SUMMARY REPORT

ONLINE POST-DISASTER NEEDS ASSESSMENT SYSTEM FOR RICE AND CORN

A component of the FAO project: "Strengthening Capacities for Climate Risk Management and Disaster Preparedness in Selected Provinces of the Philippines (Bicol Region) - TCP/PHI/3203"

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December 2012

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## I.	RATIONALE

Climate change became a major concern across communities affected by frequent occurrence of adverse climate conditions like strong typhoons and continuous rainfall causing floods and landslides. These extreme weather events not only wreak severe damages on properties, infrastructure and the agriculture sector but claim many life as well. The area affected by these disasters is getting wider in scale – covering communities which had never experienced this type of disaster in the past, resulting to higher vulnerabilities and risks to disasters.

The Philippine Government, in response to its commitments to international bodies, pro-actively passed a law to guide communities in managing these risks and mitigate the impact of disasters through the assistance of various national government agencies, local government units (LGUs) and other institutions that could be mobilized for the said purpose.

For these organizations and their partner institutions, updated and reliable data on the community situation before, during and after the occurrence of disasters is essential to conduct a post disaster and needs assessment (PDNA). The data will allow to define appropriate actions that are tailored to the needs of the people and their community as a whole to mitigate the impact of disasters or provide immediate response for recovery. One major area of concern is the agriculture sector, knowing that the Philippines is basically an agriculture dependent country.

The Food and Agriculture Organization – through its Technical Cooperation Project (TCP) **"Strengthening Capacities of Different Actors in Climate Risk Management and Disaster Preparedness in Selected Provinces of the Philippines (Bicol Region)**" proposed the utilization of information and communication technology to automate the collation and processing of voluminous agriculture data collected by the LGUs through their Municipal Agriculture Officers (MAOs). One objective was to develop a timely and more accurate post-disaster damage assessment in the agriculture sector. The project intended not to invent a new methodology but improve the existing guidelines formulated by the DA-Bureau of Agricultural Statistics on damage assessment in agricultural resources and likewise the existing codes for localities being implemented by the National Statistics Office (e.g. Philippine Standard Geographic Code). A web based PDNA software allows to consolidate data that characterize the baseline situation of the communities before the disaster, immediately account the extent of damage and loss brought by the disaster, and collate post disaster information for strategic decisions. The data will guide planners and policy-makers in developing appropriate actions and mechanisms to establish necessary safety nets in sustaining food production of important agriculture-related resources in the community.

II. SCOPE OF WORK

1. Brainstorming sessions with the consultants regarding the concept of PDNA in Agriculture;
2. Coordination with the Provincial Disaster Risk Reduction Management Office and the concerned municipal executives of the three local government offices in Albay province as a possible area for the PDNA development;
3. Meeting with the local executives of the province of Albay for the pilot testing of PDNA in the province;
4. Visits to rice and corn farming communities to interview farmers and barangay officials on their activities conducted by the communities related to DRRM in agriculture;
5. Conduct a workshop with the agricultural technicians from the three pilot municipalities;
6. Development of the Software for Online Post Disaster Needs Assessment;
7. Creation of an index for the three participating LGU-MAO (e.g. municipal and barangay names);
8. Formulation of the User's Manual for PDNA Software;
9. Public presentation of the software at national and regional-level conferences;
10. Crafting of next steps activities.

III. REQUIRED DATA:

Based on consultations with agricultural technicians and personnel of the LGUs who are expected to use the system, upon its completion and deployment, following data must be collected, posted and processed through the Online PDNA software:

A. BASELINE INFORMATION.

A.1 PERSONNEL PROFILE:

1) **System Administrators**. Full Name, mobile phone number and email. The phone number and email address will be used to assign the username and password of the system administrator.

2) **Agricultural Technicians**. Full Name, mobile phone number and email. The phone number and email address will be used by the System administrator to transmit the assigned username and password to the agricultural technicians.

3) **Report Officers**. Full Name, mobile number and Email. The phone number and email address will be used by the System administrator to transmit the assigned username and password to the Report Officers.

A.2 FARM AND FARMING PROFILE: (Pertains to information about the farming community, farming household and physical land resources of the farm);

a) **Location of the Farming Community.** The geographic profile of the farm: region, province, municipality, barangay. To initially harmonize the PDNA system with existing regulations of the country, the developer adopted the Philippine Standard for Geographic Code (September, 2012) as the official code used by the National Statistics Office for the regions, provinces, municipalities and barangays. Codes were directly extracted from the website of the National Statistics Office through the following links:
> http://www.nscb.gov.ph/activestats/psgc/
> http://www.nscb.gov.ph/activestats/psgc/publications/NSCB_PSGC_Sep2012.pdf

b) **Farmer and the Farming Household**
   i) <u>Name of the farmer</u>. The family name, first name and middle initial of the head of the farming household that directly manages a farm, regardless of tenurial status. Names must be written correctly because it will serve as the primary key of the software to identify the farmer and other related information;
   ii) <u>Date of birth</u>. This data will be the basis to calculate the age of the farmer during the generation of related reports.
   iii) <u>Number of household member(s)</u>. The total number of persons living in the farmer's household, regardless of relationship and period of stay. The names of the household members will not be listed as part of the database.

c) **Farm/Farm lot**
   i) <u>Number of farm lot(s)</u>. The number of farm production management units that the farmer has. In some cases, a farmer further divides his/her farm into production lots to ensure better management. The farmer's basis has different specific reasons for setting-up the division of their farms into farm lots, such that the total farm area is too large, topography or landscape, etc. For this purpose, this dataset was created to cater this specific information. The default is 1 farm lot per farmer;
   ii) <u>Land tenurial status per farm lot</u>. Landowner, leaseholder, or tenant arrangement;
   iii) <u>Farm size of each of the farm lot</u>. The area of farm lot, in hectare(s). The area of all farm lot(s) of the farming household are totaled to comprise the data on total farming area that a farming household is currently being managed;
   iv) <u>Vulnerability level of farms to disaster</u>. This refers to the degree of vulnerability of farms to common hazards and risks to agriculture such as flooding, drought, strong wind and saline intrusion. The following categories were developed by DA-FAO TCP project as a result of the workshop/consultation conducted with the agricultural technicians:

   (1) **FLOODING**
      (a) <u>Low</u> - farm area located in higher elevation and are the last area affected by worst flooding incident for the past 5 years
      (b) <u>Medium</u> - areas that are seldom or occasionally flooded but are affected only when there is continuous rain for 3-5 days
      (c) <u>High</u> - areas that are low lying or with close proximity to rivers/water estuaries that are usually flooded even with 1-3 days of continuous rains only

(2) **DROUGHT**
   (a) <u>Low</u> - irrigated areas that are very near river/irrigation channels which have ample source of water
   (b) <u>Medium</u> – rain fed or irrigated areas that are seldom to occasionally affected by drought usually located at the tail-end of irrigation systems/canals
   (c) <u>High</u> – rain fed areas located in higher elevation and without any possible source of irrigation such as rivers and creeks

(3) **STRONG WIND**
   (a) <u>Low</u> - farm area that are located in valleys or depression, surrounded by hills/ <u>Low</u> mountains or wind breaks
   (b) <u>Medium</u> - areas that are seldom to occasionally affected by wind specifically when there are tropical storms and typhoons
   (c) <u>High</u> - farms located in open areas/mountain slopes with no observed barriers with in the vicinity of strong winds

(4) **SALINE INTRUSION**
   (a) <u>Low</u> - farm area that are very far from the sea or river deltas and located in higher elevation
   (b) <u>Medium</u> - areas that are seldom to occasionally affected but with minimal effect
   (c) <u>High</u> - areas that are low lying or with close proximity to river deltas/shoreline that are primarily affected during dry season and high tides

d) Crop(s):
   i) <u>Crops being grown</u>. For now, only rice and corn are recognized by the system as crop grown by farmers in a particular farm lot and time. Other crops (e.g. High-value crops) will be recognized by the system, as it evolves or develop in the future;
   ii) <u>Seasonal crop yield</u>. The average yield of the crop in the past two years, in the particular season (for rice: wet season and dry season). This will be used to estimate the possible yield of crop and for the calculation of possible/estimated impact of disaster in a specific farm and disaster event/occurrence.

B. **PRODUCTION INFORMATION (UPDATING STANDING CROP).** This covers updated data related to production of major crops (e.g. rice and corn) within the current production season. These data must be updated monthly or as frequent as possible depending on the availability of data gathered by the agricultural technicians from their assigned area. Frequent updating of the production data will provide the agricultural technician with real-time information about his/her area, especially in terms of current stages of the crop and determine the potential crop production-level in the current season.

Furthermore, in the event of occurrence of an environmental threat, this database will be utilized to generate disaster–related reports and likewise it will serve as reference for the post-disaster needs assessment.

1) <u>Date of planting</u>. The actual date, month, and year of planting the crop (DD-MMM-YYYY). This data will be utilized by the system to determine the current stage of the crop. This information, together with the type of crop seeds, and growing cycle are necessary to establish the current stage of the crop, during the time of report generation.
2) <u>Area planted</u>. The actual area per farm lot where the crop are grown during the season.

3) Type of seeds used.
   a) For rice: good seeds, certified seeds, or hybrid seeds
   b) For corn: open-pollinated or hybrid seeds
4) Crop growing cycle (seed classification):
   a) For rice: early-maturing varieties, medium-maturing varieties and late-maturing varieties
   b) For corn:
5) Price per kilo of the rice and corn. Buying price set for this crop by the DA-National Food Authority;

C. **DISASTER-RELATED INFORMATION.** This includes the type of disaster that occurred, crops affected, number of farms and area affected by the disaster. Using the damage assessment assumptions established by the DA-Bureau of Agricultural Statistics on its Manual on Damage Assessment and Reporting System (May, 2009), the encoded data will be further analyzed to determine the losses and damages caused by a particular disaster event. These facts are critically important to disaster managers in making timely decisions and appropriate actions on diverse disaster-related scenario.

In this module, the system will require the agricultural technician to update data on the first, second and third-day after the occurrence of disaster to be able for the system to rapidly estimate the damages.

1) Crop area affected by the disaster (24-hour, 48-hour, 72-hours and 10 days-actual inventory of areas affected by the disaster). The agriculture technician shall "tick" or "check" the affected farmer and which of his/her farm lots were affected by the disaster.

IV. DEVELOPMENT PROCESSES AND ACCOMPLISHMENTS

1) Project Concept Development with the FAO Consultants

FAO TCP Project Consultants (Mr. Aziz R. Arya – FAO Food Security Officer and Mr. Emmanuel Torrente- FAO National Consultant for PDNA) met Prof. Vladimir R. Foronda, the Director of the Information Communication Technology (ICT) office of the Central Bicol State University of Agriculture (CBSUA) to explore the possibility of developing a system for the encoding, collation and processing of disaster-related data on agriculture.

The group agreed to an idea of developing an Online System that will make the information accessible and available on a broader scale. This design is more flexible for wider adoptions in the future.

