



Income Generation and Employment Creation for **ENTREPRENEURS THROUGH YEAR-ROUND ONION CULTIVATION & MARKETING**



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ONION CULTIVATION & MARKETING**

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Published by

WAVE Foundation

22/13 B, Block-B, Khilji Road

Mohammadpur, Dhaka-1207, Bangladesh

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Drawing, Design & Print

PATHWAY/www.pathway.com.bd





PREFACE

Agriculture has been well-functioning in Bangladesh as a catalyst for sustainable development and growth of the country owing to its production environments such as weather condition, soil fertility, water availability and available labor supply. Onion is one of the most significant profitable spice crops, which is used in our daily meal in Bangladesh. Onion is cultivated extensively in winter season. As per the latest report, onion productions during 2018-2019 were 2.33 million metric tons with a demand of 3.60 million metric tons (BBS,2019). Bangladesh imported about 0.27 million metric tons of onion and so the market deficit amounts to be 1 million metric tons. Considering the aforementioned context, WAVE Foundation has embarked upon a pioneering initiative to reduce the deficit in onion production and make it available throughout the year by introducing summer onion cultivation extensively among farmers in Meherpur District. In 2017, a project titled "Income Generation and Employment Creation for Entrepreneurs through Year-round Onion Cultivation & Marketing" of Palli Karma-Sahayak Foundation (PKSF) has been undertaken by WAVE with 3,000 farmers, who have been provided with training, quality seeds & saplings, technical assistance and access to market linkages. WAVE has assisted the farmers in post-harvest interventions for setting up cost-effective commercial specialized storage to minimize the storage losses and quality deterioration of the onion, which has potential to stabilize market fluctuation and consequently helped the farmers to fetch better prices for their produce.

With the completion of the project, WAVE Foundation conducted an end-line survey by a lead consultant and team of Sher-e-Bangla Agricultural University, Dhaka. As reported in



the survey, the average Onion production estimated as 5,412 kg per bigha in Rabi season and 3,267 kg per bigha in summer season. As a result of the project, onion production of about 95% farmers has increased by 33%. Farmer's earnings ratio has been increased substantially because of post-harvest interventions and high market price. The project has resulted in creating full-time employment of 967 people and part-time employment of 528 people. Therefore, instigating year-round onion cultivation among farmers can become a major landmark to match the overwhelming supply & demand gap and increase the onion production in Bangladesh. Initiatives should be taken to extend the year-round onion cultivation program in the different areas of Bangladesh and GoB should take initiatives to discourage onion import during the harvesting season to guarantee onion self-sufficiency in Bangladesh. I hope this report which includes modern production and management technologies of onion cultivation, post-harvest interventions and baseline & end line survey findings would be essential for developing and adopting profitable and sustainable farming systems for the farmers and beneficial for the use by extension agencies as well.

Mohsin Ali

Executive Director, WAVE Foundation

BACKGROUND

WAVE Foundation emerged as a Civil Society Organization in 1990. Since its establishment, the organization has been implementing multifaceted activities for the socio-economic development of the poor and marginalized as well as the establishment of universal human rights and good governance. Besides, the organization is conducting issue-based policy advocacy and campaigns. WAVE is driven by its motto “Together for Better Life” towards the vision of establishing a “A just and Prosperous society”. WAVE has organized its programs into 3 major domains – 1) Sustainable Livelihood 2) Governance & Rights and 3) Social Development & Climate Resilience. It is now working directly with more than 17 million people all over the country and making significant contributions to the realization of the country’s development plan and the achievement of the sustainable development goals. Recently, the global coronavirus pandemic (COVID-19) forces many sectors of activity to slow down and adapt their functioning. Unlike the past, WAVE is responding through its actions and programs throughout Bangladesh to combat the coronavirus and its resulting crisis.

WHY WE ARE

Together for Better Life

VISION

A Just and Prosperous Society

MISSION

WAVE Foundation promotes rights and entitlement of the people. Organization’s priority is to include the poor and marginalized people in the development interventions towards sustainable livelihood, empowerment, equality, democratic governance and climate resilience.

