Details</th>
<th>Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Surveyors</td>
<td>10</td>
</tr>
<tr>
<td>Surveyed Location</td>
<td>Kailali and Kanchanpur District</td>
</tr>
<tr>
<td>Start Date</td>
<td>11/2/2015</td>
</tr>
<tr>
<td>End Date</td>
<td>12/8/2015</td>
</tr>
<tr>
<td>Duration of Survey</td>
<td>36 Days</td>
</tr>
<tr>
<td>farmers surveyed</td>
<td>1056 (Kailali: 164 and Kanchanpur: 892)</td>
</tr>
<tr>
<td>Plots surveyed</td>
<td>1393 (Kailali: 231 and Kanchanpur: 1132)</td>
</tr>
<tr>
<td>Minimum area of sugarcane plot</td>
<td>0.00596371 hectares</td>
</tr>
<tr>
<td>Maximum area of sugarcane plot</td>
<td>12.1877 hectares</td>
</tr>
<tr>
<td>Total Area</td>
<td>834.37</td>
</tr>
</tbody>
</table>
Sugarcane Survey Mapping Dissemination Workshop

- **Expansion of the Irrigation Facilities and Technological Development**
- **Mobile Services** provision from the concerned stakeholders from private actors as well as Government actors.
- DADO Suggested to **continue joint effort** towards promotion and development of subsector
- Sugarcane map of the district will **support** lead agencies to **take decision and action point** for promotion of sub sector and will help farmers motivated
Remaining Challenges

Programmatic:

• Sugarcane cultivation for flood resilience is not a quick fix; it takes time for people to realize its potential.

• Requires priorities and concerns of all stakeholders

Technical:

• ONA once free now charges for its services

• GPS inaccuracies from android devices

• People from purely non-technical background do not trust the technology and are not able to understand importance nor are able to operate well.
Transfer of the technology to Sugarmill.

Support the stakeholders understand and realize the potential of low cost innovative technological solutions for the collection of data on existing sugarcane cultivation.

- **Build technical capacity of stakeholders**
- **Total survey of sugarmill pocket area by the sugarmill (Ongoing)**
Thank You