2) Coordination with the Albay Provincial Disaster Risk Reduction Management Office

The Disaster Risk Reduction Management (DRRM) Office of Albay province is one of the most effective institutions in the country that implemented comprehensive and detailed disaster risk reduction initiatives and has crafted effective DRR

management plans with strong participation and involvement of the grassroots communities and concerned institutions to generate quick response and recovery on the agricultural sector. The team was able to meet Mr. Cedric Daep (Chief of APSEMO - Albay Public Safety and Emergency Management Office).

APSEMO is a department of the provincial Government of Albay that serves as the technical and administrative arm of the Provincial Disaster Coordinating Council (PDCC). It focuses on effective implementation of the PDCC objectives per Presidential Decree 1566 and other related laws.

The APSEMO Chief shared his suggestions to harmonize all disaster-related data required by various agencies to minimize duplication and repetitious data gathering of similar information, particularly by the government sector. The current system causes problems and confusions to the LGUs, which is expected to provide updated data. The proposed PDNA on agriculture will serve as pioneering initiative where a centralized hub of agriculture disaster related information could be viewed and utilized by various agencies who aims to assist the affected communities in responding and managing the risk brought by disasters.

3) **Project Consultation with the Local Executive of the Province of Albay**

The FAO consultants met the Governor of Albay (Hon. Joey Salceda), discussed the TCP project and the development of an Online System for PDNA. The provincial executive expressed his thanks considering that this will complement the comprehensive effort of his leadership on DRRM (that includes agriculture side-by-side with the human saving/security activities) through its DRRM Council and APSEM Office. He also suggested that data on land tenure be included in the data sets of PDNA so that they could prioritize the affected farmers who are tenants, who have lesser capability to recover immediately from their farming-based livelihoods. The team was able to gain the support and affirmation from the Governor and have validated the inclusion of the following sites for the PDNA piloting: City of Ligao, Municipalities of Camalig and Oas.

4) **Coordination with the Municipal Executives of the three Local Government Offices in Albay Province**

The technical team visited the proposed three municipalities and meet its local chief executives. In the meeting, the objectives of the TCP were elaborated and the intent to include their area in the PDNA was discussed.

All the local chief executives unanimously gave their affirmation to the project and advised their respective MAO personnel to provide the necessary assistance to the FAO project.

5) **Visit to farming communities of pilot municipalities**

To have an actual understanding of the area, the personnel of the MAO guided the team in a visit of the farming communities and conducted on-site inquiry about farming and how farmers adapt to changing climate and manage the risks caused by disasters.

6) Agricultural Technicians Workshops

Two workshops for agricultural technicians were conducted by FAO and DA in Legaspi City which has oriented the agricultural technicians about the project, and solicited their suggestions that served as input in the development of the software. These were attended by agricultural technicians from the three selected sites where PDNA piloting will be undertaken.

Participants mentioned that they regularly gather data at the farmers and farm-level. They suggested utilizing the manually-collated database that they regularly submit to the DA-Regional Office. One example of this document is the Standing Crop Report for Rice and Corn, which is submitted monthly and can be very useful for the computation of disaster damages on crops.

7) Programming/Development of Online Post Disaster Needs Assessment Software

Considering all the inputs provided by the FAO Consultants and TCP Project partners (Department of Agriculture, Local Government Units), the consultant for Online PDNA and his technical assistants commenced the programming activities using PHP platform at the front-end of the program and MySQL for the database (back-end segment). Both platforms are free and open-source software that are popularly used in the development of web-based application similar to the PDNA program.

The following components proposed during the concept idea brainstorming were created for the PDNA version 1.10:

Modules	System Administrator	Agricultural Technician	Agricultural Officers	Commodity Report Officers	General Public
System Security/ Account Creation for Log-in Module	Security Maintenance				
Baseline Data Module	Registration of users, uploading of initial household baseline	Updating of baseline information of the household, farms, and crops planted			
Planting Update Module		Updating of standing crop			
Damage-related Update Module		Disaster-related information updating to			

Report Generation	All regardless of area and crop	All (depending on the assigned crop and area)	All (depending on the LGU area)	All (depending on the LGU area and assigned crop)	Pre defined reports only posted on the website
		estimate damages			

For the initial operation of the PDNA System, data index for the three project sites (City of Ligao, Municipalities of Camalig and Oas) was created to serve as container of site-specific data to be encoded by the agricultural technician. Appropriate geographic codes for these areas were encoded by the developer. The initial data submitted by the LGU-MAO through the DA-FAO Project management office was uploaded to the system. However, only the City of Ligao submitted a partial data to the DA-FAO Project Management Office for PDNA and they were advised to seriously review and validate their data before submitting because it will affect the over-all results or reports to be generated by the system.

8) **Development of User's Manual**

A basic operation manual to guide the utilization of the software was formulated in compliance with the request of Mr. Aziz. This manual will specifically assist the designated system administrator and the target agricultural technicians (data encoders) in using the system as they are its primary users and are expected to regularly update the database of the PDNA software across time. This is an initial manual. It could be considered to divide it into two different manuals, one is specific for system administrator requirements and one for agricultural technicians as data encoders.

9) **Presentation of the Post-disaster Needs Analysis Software:**

A. **National-level DRRM-CCA Conference**

This component of the TCP Project in Bicol was presented on the national gathering on Disaster Risk Reduction Management-Climate Change on Agriculture. The main agenda was to share the project's accomplishments and present future applicability of its output on a larger scale.
The desire to adopt the system, as expressed by various representatives of the Local Government Units on the national conference, was highly noted during the open-forum.

B. **Regional Project Exit Conference**

The Department of Agriculture hosted the Regional Project Exit Conference at Oriental Hotel, Legaspi City (First Quarter, 2012). In this gathering, Prof. Foronda and his technical staff were requested to present the PDNA Software.

Different regional agencies including the Office of Civil Defense (OCD) and the National Economic Development Authority (NEDA) attended the gathering. NEDA was represented by Ms. Cynthia Berces who, during the open-forum, recommended the adoption of the PDNA software for rice and corn by OCD through the Regional DRRMC.

C. Presentation of PDNA: Rice and Corn to the Regional Disaster Risk Reduction Management Council - Committee on Rehabilitation and Recovery

Last September 4, 2012, the PDNA software for Rice and Corn was also presented during the organizational meeting of the Regional Committee on Disaster Rehabilitation and Recovery as per request by the Regional Director Dayao of the Department of Agriculture in Bicol and the National Economic Development Authority. This Committee is headed by NEDA Regional Director and one of its critical functions is coming up with post disaster needs assessment.

Quoted from the letter invitation of NEDA *". . . agriculture as the most vulnerable sector during disaster, post-disaster needs assessments takes long and there are reports from agencies and local government units, introduce the project, then the post disaster needs assessment mechanism that developed, how it works, and how that it facilitates real-time reporting, facilitating the formulation of rehabilitation and recovery interventions. Please state what else should be done to institutionalize this and become major tool of the committee on rehabilitation and recovery, i.e. participation municipal agriculturists, etc. The action requested would be recommended to the RDRRMC for approval. "*

The lead agency in the country that is expected to conduct the comprehensive PDNA (covering all community elements: human, housing, infrastructure, government, livelihood-agriculture, business, etc.) is the Office of Civil Defense (OCD). However, it was suggested by the LGU-Albay that it will be more effective if PDNA be done on a sectoral level and led by concerned agencies with adequate expertise to handle the situational assessment. For example the Department of Agriculture will handle the PDNA for agriculture-related commodities like crops, livestock, fisheries, etc.

It was also agreed, that a workshop of agencies involved in the PDNA implementation be conducted to harmonize and standardize the forms before its deployment to LGUs and ensure the efficient data collection and data utilization to guide effectively the disaster recovery and rehabilitation initiatives.

The presentation of Prof. Foronda in Sept 4, 2012 to the RDRRMC, was part of the NEDA's commitment shared by Ms. Berces (representative of NEDA Regional Director) during the Regional Exit Conference of the FAO TCP Bicol Project conducted at Oriental Hotel Legaspi City.

Suggestions for the improvement of the Online PDNA software was noted such as the inclusion of other high value crops (example: coconut and fiber).

V.   NEXT STEPS ACTIVITIES:

1. Capability-building for Agricultural Technicians on the utilization of the Online PDNA Software;

The developed PDNA for Rice and Corn will be deployed to other interested local government units by providing orientation training for agricultural technicians of the municipal agricultural office, as the initial step. The farmer-level data will be uploaded during the training and sample reports will be generated.

2. **Harmonization of disaster-related indicators and adoption of PDNA as a tool for the assessment of the agriculture sector, through the auspices of the Office of Civil Defense;**

   To ensure an extensive utilization of the system, efforts to deploy the system beyond the FAO/DA-TCP Project areas will be given extra attention. Integrating the Online PDNA System to the disaster system being led by the Office of the Civil Defense (OCD) is very necessary. However, the different government agencies involved in disaster assessment uses various tools and data sets. So, harmonizing first the data requirements and the process of its collection will make the assessment more effective and efficient.

   In this process, the PDNA Software will be subjected for review and enhance further to fit to the mainstreamed flow of disaster assessment of OCD.

3. **Expanding the program to include high value commercial crops, like coconut and abaca;**

   Aside from rice and corn, which are the major cereal crops in Region V (Bicol) and in the country, the possibility of integrating other important commercial crops to the Online PDNA is a challenging recommendation. But doing so will further exploit the capability of the software for the benefit of monitoring other agricultural crops, either in production and/or in disaster context.

4. **Mainstreaming the PDNA Software to the Local Government Units and National Agencies of the government, and mobilizing support for its further development**

   After the piloting stage, the mainstreaming of the PDNA to other branches of the government and to the programs of non-government organizations in the country must be actively advocated. This will provide more avenue for enhancing its database and maximizing its utilization, as well.

5. **Integration of Geographic Information System to the PDNA Software**

   Considering the growing utilization of GIS-based information in the country, the integration of digital maps to the PDNA software can be explored as part of its future improvement.

VI.   **ANNEX**

   USER'S MANUAL for PDNA Version 1.10 ONLINE POST-DISASTER NEEDS ASSESSMENT SYSTEM FOR RICE AND CORN *A component of the project: "Strengthening Capacities for Climate Risk Management and Disaster Preparedness in Selected Provinces of the Philippines (Bicol Region) - TCP/PHI/3203"*

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- Baseline information includes demographic information of the community, physical land resources, individual-farmers name, farm size, farm lot, and land-tenure;
- Production information covers data of major crops (e.g. rice and corn). Example of data includes actual planting date, area planted, type of seeds used, crop's growing cycle (e.g. for rice: early, medium and later-maturing). These data will be updated every month and analyzed further to determine the production cycle and potential agricultural production. Furthermore, this information will be utilized to establish the pre-disaster baseline data – to serve as reference for the disaster needs and loss analysis;
- Disaster-related information includes the type of disaster that occurred, crops affected, number of farms and area affected by the disaster. Using the damage assessment assumptions that were established by the DA-Bureau of Agricultural Statistics, the data will be further analyzed to determine the loss and damages caused by the disaster. These facts are critically important to disaster managers in making timely decisions and appropriate actions to diverse disaster-related scenario. In this module, the system can generate the following reports:

This User's Manual can be further developed to two (2) specific modules for administrators and agricultural technician (AT), to provide the particular user with the specific procedure on how to manage the software based on their expected functions.