STRATEGY FOR THE THREE PROGRAMMATIC DOMAINS

- Facilitate feasible livelihood interventions by providing skills, inputs, technology and finance along with using innovative production process, expanding market base and building organizations.
- Foster democratic practice in governance for ensuring responsive public services and facilitate social and policy advocacy with people’s agenda.
- Empower targeted population with the capacities of leadership, mobilization, negotiation, adaptation and protection for attaining desired change in personal, community and social lives.



VALUES

- **Integrity** We demonstrate our integrity through our commitment, honesty and work.
- **Mutual respect** We hold mutual respect irrespective of position, age, gender, ethnicity and religion.
- **Accountability** We demonstrate accountability and fairness by abiding rules and policies at work.
- **Professionalism** We acknowledge professionalism at all aspects of work and life.
- **Team work** Besides our individual responsibilities we work in team to perform tasks.

THEMATIC PREMISES

Our theory of change is a philosophy of our development initiatives which guides us to bring envisaged changes in human lives. This philosophy gives us four thematic premises to learn, act, and provision for questioning to ourselves about what we are doing and why. The themes are inter-connected and intertwined with all development programmes. Therefore, they also act as guiding principles and the optics of outcome and impact measurement. The four thematic areas are; **Rights and Entitlement, Equality and Empowerment, Democracy & Governance and Innovation & Sustainability**. Based on the thematic premises, WAVE Foundation realigned all programmes and projects under three Programmatic Domains.

Major Domains	Cross Cutting Issues	Network & Alliance	Wave Skill and Innovation	Wave Social Enterprise
<ul style="list-style-type: none"> • Sustainable Livelihood • Governance & Rights • Social Development & Climate Resilience 	<ul style="list-style-type: none"> • Gender Sensitivity • Disaster Risk Reduction & Climate Change 	<ul style="list-style-type: none"> • LoakMorcha-LM (People’s Alliance) • Governance Advocacy Forum (GAF) • Right to Food Bangladesh (RtF BD) • CIVICUS • GNDR • International Peace Youth Group-IPYG 	<ul style="list-style-type: none"> • Centre for Development & Capacity–CDC, Koshaghata, Chuadanga • WAVE Training Center, Chuadanga • WAVE Trade Training Center, Chuadanga and Rajshahi 	<ul style="list-style-type: none"> • Angkur Crafts • Angkur Seeds • Angkur Agro Machineries



DEVELOPEMENT PARTNERS

- Palli Karma Sahayak Foundation (PKSF)
- Bangladesh Bank
- British Council
- Christian Aid
- FK Norway
- Heifer International-USA
- IDCOL
- IDE
- GIZ
- Ministry of Primary and Mass Education
- Oxfam
- Manusher Jonno Foundation
- The Asia Foundation
- UNDP and LGD
- Water.org

AREA COVERAGE

24 Districts: Khulna, Chuadanga, Meherpur, Kushtia, Jhenaidah, Magura, Jashore, Satkhira, Bagerhat, Rajshahi, Pabna, Natore, Naogaon, Barishal, Patuakhali, Barguna, Bhola, Sylhet, Hobigonj, Moulovibazar, Dhaka, Rajbari, Manikgonj and Narayanganj.

5 Divisions: Khulna, Rajshahi, Barishal, Sylhet and Dhaka.

HUMAN RESOURCE

A total number of 1987 of employees are working in WAVE Foundation at various levels. 772 of them are female and 1215 are male.

OFFICES

WAVE Foundation has its Head Office in Dhaka and a Base Office at Chuadanga district. It has 06 Regions, 03 Sub-Regions, 26 Areas, 133 Units and 45 Projects Offices.