2. PDNA SOFTWARE ONLINE USERS

2.1. Types of PDNA Users

2.1.1. <u>PDNA System Administrator</u>. A person officially designated by the Department of Agriculture to manage the PDNA System, including the security of its operation and database.

2.1.2. <u>Agricultural Technician</u>. A person who works at the Municipal Agriculture Office (MAO) of the Local Government Unit (LGU) and assigned to a specific farming community to provide technical assistance and other extension services in relation to the production of various agricultural commodity (e.g crops, livestock, animals, etc.). In the context of disaster, he/she is designated to monitor impact of disaster and expected to submit disaster-related information to a report officer assigned to a particular commodity

2.1.3. <u>Commodity Report Officer</u>. A person or personnel of an agricultural office or local government units designated to monitor a specific agricultural commodity (e.g. rice, corn, livestock, etc.) and expected to prepare a consolidated report of areas within the jurisdiction of the local government unit, especially on production of the said commodity.

Agricultural commodity is a collective term to products produced by farmers and the farming community as a whole.

2.1.4. <u>Agricultural Officers</u>. The following personnel are classified as agricultural officers: Municipal Agriculture Officer, Provincial Agriculture Officer, and the Regional Director.

2.1.5. <u>General Public Viewers</u>. The general public who have access to internet and are interested to view or extract reports through the PDNA System.

2.2. Functions of PDNA users

The following are the specific functions of various users to ensure proper operation and maximize the utilization of the system for the benefit of the local communities:

2.2.1. PDNA System Administrator

On its piloting stage, the Online PDNA system will be managed by a technically-ready staff of the Department of Agriculture Region V, officially designated by the Regional Director. The technical staff will take the following functions:

1. Coordinate with National Statistics Office to request updated official codes and names of various local government units (e.g. regional, provincial, municipal and barangays, to update the database of LGUs in the region;
2. Spearhead the campaign for the utilization of the Online PDNA, such as coordination with various LGUS for its adoption and conducts users training;
3. Facilitate the approval of the Letter of Interest from various Municipal Agriculture Officers who formally signified intent to utilize the system;
4. Check the full compliance of the requirements by the MAO Office (see PDNA website), before all requested personnel of that MAO will be registered;
5. Create a disaster event before 7:00 AM of any day when PAGASA monitors a possible weather disturbance or anomalies. This will serve as basis of AT to immediately update the disaster-related PDNA data, based on the created events;

2.2.2. Agricultural Technicians

The Agricultural Technicians (AT) designated by LGU-MAO to specific barangays are responsible for following tasks and functions, relative to the operationalization of the Online PDNA System:
1. Regularly gather/collect primary data related to production of community (e.g. planting) and likewise data related to disaster events;
2. Update the data in the PDNA System (On-line):
   a. Baseline data (to be submitted immediately after the approval of the request to use the system). This includes Form 1a,1b, and 1c
   b. Periodic updating planting schedule (at least every Monday of the month), preferably weekly. In fact, the authorized AT can update the data in the system everyday;
   c. Daily updating of disaster-related data. Once the PDNA Region V administrator declared an event for possible disaster, all registered AT are required to update the data of their sites in the system. Updates of the administrator of the disaster event happens every 7:00 AM.
3. Print the following reports of their covered area directly from the system (On-line):

Name of report	Frequency	To be submitted to
Planting pattern	Monthly *(Every first Friday of the month)*	Report Officer for the commodity
Disaster Report (24-hour)	24-hours after the declaration of disaster event by the PDNA Administrator	Report Officer for the commodity
Disaster Report (48-hour)	48-hours after the declaration of disaster event by the PDNA Administrator	Report Officer for the commodity
Disaster Report (72-hour)	72-hours after the declaration of disaster event by the PDNA	Report Officer for the commodity

Name of report	Frequency	To be submitted to
	Administrator	
Disaster Report (Final)	10 days after the declaration of disaster event by the PDNA Administrator	Report Officer for the commodity

2.2.3. Report Officers

The designated report officers to specific agricultural commodity is responsible for following tasks and functions, relative to the operationalization of the Online PDNA System:
1. Periodically remind the AT/Agricultural Officers to update the database of the commodity related to its production in the area that they cover and likewise the data related to disaster events;
2. Generate commodity report and submit it to the immediate head of office for information dissemination.

2.3. Requirements of the registration

2.3.1. Registration of a municipality to the Online PDNA system

The following process and requirements need to be complied by the interested Municipal Agriculture Officer (This information is also available at PDNA website):
1. Register the municipality online.
2. The MAO must officially submit a letter of interest to utilize the PDNA System, addressed to the Regional Director and cc: PDNA system administrator.
3. Once the request is approved by the Regional Director of DA, MAO shall submit to the PDNA system administrator the softcopy of the following forms with complete and validated data:
   i. Form 1. List of Agricultural Technician and their assigned Barangays.

Name of Agri. Tech	Office Position	Assigned Brgy	CP Number	eMail
Maritess V. Binto	Agric. Technician	Bagtong	xxxxxxxxxxx	
Concordio F. Mandago	Agric. Technician	San Antonio	xxxxxxxxxxx	

   ii. Form 2: List of Municipal Report Officers and assigned commodities

Name of Report Officers	Office Position	Assigned Commodities	CP Number	eMail
Marvic T. Yu	Report Officer	Corn	xxxxxxxxxxx	
Juan C. Lita	Report Officer	Rice	xxxxxxxxxxx	

   iii. Form 3: Baseline of Rice Farmers per Barangay and other production related-information

Name of Farmers	Office Position	CP Number	email	Crop	Number of farm lots	Household size
Raquel F. Made	Farmer	xxxxxxxxxxx		Rice	1	5
John T. Cortez	Farmer	xxxxxxxxxxx		Rice	3	8

2.3.2. Registration of a province

The following process and requirements need to be complied by the interested Provincial Agriculture Officer (PAO) (This information is also available at PDNA website):

1. Register Online
2. The PAO must submit a letter of interest to utilize the PDNA System, addressed to the Regional Director and cc: PDNA system administrator
3. Once the request is approved by the Regional Director of DA, submit to the PDNA system administrator the PDNA Form 4 List of PAO personnel involved in the PDNA and their assigned areas, signed by PAO;
   i. Form 4: List of Provincial Report Officers and assigned commodities

Name of Report Officers	Office Position	Assigned Commodities	CP Number	email

4. All registered personnel must try to use the system;

3. THE MODULES OF ONLINE PDNA SYSTEM

The system has five modules to cater the basic functionality required by the different target users of PDNA. Initially, the Version 1.10 caters four groups of users: General Public, System Administrators, Agricultural Technicians and Agricultural Officers/Report Officers. Each group are assigned to dedicated homepage to be able to fully utilized the Online PDNA, based on the level of authorities provided to them by the system administrator. The description and contents of the different views or modules are as follows:

3.1. PNDA system administrator

The administrators page (Fig. 1) is highly restricted for use by the officially designated PDNA System Administrator. Because as per design, the PDNA system administrator (PDNA SysAd) is the only person who are authorize to add data, delete and upload baseline information, which includes the registration of users. To be able to activate this functionality, the PDNA SysAd needs to type the appropriate URL to the browser and provide a valid user name and password. The URL for this view was purposely omitted in this User's Manual for security reason and only to be provided by the system developer to the designated PDNA SysAd during the appropriate training. User's name and password will be embedded directly to the software by the developer to improve better the security of the system.

The PDNA SysAd has the capability to encode data in cases the agricultural technician cannot do that functions for various reasons. The PDNA SysAd can print all reports that the system can generate. This includes reports on farmers-level and the consolidated data on barangay, municipal, provincial and regional-scale.
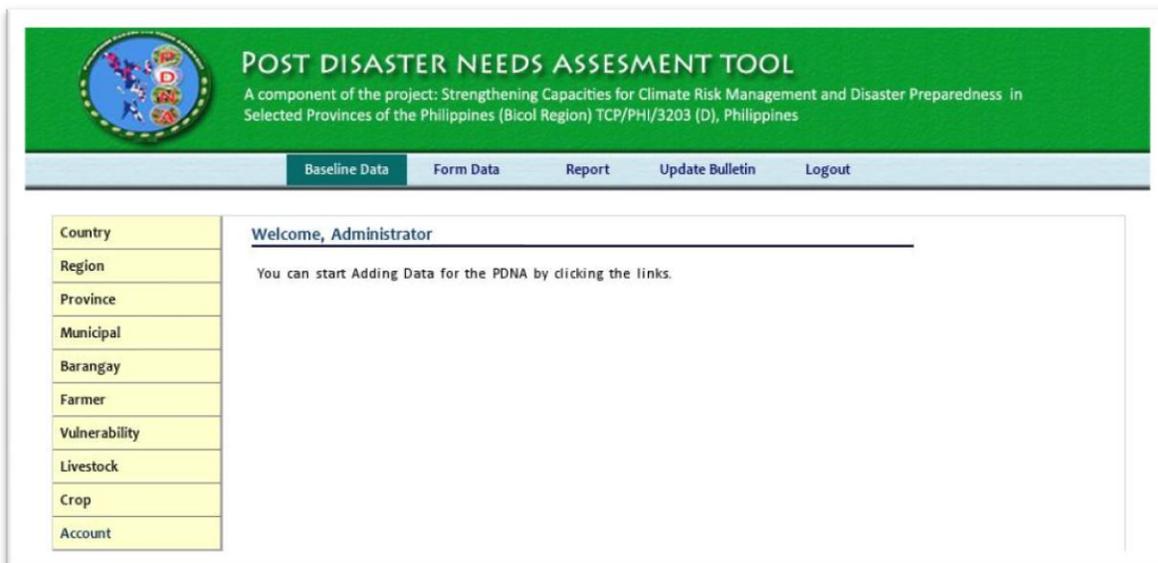
Figure 1. Parts of PNDA System Administrator Home Page.

The administrator's homepage has a main menu (baseline, form, reports, bulletin). Each menu has left panel where the administrator can add information to the database and generate reports.

1. *Baseline Data* – It will provide the administrator the ability to perform tasks such as adding data, delete and uploading baseline information (Fig _____).

2. *Form Data* – Uploading of information such as farmers' information, barangay data and disaster-related data. This area is shared by the Administrator with the Agricultural Technicians. The AT updates this section regular through their homepage;

3. *Report* – Generating of reports collated from the voluminous data inputted in the *Form Data*

4. *Update Bulletin* –The weather and farm bulletins provided by DOST:PAGASA are uploaded by the administrator in this area to update the bulletin section of the PDNA homepage for the general public;

5. *Logout* – Click to end the administrator's session and secure the uploaded data to the PDNA system for immediate use by other users, through their respective homepages;

3.2. Agricultural technicians

This page can only be utilized by registered agricultural technicians (AT) through the endorsement of their respective the local agricultural offices. In this view, AT can add, update and print encoded data from the farmers-level and consolidated to the barangay-level. However, his/her authority to execute this function is limited only to the barangay(s) officially assigned to him/her by the Municipal Agricultural Officer, and was registered to the PDNA Software by the SysAd.
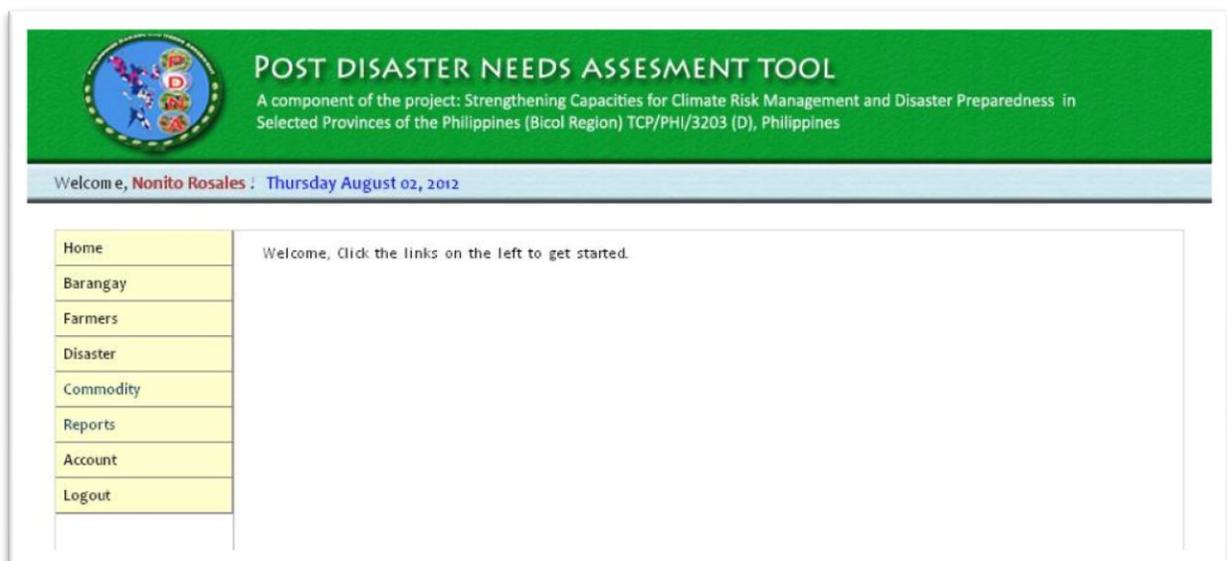
Figure 2. Agricultural Technician's Home Page.

3.3. Agricultural officers

This view is dedicated primarily for agricultural officers across different levels (municipal, provincial and regional).

All registered agricultural officers can only print reports derived from data encoded by AT and based on the limitations set by the PDNA administrator to each of the personnel, during the registration process. In general, they are not authorized or are not allowed by the system to generate reports outside of their area of coverage based on the current level of designation that he/she handles. For instance, a registered agricultural officer of the Municipality of Camalig can only print report related to the municipality they cover (Camalig).

3.4. Commodity report officers

This view is dedicated primarily for personnel of agricultural offices designated as commodity report officers.

This group of users can only print reports of consolidated data from the municipal, provincial and regional-scale, depending on their on the levels of offices that they officially represent (e.g. municipal, provincial, and regional) and the commodity that they were assigned.

The following personnel are classified as commodity report officers:
1. Municipal-level: LGU-MAO Report Officers for specific commodity,
2. Provincial-level: LGU-PAO Report Officers for specific commodity,
3. Regional-level: DA-Regional Office Report Officers.

All registered commodity report officers can only print reports derived from data encoded by AT and based on the limitations set by the PDNA Administrator to each of the personnel, during the registration process. In general, they are not authorized or are not allowed by the system to generate reports outside of their area of coverage based on the current level of designation that he/she handles.

For instance, the municipal report officer assigned to monitor rice commodity can only print consolidated report on rice production and disaster-related information of that municipality. The provincial and regional report officer can only print provincial and regional commodity reports, respectively.

For registration of provincial-level, the Provincial Agriculture Officers must initiate the registration of their report officer per commodity by providing the PDNA SysAd with the official list of personnel who will be involved in this function. (The registration procedure is explained under the section 4.1.2. *Registration of various types of users*)

For registration of regional-level, the Regional Director must initiate the registration of their regional report officer per commodity by providing the PDNA SysAd with the official list of personnel who will be involved in this function. (The registration procedure is explained under the section 4.1.2. *Registration of various types of users*)

a.   General Public Module

The Universal Resource Locator or URL to access or view the PDNA website is www.pdna1.cbsua.edu.ph. URL is a specific character string that constitute a reference to an internet resource. This characters need to be typed in a preferred browser to reach the target webpage. In the case of PDNA, the preferred browser is Mozilla Firefox.

The public users' don't need to register to utilize the services of this web site. Therefore, this is open to all individuals and organizations who are interested to view the existing database shared online by various participating agricultural offices of local government units. Through this default web service, the user can view collated data at the municipal-level and consolidated to the provincial and regional-scale.

The Online PDNA System is open to the public for browsing and viewing of information that are accumulated by its database. However, the public viewers are not given authority to print any part of the report. However, they can view the available data in summarized format at the municipal-level, only. Detailed reports that includes farmer-level and barangay-level information will only be generated and will be official released by the authorized offices to ensure consistency.
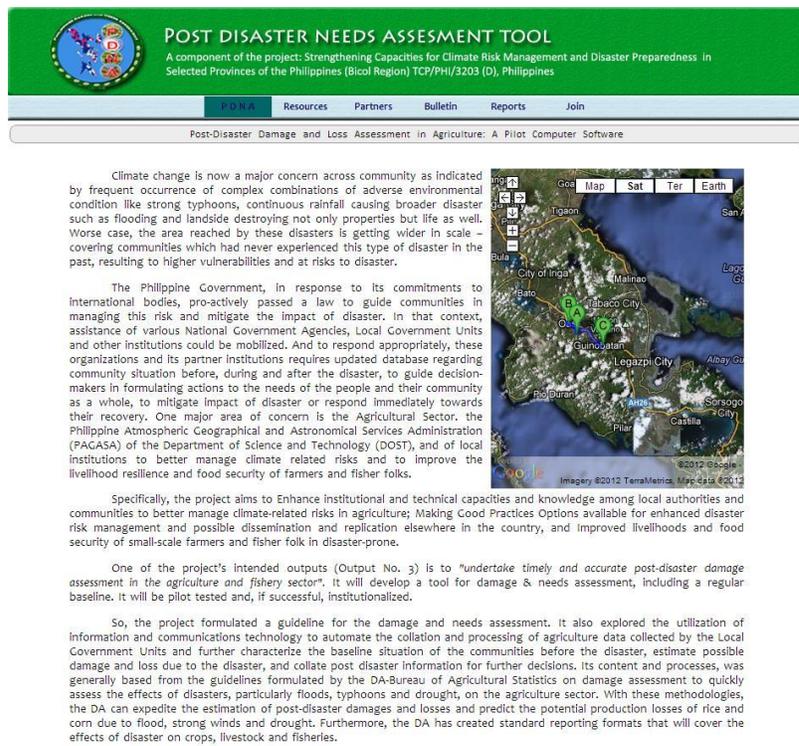
Figure 3. Public View: Default front page

The components of the home page for public viewers are as follows:
- PDNA. This page provides the overview of the project and its objectives. It has a window showing the location where the software was piloted (Fig. 3)

- Resources. Contains initial list of related resources from the internet. Its link to the main source is embedded to the highlighted items. User can simply click the interesting item and the system will open a new tab where he/she can view the complete source of the materials. (Fig. 4
- Partners. List of partners who worked with the development team in the project . Also available in this page are its link to the respective institutional webpages.(Fig.5)
- Bulletin. This page contains weather reports and related notifications released officially by PAG-ASA. Initially, the materials are from PAGASA Region V. (Fig. 6)
- Reports. Contains report that the system can generate based from the available database. This will cover summary reports from the Municipal-level to Regional scale.
- Join. This page provides the user with the process on how their LGU and other offices of the Department of Agriculture can participate as data providers. (Fig.7)

This homepage doesn't require any login procedure.

POST DISASTER NEEDS ASSESMENT TOOL
A component of the project: Strengthening Capacities for Climate Risk Management and Disaster Preparedness in Selected Provinces of the Philippines (Bicol Region) TCP/PHI/3203 (D), Philippines

| PDNA | Resources | Partners | Bulletin | Reports | Join |

Resources, Download Links, Census

The following on-line resources can be explored as additional materials for further analysis:

- The Philippines in Figures 2011.

- Total Population by Province, City, Municipality and Barangay as of August 1, 2007

- A Review of the Agriculture Sector in Bicol Region. - National Statistics Office, Manila, Philippines - October 26, 2004

- 2008 Annual Survey of Philippine Business and Industry (Preliminary Results). - Agriculture, Hunting and Forestry Sector (Total Employment of 20 and Over)

- Geo-hazards Maps for Bicol Region, Philippines (1:50,000 scale)

Figure 4. Public View: PDNA-Resources

POST DISASTER NEEDS ASSESMENT TOOL

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PDNA   Resources   Partners   Bulletin   Reports   Join

Goverment Agencies, Private Sectors

Food and Agriculture Organization United Nations (FAO) - the United Nations agency concerned with the international organization of food and agriculture.

Kagawaran ng Pagsasaka. The principal agency of the Philippine government responsible for the promotion of agricultural development. Agency profile, agricultural statistics, and services ...

Central Bicol State University of Agriculture (CBSUA) - Excellence in Agriculture and Industrial Technology.

Bicol University (BU) - is a state university in Legazpi City, the Philippines. The administrative center of Bicol University is in the City of Legazpi while its colleges ...

Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAG-ASA) - is a Philippine national institution dedicated to provide flood and typhoon warnings, public weather forecasts and advisories, meteorological, astronomical, climatological, and other specialized information and services primarily for the protection of life and property and in support of economic, productivity and sustainable development.

Figure 5. Public View: PDNA-Partners

PDNA   Resources   Partners   Bulletin   Reports   Join

Bulletin Board, Annoucements

Farm Weather Bulletin - November 2011 - January 2012

Municipality	Buhi (Camarines Sur)			Guinobatan (Albay)			Gubat (Sorsogon)		
	Nov 2011	Dec 2011	Jan 2012	Nov 2011	Dec 2011	Jan 2012	Nov 2011	Dec 2011	Jan 2012
Normal Rainfall (Nov 2011-Jan 2012)	283.3	180.2	68.5	253.8	276.6	111.4	523.2	573.9	444.2
Forecast	548.1	680.9	296.1	502.2	603.2	315.7	462.7	540.9	336.7

Near to above normal rainfall conditions are expected to impact the Philippines climate on the last remaining months of 2011. Occasional extremes of rainfall particularly over the eastern section of the Philippines is likely to occur as rain-causing weather systems (tail end of cold front, ITCZ, ridge of HPA, easterlies and one (1) to two (2) tropical cyclones) are expected to enhance convection associated with a La Niña.