Head Office

22/13 B, Block-B, Khilgi Road
Mohammadpur, Dhaka-1207
Phone: +88 02 8143245, 58151620;
Fax: +88 02 8143245, 58151620; (Ext.-123)
E-mail: info@wavefoundationbd.org

Base Office

Darshana Bus Stand, Darshana, Chuadanga
Phone: +88 07 63251159; Fax: +88 07 63251159



Background of the Promoting Agricultural Commercialization and Enterprises (PACE) Project

PKSF launched Promoting Agricultural Commercialization and Enterprises (PACE) project in January 2015. The project is jointly financed by PKSF and International Fund for Agricultural Development. The Financing Agreement of the project was signed between the People's Republic of Bangladesh and International Fund for Agricultural Development (IFAD) on 11 December 2014. Subsequently, PKSF signed Subsidiary Loan and Grant Agreement (SLGA) with the Ministry of Finance, Government of Bangladesh on 18 January 2015 to implement the project.

Prior to the PACE Project, PKSF implemented three other IFAD funded projects, these are; i) Microfinance and Technical Supports (MFTS) Project, ii) Microfinance for Marginal and Small Farmers (MFMSF) Project and iii) Finance for Enterprise Development and Employment Creation (FEDEC) Project. All three projects were implemented very successfully and contributed significantly in poverty reduction and employment generation. The 'Promoting Agricultural Commercialization and Enterprises (PACE) Project is designed on the basis of the experience and learning of the above-mentioned three projects to expedite further the process of poverty reduction by promoting microenterprises in the country. The project will be implemented in 6 years (2015-2020).

GOAL AND OBJECTIVES

The project goal is to enhance livelihoods (higher income from self-employment, business profit and wage employment, and food security) of the moderate and extreme poor (men and women) in a sustainable manner.

The development objectives are to increase sales and incomes from existing and new microenterprises and to create new wage employment opportunities for extreme and moderate poor people.

PROJECT PARTICIPANTS

The target population of PACE project will include micro entrepreneurs who are borrowers of ME loan program, moderately poor and extremely poor persons. In terms of professional identities, the project will target marginal and small farmers involved in field crops, horticulture, fisheries, livestock production, non-farm micro entrepreneurs, and professionals in service sectors. The project will extend financial services to additional 1,02,000 micro entrepreneur. Under the Value Chain Development of the project 3,00,00 project participants will receive non-financial services while 50,000 entrepreneurs will be benefitted under the component of Technology and product adaptation. Thus, the total numbers of direct project members are 452,000 in three components.



GEOGRAPHIC COVERAGE

PACE project is being implemented all over Bangladesh through the countrywide network of Partner Organizations (POs) of PKSF. The PACE Project also adopted the strategy of combining financial and non-financial services to expedite the process of poverty reduction.

EXPECTED BENEFITS

The main benefits of the project will be increase in sales due to the expansion of business, enhancement in productivity due to adoption of technologies and management practice, increased income by micro entrepreneurs and other Value Chain actors, increased skills levels of workers, sustainable services, creation of wage employment and a conducive sector specific policy environment.

BUDGET

The cost of the project is USD 92.85 million, of which IFAD contribution will be USD 40.0 million (43%). An amount of USD 0.36 million (1%) from Korean fund will be utilized under the project for setting up an e-platform to provide internet-based marketing support to the micro entrepreneurs. PKSF will provide USD 22.45 million (24%) and remaining USD 30.04 million (32%) will be provided by Partner Organizations (POs) of PKSF.

THE PACE PROJECT HAS THREE COMPONENTS

Financial services for microenterprise: The project will strengthen further the Microenterprise Program of PKSF and will provide sustainable financial services for the expansion of microenterprises (farm, off-farm, trading and service sectors). The outputs of this component are: a) expansion of microenterprise loans for various sectors (e.g. agriculture, off-farm, trading and services); b) piloting of new loan products; and c) capacity building of PKSF and POs in designing and developing of new financial products, monitoring, evaluation and impact assessment of ME program and application of information technology in management of POs.

Value Chain Development: Under the Value Chain Development component of the project, PKSF will make value chain interventions in various farm, off-farm and service sectors to help up scaling business, adoption of appropriate technologies, enhance productivity and ensure access to markets in a sustainable manner. The outputs of the component are: a) establish and expand value chains of 15 agricultural subsectors (products or group of products) in various parts of the country; b) establish and expand value chains for 15 non-farm manufacturing, processing and service subsectors (products or group of products) in various parts of the country; c) strengthen capacity of PKSF and POs to manage large-scale value chain subprojects; d) enhance capacity of PKSF and POs to identify, advocate and strengthen pro-poor business policies, especially sector specific policies; and e) set up an internet based platform to transact products of micro entrepreneurs.

Technology and product adaptation: The project will introduce proven technologies and products (agricultural and off-farm) from Bangladeshi and international sources to the



micro entrepreneurs. The outputs of this component are: a) resolution of technological problems identified under Value Chain Development component; b) adaptation and dissemination of proven technologies and products; and c) provision for technical assistance.



Background of the Income Generation and Employment Creation for Entrepreneurs through Year-round Onion Cultivation & Marketing Project

WAVE Foundation initiated implementation of the project titled *"Income Generation and Employment Creation for Entrepreneurs through Year-round Onion Cultivation & Marketing"* from March 2017 in Mujibnagar Upazilla in Meherpur District. The project is being funded by IFAD through Palli Karma Sahayak Foundation (PKSF) and the project aim is sustainable income increase and job creation for entrepreneurs through year-round onion production.

The project is implemented under 'Promoting Agricultural Commercialization and Enterprises (PACE) Project' of Palli Karma-Sahayak Foundation (PKSF). PACE covers three complementary components- financial services for micro-entrepreneurs, value chain development and technology & product adaptation aimed at increasing the income and generating employment of entrepreneurs through year-round onion cultivation in a sustainable manner. The project implemented by WAVE Foundation follows the strategy of combining financial & non-financial services and transfer of technologies to the micro-entrepreneurs involved in year-round onion cultivation and value chain development. Its specific objectives are; increasing the income of project participants of year-round onion cultivation by ensuring availability of quality seeds & saplings; reducing the post-harvest wastages & production cost through establishing cost-effective commercial storage system at the farmers' level and creating wage-based employment through expansion of year-round onion cultivation. The project is implemented in Mujibnagar Upazila of Meherpur district with the support of IFAD through PKSF.

THE CONTEXT OF PROJECT ADOPTION

Onion is one of the most important and profitable spice crops which is used in our daily meal in Bangladesh. It is quintessential ingredient in many delicious, especially ones involving meat. It is also a cultural demand during the different festivals like Eid, Puja and other religious occasions. It has also huge demand all over the world and also used as medicinal plant or herb.

At present we need 3.60 million metric tons of onions per year. But Onion productions were 2.33 million metric tons in 2018-2019 in Bangladesh. But it may not fulfill the demand for our country due to increase in population day by day and diversified use of onion round year. In each year the country has a shortfall around 6-7 lac tons of onion. Bangladesh has to import onion every year at the cost of its hard-earned foreign currency. The data of department of agricultural marketing reveals that in the fiscal year 2018-2019 onion



was cultivated on around 0.026 million hectares of land in Bangladesh contributing to a production of 2.33 million metric tons. And from fy2012-13 to fy2016-17, onion production in the country increased by 59 per cent. The annual consumption was about 2.60 million metric tons during that time while the amount of imports was 10.07 metric tons and post-harvest losses were around 20 per cent.

The soil and climate in Bangladesh are favorable for onion cultivation. It is possible to increase its yield and total production by commercially cultivating onion in a modern way. As a result, it is possible to export onion abroad by meeting our internal demand. The land of Meherpur is flood-free, flat, high, medium high and Silt loam, Silt clay-loam with fertile soil and climate is suitable for agriculture which is favorable of Onion Cultivation. Due to lack of adequate seeds, modern techniques, adequate facilities and support, the farmers cultivate onions only during the Rabi season and there is not much expansion of onion cultivation in this area throughout the year. However, if technical and financial services are ensured, it is possible to increase the income and create employment of farmers in the region through commercial onion cultivation throughout the year. But in this case there are various problems in which the main problems are as follows:

- The most of the farmers cultivate onions only during the Rabi season, it may not fulfill the yearly demand of our country
- Onion is a fast perishable succulent bulb plant which if proper initiatives are not taken for preservation, about 20-50% of onion rot is lost from production to consumer.
- Although there is sufficient opportunity to cultivate onion throughout the year, due to lack of quality seeds, farmers cannot cultivate it.
- Due to lack of knowledge on production and post-harvest technology and weak market linkages, year-round onion production is not expanding to the desired level.