Upland

Farm Activities (root crops, vegetables)	• Land prep.,transplanting,fertilizer app, weeding, seedbed preparation	• Site selection, land prep., transplanting, fertilizer app, weeding, seedbed preparation, trellis installation (bitter gourd), weeding, rearing of small ruminants	• Hilling-up/cultivation, pest and disease monitoring; harvesting; land preparation, rearing of small ruminants
Farm Activities (root crops, vegetables)	• Wash-out of newly planted cuttings; • Weeds infestation - due to the abundance of water; • Erosion/washing-off of top in sloping areas.	• Wash-out of newly planted cuttings; • Erosion/washing-off of top in sloping areas. • Pest & disease outbreaks	• Possible lodging /wilting • Infestation of fungal and bacterial diseases • Favorable weather for land prep • High post harvest losses
		• Mulching, transplant older seedling that can withstand the impact of strong rainfall	• Construct drainage canals

Figure 6. Public View: Farm Weather Bulletin

PDNA   Resources   Partners   Bulletin   Reports   Join

- **Barangay** - For Barangay Agtech Only. AgTech should use this form to list all the names of the farmers and their commodities living in his assigned barangay. Download File.

  - Farmers List
  - Barangay Captain
  - Barangay Household Information.

- **List of Municipal Report Officer** - Municipal Director should collate all the names of all the List of Municipal Report Officers and their respective assigned Barangay and Commodity.

- **List of Provincial Report Officer** - Provincial Director should collate all the names of all the List of Provincial Report Officers and their respective assigned Municipality and Commodity.

- **List of Regional Report Officer** - Regional Director should collate all the names of all the List of Regional Report Officers and their respective assigned Provinces and Commodity.

- Agricultural Technicians , Municipal Report Officers, Municipal Directors, Provincial Report Officers, Provincial Directors, Regional Report Officers, and Regional Directors should complete the Registration for their Login credentials.

  - Agtechs, Report Officers, and Directors should have their Email Address ready upon registration.
  - Complete the registration by filling out the form with proper information.
  - Regional, Provincial, Municipal and Barangay Codes are all found here. Please refer to this page for your respective areas.
  - Only the administrator can generate Login Credentials for the users. Wait for the Confirmation on the Email Address.

- **REQUIREMENT:**

  - Email Address.

Figure 7. Public View: Join

4. DATA MANAGEMENT: UPLOADING AND UPDATING

The two type of users that are allowed to upload and update data in the system: the system administrator and agricultural technician. The following are the procedures on how each of the type of users can utilize the PNDA software:

4.1. PDNA system administrator

As per design, the PDNA SysAd is the only person who are authorize to perform the on adding data, deleting and uploading baseline information, this include the registration of users, and uploading of baseline data.

Baseline data are information submitted by interested LGU to the system administrators, in softcopy, for uploading to the system.

4.1.1. Entering the administrator's page

Before the PDNA SysAd can make the necessary uploading of data to the system, he/she needs to enter the administrators homepage by typing in the browser the URL and provide the required username and valid password (Fig. 8).

Once logged in, the administrator will view a welcome page (Fig. 9) and will allow him/her to use the activated utilities embedded to the homepage. Uploading baseline information and other data includes:

a) Registration of **USERS (AGRICULTURAL TECHNICIAN, REPORT OFFICERS PER COMMODITY AND AGRICULTURAL OFFICERS)**

b) Registration of **FARMERS**, household data and farm's information

Figure 8. Login page for PDNA System Administrator
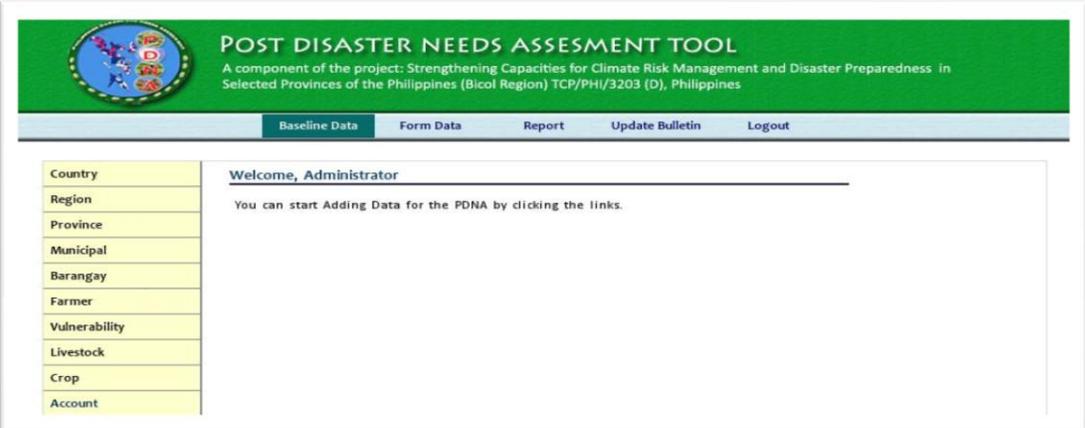
Figure 9. Welcome page for PDNA System Administrator

4.1.2. Registration of various types of users

Before any local government units can use the PDNA system, the PDNA SysAd must first register or upload to the system the names and data of possible users, such as the agricultural technicians, agricultural officers and report officers at the municipal, provincial, and regional-level.

Once registered, the system in return will generate or assign <u>users' name</u> and <u>password</u> to allow the users to maximize the utilities of the system, like data updating, report generation, etc. This username and password will be transmitted to the individual users by the system administrator, and use it to access the PDNA online system and maximize its utilities.

To be part of the qualified users, the interested local government units (LGU-Municipality, Province) are required to send a letter of interest to the Department of Agriculture (at this time to the Regional Director of DA-Region V) to express their willingness to share data and use the online system to complement their local administration initiatives on agriculture and disaster risk reduction effort. The required forms are downloadable through the PDNA website. Take note that the submitted forms must contain <u>complete</u>, <u>correct</u> and <u>validated baseline information of their locality</u>.

4.1.2.1. Registration of agriculture technicians to their assigned barangays

1. Open the PDNA administrators system. The link or URL will be provided by the system development team directly to the assigned PDNA administrators for security purposes. Only the PDNA administrators system is authorized to open this part of the system;
2. Type the user name and password to the space provided, to run the system under administrator level. If successfully done, the administrator has all or full rights to make the necessary changes in the database embedded in the system;
3. Click the UPLOADING TOOL, to start the uploading of the data, which is indicated in the different forms submitted to the administrator;
4. Click the icon BROWSE to locate the source of the specific dataset;
5. Find the file named "Form 1. List of Agricultural Technician and their assigned Barangays"
6. Then click UPLOAD

4.1.2.2. Registration of report officers and their assigned commodities

1. Open the PDNA administrators system. The link or URL will be provided by the system development team directly to the assigned PDNA administrators for security purposes. Only the PDNA administrators system is authorized to open this part of the system;
2. Type the user name and password to the space provided, to run the system under administrator level. If successfully done, the administrator has all or full rights to make the necessary changes in the database embedded in the system;

3. Click the uploading tool, to start the uploading of the data, which is indicated in the different forms submitted to the administrator;
4. Click the icon BROWSE to locate the source of the specific dataset;
5. Find the file named: "Form 2. List of Agricultural Administrators and Report Officers per Commodity"
6. Then click UPLOAD

4.1.2.3. Registration of farmers per barangay

1. Open the PDNA administrators system. The link or URL will be provided by the System Development team directly to the assigned PDNA Administrators for security purposes. Only the PDNA administrators system is authorized to open this part of the system;
2. Type the user name and password to the space provided, to run the system under administrator level. If successfully done, the administrator has all or full rights to make the necessary changes in the database embedded in the system;
3. Click the uploading tool, to start the uploading of the data, which is indicated in the different forms submitted to the administrator;
4. Click the icon BROWSE to locate the source of the specific dataset;
5. Find the file named: "Form 3: Baseline of Rice Farmers per Barangay"
6. Then click UPLOAD

4.1.3. Updating of baseline data

Figure 10 shows the list of data that the PDNA SysAd can add under the Baseline Data Section

1. *Country* – Add specific country where the system will take effect. Philippines is the default country where the system is modeled (Fig 11).
2. *Region* – This refers to the 17 administrative regions of the Philippines. The default region in the PDNA System is Region V-Bicol.
3. *Province* – Province that composes a region.
4. *Municipal* – Municipality or City that are located within a province (Fig. 12).
5. *Barangay* – List of barangays per municipality or city.
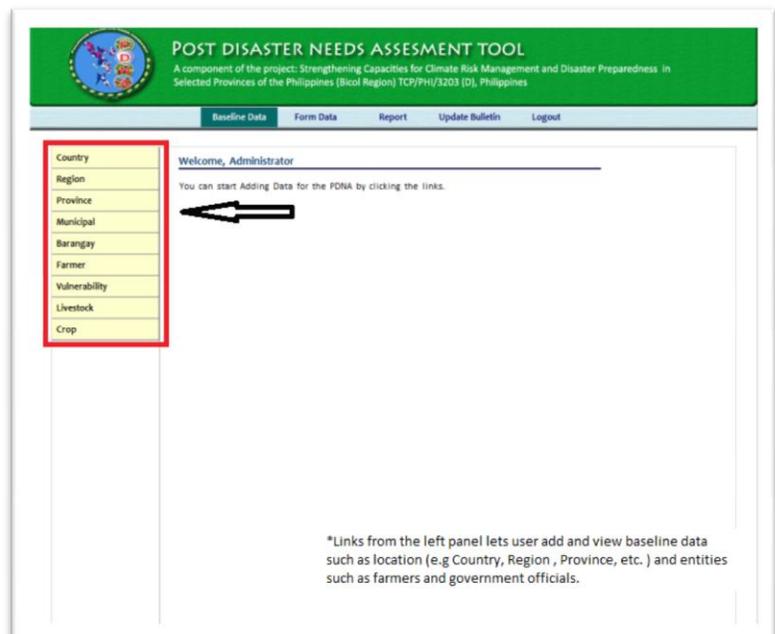
Figure 10. View of baseline data where the System Administrator can upload the required information.

Figure 11. Registering a Country.

Figure 12. Adding a Municipality or City.

6. Farmer – List of farmers in the barangay. A farmer can be listed in several barangays if he/she has a farm in that area;

7. *Farm Vulnerability* – degree of vulnerabilities of farms to natural calamities, based on its historical occurrence of the specific farm lot. To facilitate the rapid description of vulnerabilities, the scale of LOW, MEDIUM and HIGH was suggested during the series of workshop;

8. *Occurrence* – Stating the name/title of the possible disaster event and the probable type of disaster (e..g flood, strong wind, drought, etc.)

9. *Livestock* – Information of livestock and poultry produced by farming family by a specific barangay;

10. *Crop* – Crop information being produced in a specific barangay.

For items 6, 7, 8, 9 and 10, these baseline data will be initially uploaded to the system by the PDNA SysAd, but updates of this list will be done by the agricultural technicians through their individual access (homepage):

4.1.4. Bulk posting of baseline information

Bulk posting is a special feature of this system to allow faster way of integrating names and other data to the system and minimize error that are normally committed during manual encoding (e.g. name of farmers).

Only the PDNA system administrator can upload data in bulk to the PDNA system, particularly baseline data of farmers' names, number of household members, farm lots, farm area, farm vulnerabilities, crop they grown and livestock they produce. This baseline data will come from the softcopy submitted by the LGU to DA/PDNA SysAd.

This bulk posting approach of the baseline data will improve the data management efficiency of AT, by minimizing the time spent for re-typing of farmers names to the system.

After successfully uploading the data to the PDNA by the SysAd, the data now is ready to be updated by the agricultural technician. In fact, the AT can directly update the data sets, like the date of planting and vulnerabilities of each farm lot, so that the system can automate the present stage of the crop.

Form 1. List of Agricultural Technician and their assigned Barangays

Name of Report Officers	Office Position	Assigned Barangays	CP Number	email
Maritess V. Binto	Agricultural Technician	Bagtong	xxxxxxxxxxx	
Concordio F. Mandago	Agricultural Technician	San Antonio	xxxxxxxxxxx	

Form 2. List of Report Officers and their assigned commodities

Name of Report Officers	Office Position	Assigned Commodities	CP Number	email
Marvic T. Yu	Report Officer	Corn	xxxxxxxxxxx	
Juan C. Lita	Report Officer	Rice	xxxxxxxxxxx	

Form 3: Baseline of Rice Farmers per Barangay

Name of Farmers	Office Position	CP Number	eMail	Crop	Number of farm lots	Household size
Raquel F. Made	Farmer	xxxxxxxxxxx		Rice	1	5
John T. Cortez	Farmer	xxxxxxxxxxx		Rice	3	8

To ensure that correct data are encoded in the forms, the interested LGU are required to meticulously review the forms making it consistent with the examples above. Spelling of names and crops are critically important to avoid duplication of data in the PDNA database.

4.2. Agriculture technicians

The agricultural technician's primary responsibility is to regularly update the production information and disaster-related data of areas that they cover, so that the PDNA system can generate real-time reports. Updating by ATs, however, is only limited to data of farmers or communities where he/she is currently assigned.

4.2.1. Entering the agriculture technician's homepage

Before the agricultural technician can directly update the data to the system, he/she needs to enter the AT homepage by typing in the browser the URL and provide the required username, valid password, and equivalent code of the barangay the AT cover (Fig. 13). AT were provided by the PDNA SysAd of the equivalent Code of their covered community.

Once the AT have successfully login to the AT page, he can view the image below and enter the Form Data Section to update data that was initially uploaded by the SysAd regarding the farmers, their family and community.

Figure 13. Login page for Agricultural Techncian

The AT need to logout to the existing barangay, to go to another barangay – to update its data in the FORM DATA MANAGEMENT link (Fig. 14).

Figure 14. Form Data Management Page for Agricultural Technician.

4.2.2. Updating the agricultural production information

a) Access the login page for the agricultural technician by typing the required user name and password;

b) Once successfully logged, the agricultural technician will be redirected to the default homepage;

c) Select form data to perform updating tasks

d) Retrieve farmers information by commodity. Select the crop to be updated (e.g. rice) – (Fig. 15);

e) Select the barangay to where the specific crop information will be updated by clicking the appropriate region, province, municipality and barangay, and

f) Update the individual farmers crop production data like:

    1. Creation of farm lots

    2. Setting of new planting dates

    3. Updating the level of disaster vulnerabilities of the registered farm

g) View the updated production-related database (Fig 16)

h) Printing of production individual reports (Fig 16/17)

i) Logout to go to other barangays for updating its production information and printing the report

Figure 15. Retrieving farmer's individual rice production profile for data updating.

Figure 16. View after submitting the updated data sheets of farmer's individual rice production information after data updating.

Figure 17. Another view of farmer's individual rice production information ready for printing.

Figure 18. Another view of farmer's individual corn production information ready for printing.

4.2.3. Updating disaster-related data

a) Open the AT login area by typing the URL in the browser;
b) Type the required user name and valid password to enter the system;
c) Once opened, select the crop to be updated (e.g. rice, corn);
d) Open Disaster Registry Update and provide the necessary data (Fig 19);
e) Select applicable timeframe of the disaster-data updating (e.g. 24-hour, 48-hour, 72-hour and final);
f) Update the individual farm's disaster-related data (Fig. 20);
g) View the updated database;
h) Print the disaster-related reports;
i) Logout to existing barangay. Go to other barangays for updating its Disaster-related information.
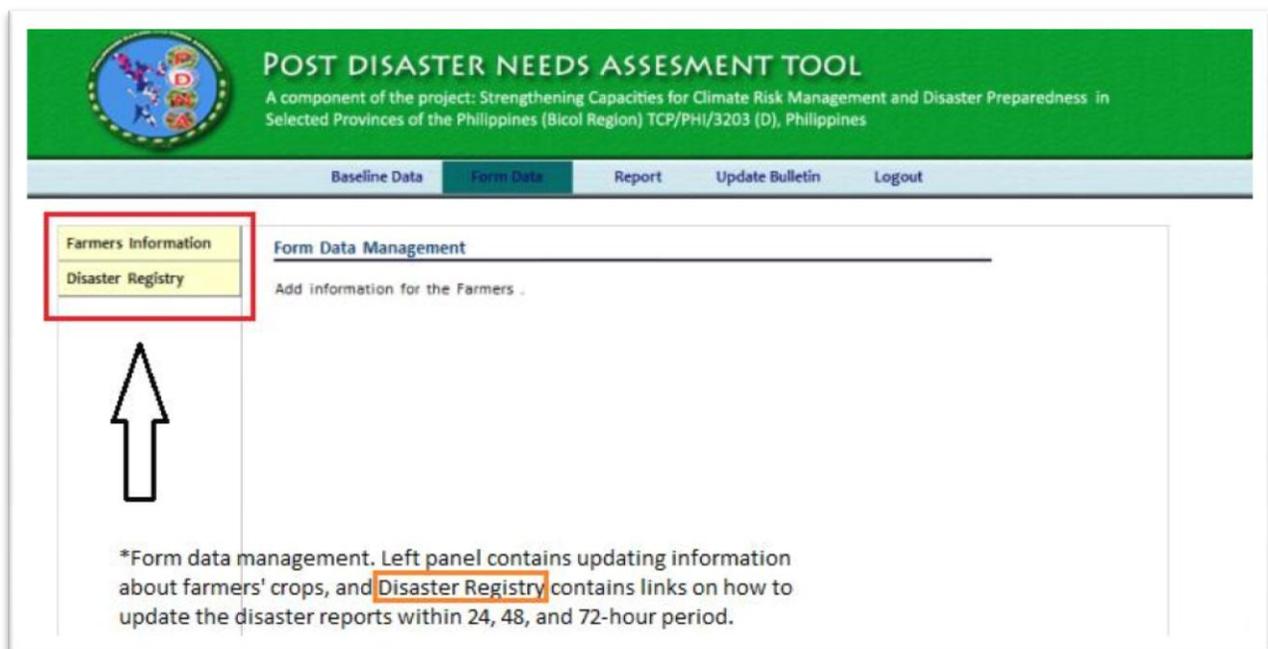
Figure 19. View of accessing disaster registry update page.

Figure 20. Directing to specific barangay for updating its disaster data.

Figure 21. Selecting specific farm lot affected by disaster.

				24-HOUR UPDATE			
FARMERS	FARM LOT	FARM AREA (Ha.)	CROP STAGE	AREA		% DAMAGE	DAMAGE COST (Php)
				Ha.	%		
Dela Cruz, Juan A.	A	6	Planting	5.5	100	0.05	18562.5

Figure 22. Sample disaster-related report after 24-hour.

				24-HOUR UPDATE				48-HOUR UPDATE			
FARMERS	FARM LOT	FARM AREA (Ha.)	CROP STAGE	AREA		% DAMAGE	DAMAGE COST (Php)	AREA		% DAMAGE	DAMAGE COST (Php)
				Ha.	%			Ha.	%		
Dela Cruz, Juan A.	A	6	Planting	5.5	100	0.05	18562.5				

Figure 23. Sample disaster-related report after 48-hour.

				24-HOUR UPDATE				48-HOUR UPDATE				72-HOUR UPDATE			
FARMERS	FARM LOT	FARM AREA (Ha.)	CROP STAGE	AREA		% DAMAGE	DAMAGE COST (Php)	AREA		% DAMAGE	DAMAGE COST (Php)	AREA		% DAMAGE	DAMAGE COST (Php)
				Ha.	%			Ha.	%			Ha.	%		
Rizal, Jose A.	A	10	Maturity	10	100	0.15	101250	10	100	0.15	101250	10	100	0.25	168750

*List of the affected farmers during the disaster. The columns for 24-hour, 48-hour, and 72-hour update shows the result of the affected area and the equivalent percentage. The percentage of damage according to water type and growth stage is also shown and computed. The Damage cost is the result of the affected area, potential yield and the growth stage.

*This table can also be converted to PDF.

Figure 24. Sample disaster-related report after 72-hour.

4.3. Agriculture officers

This group of users will use different view, depending on their position. They cannot modify the encoded data, but are allowed to print reports of consolidated data from the municipal-level, provincial and regional-scale, depending on the coverage of their functions. Their authority to print will depend on the levels of LGU that they officially represent (e.g. municipal, provincial, and regional) and the commodity that they were assigned.

For instance, a registered agricultural officer of the Municipality of Camalig can only print report related to the municipality they cover (Camalig). The report officer of that municipality assigned to monitor rice commodity can only print consolidated report on rice production and disaster-related information of that municipality and its covered barangays.

Figure 25. Login for Agricultural Officers.

4.4. Commodity report officers

This group of users will use different view, depending on their position (see figures). They cannot modify the encoded data, but are allowed to print reports of consolidated data from the municipal-level, provincial and regional-scale, depending on the coverage of their functions. Their authority to print will depend on the levels of LGU that they officially represent (e.g. municipal, provincial, and regional) and the commodity that they were assigned.

For instance, a registered agricultural officer of the municipality of Camalig can only print report related to the municipality they cover (Camalig). The report officer of that municipality assigned to monitor rice commodity can only print consolidated report on rice production and disaster-related information of that municipality and its covered barangays**.**

Figure 26. Login for Report Officers.