Considering the above context, the three-year project titled *“Income Generation and Employment Creation for Entrepreneurs through Year-round Onion Cultivation & Marketing”* of Palli Karma-Sahayak Foundation (PKSF) has been undertaken by WAVE Foundation in Mujibnagar upazila of Meherpur district by 3,000 farmers to provide training, seeds, various materials for making onion storage and technical assistance and establish exhibition plots.

GENERAL INFORMATION OF THE PROJECT

Project Duration	Three (03) years
Project Implementing Date	07/03/2017 to 07/03/2020
Participant of the project	Onion Farmers and related inputs & outputs market actors (businessmen)
Total participant	1500
Working Area	Mujibnagar Upazila, Meherpur District.
Budget of the Project	Tk. 6,81,3000



AIM AND OBJECTIVES OF THE PROJECT

Aim of the Project

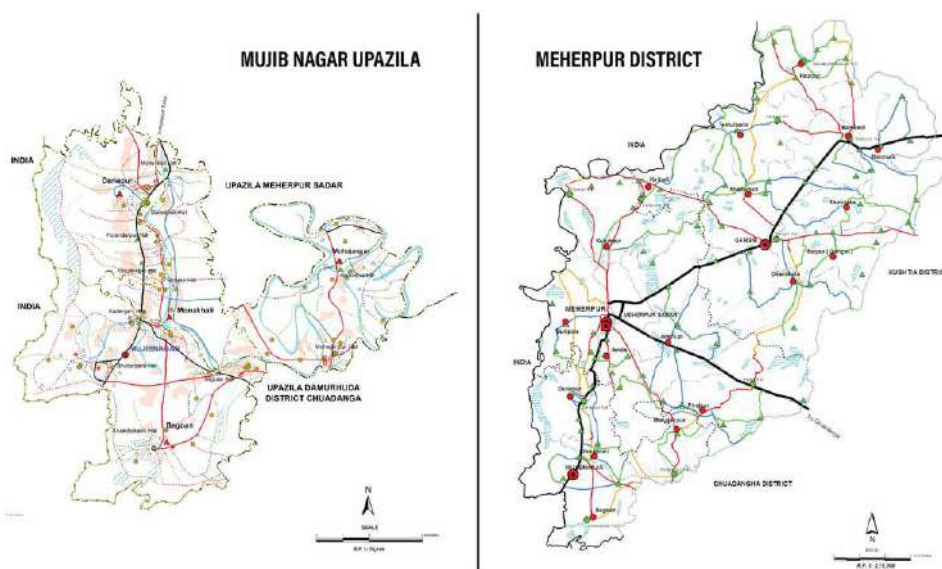
- Sustainable income increase and job creation for entrepreneurs through year-round onion production

Objectives of the Project

- Increasing the income of project participants of year-round onion cultivation by ensuring availability of quality seeds & saplings;
- Reducing the post-harvest wastages & production cost through establishing cost-effective commercial storage system at the farmers' level and
- Creating wage-based employment through expansion of year-round onion cultivation.

WORKING AREA OF THE PROJECT

10 villages of Hara and Pala Union of Mujibnagar upazila of Mehepur district where the farmers are engaged in onion cultivation have been selected as a working area of the project. The main occupation of the selected area is agriculture. Where the main agricultural crops of the working area are rice, jute, wheat, mustard, onion, litchi, banana, mango etc.