5. REPORTS GENERATION

In general, the system can generate an updated report based on the recent update done by the agricultural technicians. It can produce reports in portable document format (PDF) to present the standard forms required by the DA and the LGUs. However, the level and coverage of the reports depend on the user type and their respective level of authority in the system. This authority also defines their authorization to update data.
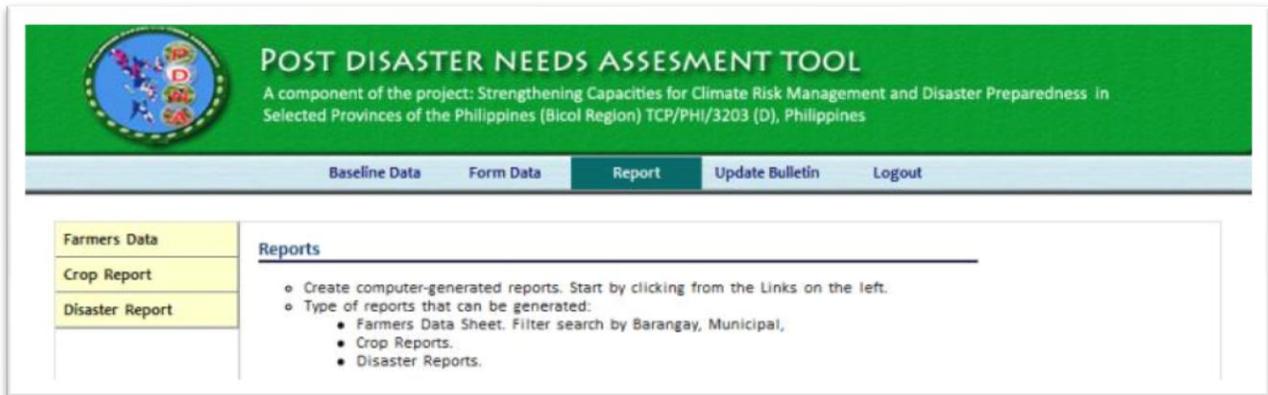

Figure 27. Template for the various reports of PDNA Software .

- PDNA Systems Administrator can generate all reports that the system can produce across levels;
- Agricultural Technician can only generate reports of the specific barangays that he/she covers. The AT can generate farmers-level data showing facts or status of the specific farm lots of the farmer and the status of the crop that the farmer is growing:
  - ○ Production-related Reports:
    - ▪ **Production Status of Rice and Corn** showing the present growth stage of the crop based on the given date of planting;
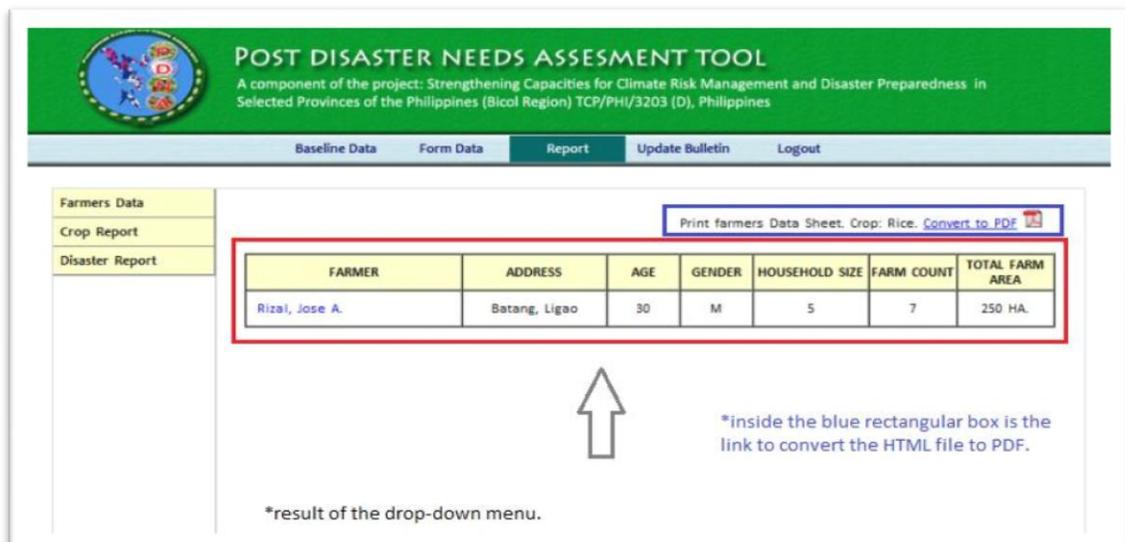
Figure 28. Farmer's household consolidated data.
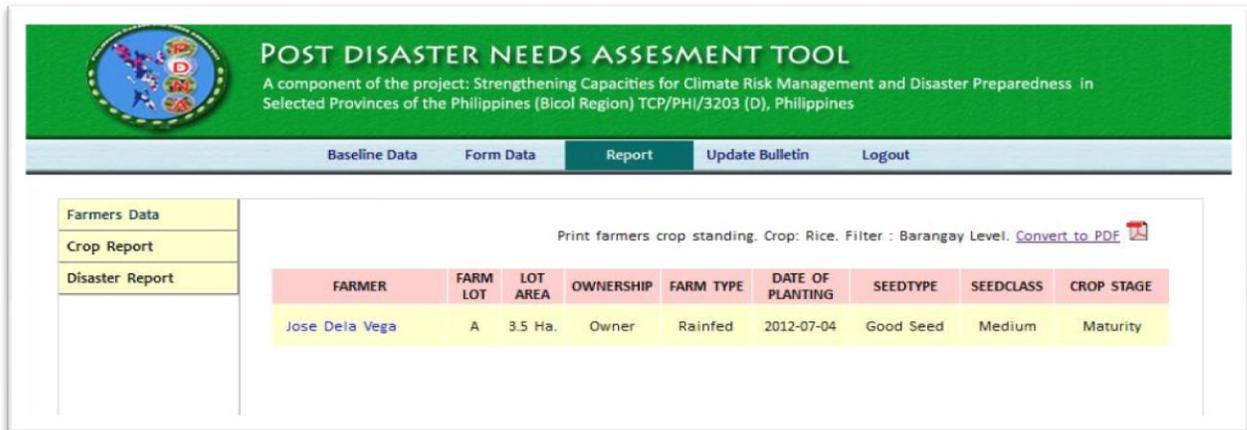
Figure 29. Rice production data.
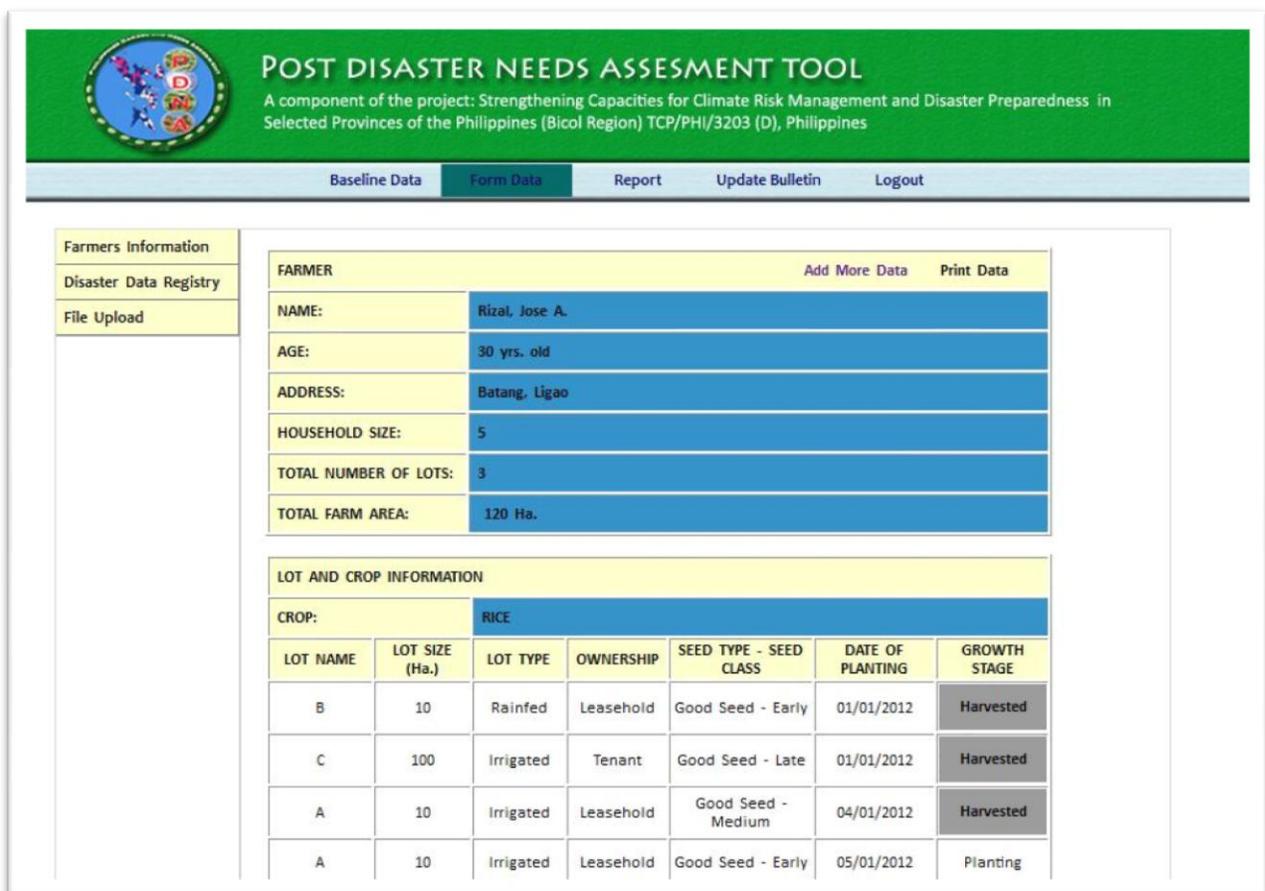
Figure 30. Rice farmers data and production status.
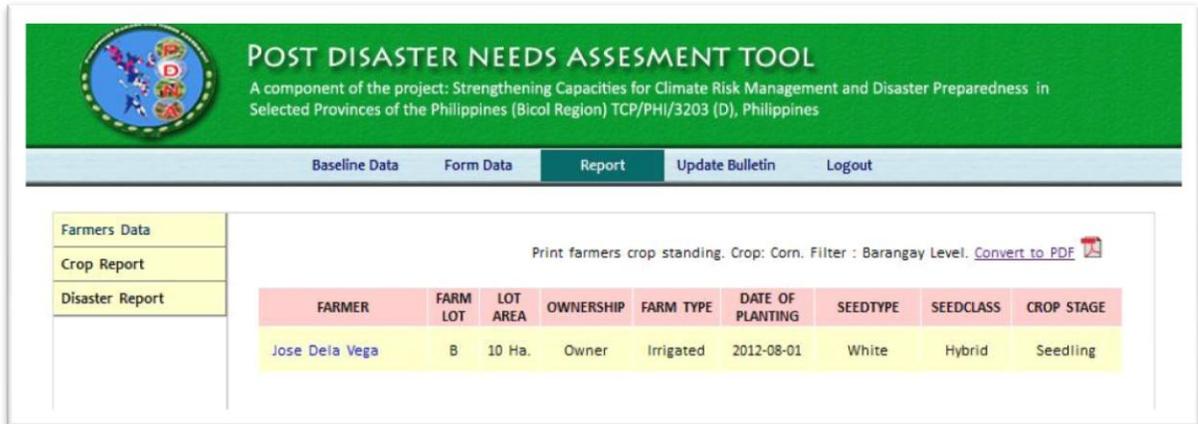
Figure 31. Corn production data.
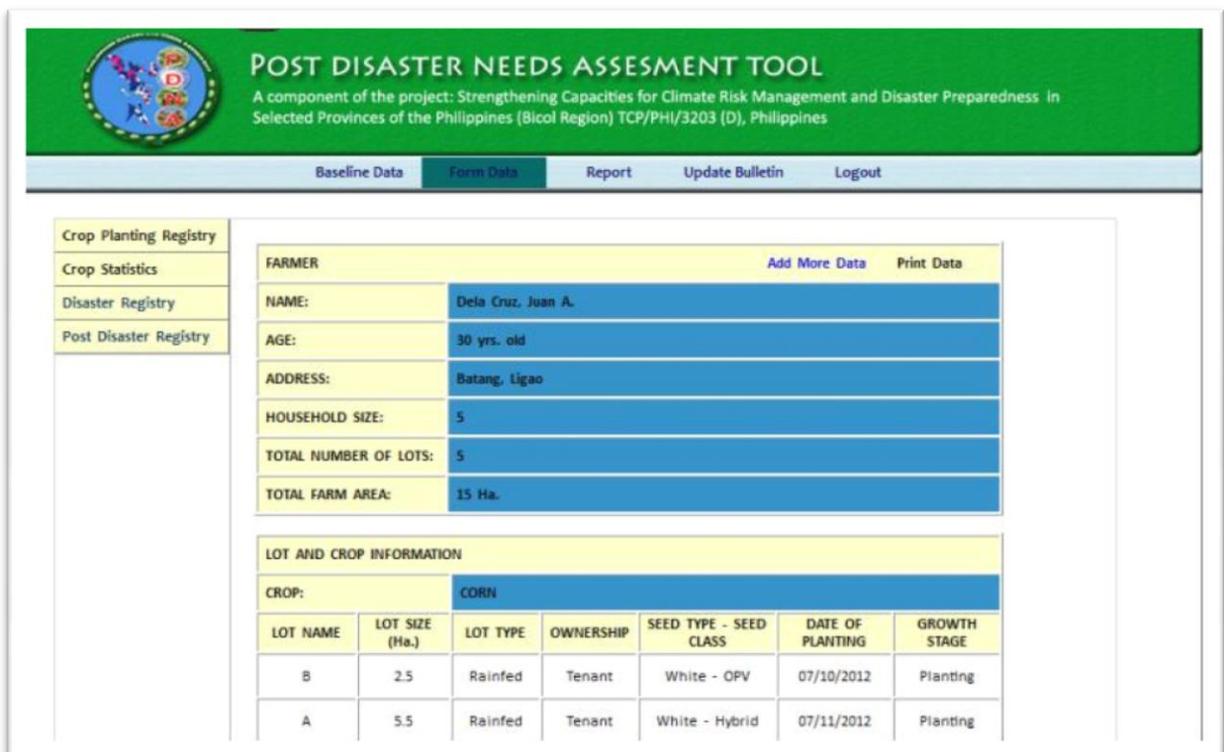
Figure 32. Sample of corn production status report.
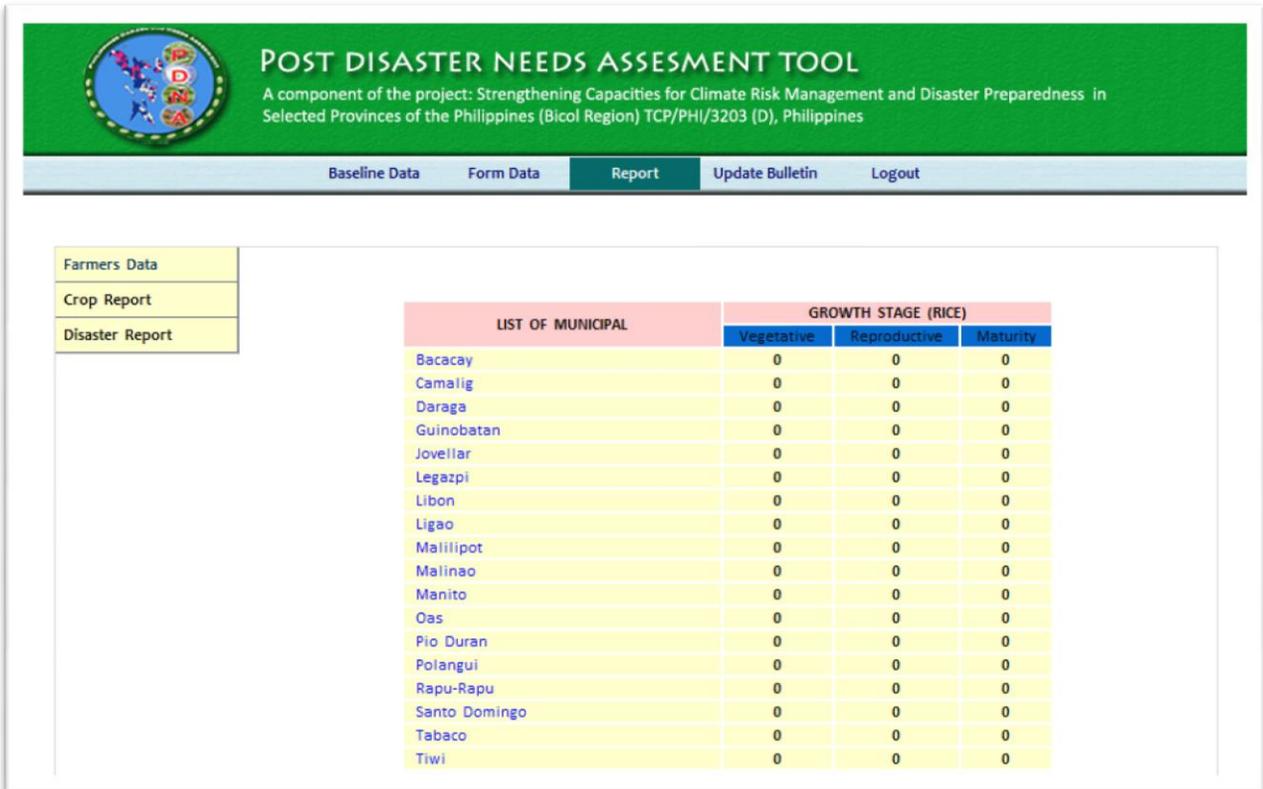
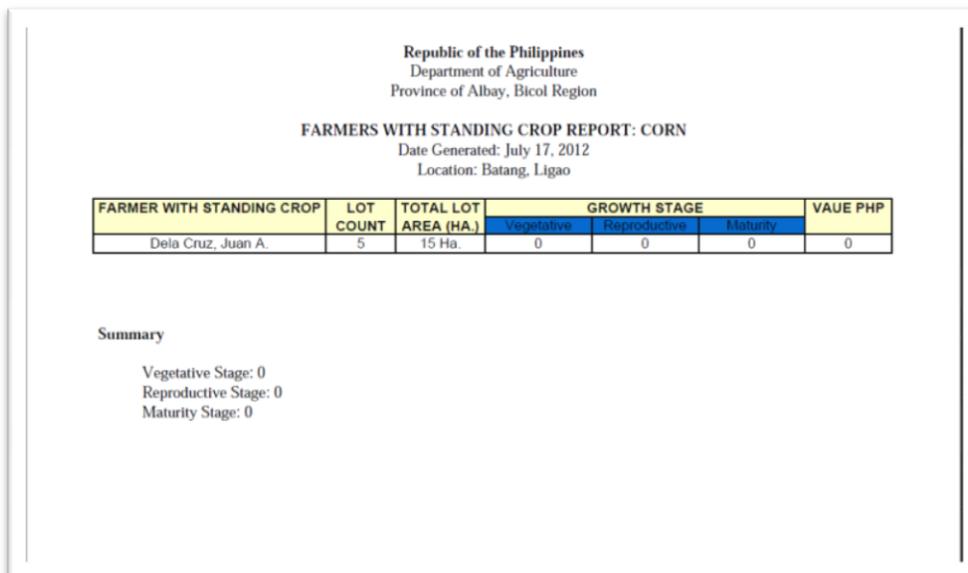**Figure 33. Provincial-level consolidated rice status report.**

Figure 35. Barangay-level consolidated Corn status report.

Republic of the Philippines
Department of Agriculture
Province of Albay, Bicol Region

FARMERS WITH STANDING CROP REPORT: RICE
Date Generated: July 17, 2012
Location: Batang, Ligao

FARMER WITH STANDING CROP	LOT COUNT	TOTAL LOT AREA (HA.)	GROWTH STAGE			VAUE PHP
			Vegetative	Reproductive	Maturity	
Dela Cruz, Juan A.	5	15 Ha.	1	0	0	202,500

Summary

Vegetative Stage: 1
Reproductive Stage: 0
Maturity Stage: 0

Figure 36. Barangay-level consolidated Rice status report.

- o Disaster-related Reports:
    - **Pre-disaster Report for Rice and Corn crop** showing the present estimated value of the crop before a disaster, based on estimated cost of production provided by DA per growth stage. No additional data is necessary to generate this report because the system will utilize previously encoded production-related data;
    - **Damage Report during Disaster:** This set of reports includes additional data provided by AT for their area such as affected crops, livestock and poultry, area and percentage of chance to recover from disaster. These data will be encoded to the system in three succeeding days (24-hour, 48-hour, and 72-hour), after visiting their assigned communities. Each damage report on rice and corn presents the estimated loss of the standing crop in the first 24 hours, 48 hours and 72 hours, respectively after the occurrence of a disaster. This is based on the standard estimated percentage of damage per growth stage provided in the manual produced by DA-BAS;
    - **Post Disaster Report:** This report is generated after 10 days, based on the actual field data and damage assessment collected by the LGU and encoded to the on-line system;

Republic of the Philippines
Department of Agriculture
Province of Albay, Bicol Region
Municipality of Ligao

DAMAGE CROP REPORT: RICE
24-HOUR REPORT
Baseline Report for Typhoon Reming
Date Generated: July 13, 2012
Location: Batang, Ligao

BARANGAY - LEVEL REPORT

FARMERS	FARM LOT	FARM AREA (Ha.)	CROP STAGE	24-HOUR UPDATE			
				AREA		% DAMAGE	DAMAGE COST (Php)
				Ha.	%		
Dela Cruz, Juan A.	A	10	Maturity	10	100	0.15	101,250
Dela Cruz, Juan A.	C	10	Flowering				0
Dela Cruz, Juan A.	F	100	Vegetative				0
Dela Cruz, Juan A.	G	100	Planting				0
Dela Cruz, Juan A.	E	10	Booting				0
Dela Cruz, Juan A.	F	100	Vegetative				0
			TOTAL:	10			101,250

Figure 37. Barangay-level consolidated Disaster Report on Rice (after 24-hour).

Figure 38. Barangay-level consolidated Disaster Report on Rice (after 48-hour).

Figure 39. Barangay-level consolidated Disaster Report on Rice (after 72-hour).