MAJOR ACTIVITIES OF THE PROJECT

1. Orientation of the project staffs
2. Workshop on project oriented
3. Farmers survey & land selection
4. Baseline survey
5. Training on Business Awareness and Accounting for Small Entrepreneurs



6. Training on modern technology of onion cultivation throughout the year
7. Training of inputs suppliers, member of irrigation committee & dealers
8. Training on onion seed production
9. Established Demonstration Plot
10. Established Storage (Farmers level)
11. Workshop on Exchange Experience and Removal of Obstacles
12. Cross visit (seasonal)
13. Workshop on Extension Marketing
14. Print Media (Writing & Printing)
15. Participate in Agriculture Fair
16. Distribution of leaflet on year-round onion production
17. End line Survey
18. Publication on End line Survey Report
19. Bi-monthly Meeting
20. Regular monitoring the activities

DETAILS OF THE ACTIVITIES

Orientation for the project staffs

At the beginning of the project, WAVE Foundation organized an orientation program for the project staffs for smoothly implementing of all project activities. PKSF representatives, Focal person of the project, project related staffs and different level staffs of microfinance program were present at the program. In the orientation program, there were discussion on the different activities, target peoples, implementing plan, budget, project management, staff management and financial statement of project.



Farmer's survey & land selection

Survey work is carried out in a specific format through personal communication, home visits and group discussions. The aims and objectives of the project are discussed with the farmers at the beginning of the project activities. As a result, farmers are interested in working with this project. Farmers and onion cultivation lands are selected in collaboration with the branch manager, field and respective project staffs of the organization.



Baseline survey

After the selection of farmers, a baseline survey was conducted with 150 farmers (10% of total farmers) of the project area. This baseline activity was conducted by a specialist consultant.



Training on Business Awareness and Accounting for Small Entrepreneurs

On the basis of project design, a business awareness and accounting training session was arranged by WAVE Foundation with the assistance of PKSf. There were take part about 50 participants. Most of the participants were entrepreneur, onion farmer, dealer and retailer. They were able to gain knowledge on agribusiness plan, marketing, and quality product, production planning and budgeting, record keeping and sales through this training session.



Training on modern technology of onion cultivation throughout the year

In the project period, WAVE Foundation provided non-resident training to the 1500 onion farmers on modern technology of onion cultivation throughout the year. From the training program, farmers learned modern technology of onion cultivation throughout the year. Assistant Project Coordinator of WAVE Foundation facilitated and fulfilled the overall responsibility of this training program. Upazilla Agriculture Officer, Mujibnagar attended in the training program as a resource person.



Training for inputs suppliers, member of irrigation committee & dealers

WAVE Foundation arranged a training for inputs suppliers, member of irrigation committee & dealers for better service to the farmers for onion cultivation throughout the year. There were take part about 25 participants.



Training on onion seed production

A training program organized by WAVE Foundation on onion seed production specially BARI onion-5 seed production. A total of 225 farmers participated in 9 batches in the training program.



Established Trial Plot on Onion seed (BARI Onion-05) production in the organization's nursery

Under the project, total 12 trial plots have been established in the organization's nursery on onion cultivation and onion seed production at Mujibnagar upazila of Meherpur district. Scientific method has been followed to establish those trial plots. About total 110 kg of BARI onion-5 seeds are produced from 12 trial plots.



Established Demonstration Plot for onion seed production

Under the project, demonstration plots were set up in the working area with 120 farmers from different places. They followed modern technology and scientific method for establishing the demonstration plot for onion seed production. By establishing the demonstration plot, farmers produced quality onion seeds (BARI Onion-5) and preserved for the next year.



Established the onion Storage (Farmers level)

In the project period, total 37 numbers of storage established in the project area. WAVE Foundation provided bamboo, tin, fan and technical assistance to the selected onion farmer for establishing onion storage. Approximately 25-30 thousand taka was spent to build each storage which capacity was 150-200 mons. Onion farmers had to sell their product at low price during harvesting or just after harvest. Due to the storage facilities, farmers were able to store their cultivated onion for 4-5 months without any harvesting losses and they sold at high price. An appropriate storage scheme has been developed in the project area so that the farmers are not forced to sell their product at low price in harvest period.



Cross visit on experience exchange

A well-conducted seasonal cross visit provides a valuable learning experience that intensifies the learning of the farmers. A total number of 3 experience exchange-related cross visits were organized in the project period with the selected onion farmers in Spice Research Center, Shibgong, Bogura. Cross-exchange visits were intended to benefit all participants through an open exchange of ideas, knowledge and sound & sustainable practices. A total of 100 farmers participated in the program.



Seminar/Workshop

WAVE Foundation conducted 3 seminars/workshops on Exchange of Experiences and Removal of Obstacles of year-round onion cultivation. There were attended Upazilla Nirbahi Officer (UNO), Mujibnagar, District Training Officer, Meherpur, Upazilla Agriculture Officer, Mujibnagar, Upazilla Agriculture Extension Officer, Mujibnagar, Sub-Assistant Plant Protection Officer, Mujibnagar; dealers as well as farmers. Sharing experiences in such workshops offer a bundle of benefits, well beyond just acquiring information. It creates a common understanding, commitments to new approaches and access to future networking.



Workshop on Marketing Extension

A total no. of 03 marketing extension workshops conducted by WAVE Foundation in the project period. The workshops were intended to provide farmers an opportunity to improve both their crop marketing and financial management skill sets. The market oriented advisory services provide information related to market, know-how to enable value chain actors to meet market or value chain quality requirements and support to facilitate linkages among different actors along the value chains. The workshops were attended by the lead farmers, dealers, retailers and buyers in the Extension Workshop. Upazila Agriculture officer was present in the all Market related workshop.



Participation in Agriculture Fair (Upazila level)

Every year Upazilla Agriculture Office has been arranging Agriculture fair in the Mujibnagar Upazilla of Meherpur District. PACE onion project of WAVE participated in the fair. In the fair, we displayed seed, seedling & bulb of BARI Onion-5 and demo of onion storage. We also supplied leaflet and provided agronomic services at the agriculture fair. Different Government Officials and incoming visitors (students, farmers and others) visited our stalls and expressed their interest in various topics on summer onion variety BARI Onion-5. Our stall was awarded with prize in the fair.



Field Day

In the project period, WAVE Foundation arranged total 02 field days on cultivation technology and result of summer onion production. One field day conducted in Maniknagar village and other one conducted in Jaypur village of Mujibnagar Upazila. Basically from the field day showed the result of summer onion variety (BARI Onion-5) cultivation was demonstrated.



Writing & Printing the Feature in Print Media

During the project period, WAVE Foundation has taken several initiatives to write and publish different components of year-round onion production, marketing, storage facility in the National and Local newspapers for promoting project activities and publicizing about the summer onion & motivating farmers to cultivate more year-round onion.



Distribution leaflet on year-round onion production

Among the various activities under this project, one significant activity was to prepare, print and distribution of leaflet on year-round onion production. Under this activity, WAVE Foundation prepared 2,500 leaflet and distributed it among the local farmers.

“বছরব্যাপী পেঁয়াজ উৎপাদন এবং বাজারজাতকরণের মাধ্যমে উদ্যোক্তাদের আয় বৃদ্ধি ও কর্মসংস্থান সৃষ্টি” শীর্ষক ভ্যালু চেইন উন্নয়ন প্রকল্প

পেঁয়াজ উৎপাদনে বর্জনীয় বিষয়সমূহ			পেঁয়াজ উৎপাদনে করণীয় বিষয়সমূহ	
		সঠিক বয়সের চারা রোপন করলে ফলন বাড়ে অধিক হারে		
		সারিতে বীজ রোপন করলে সার ও পানি সমান পায়, ফলে পেঁয়াজের ফলন বৃদ্ধি পায় ও সম আকৃতির হয়		
		রোপ বালাই দমন ও সঠিক ব্যবস্থাপনায় পেঁয়াজ চাষে অধিক লাভমান হওয়া যায়		
		রোপ মুক্ত বীজ উৎপাদন করলে পেঁয়াজ বীজ থেকে আয় করা সম্ভব		
		সঠিক ভাবে পেঁয়াজ সংরক্ষণ করলে অধিক সময় সংরক্ষণ করা যায়		

ওয়েভ ফাউন্ডেশন WAVE FOUNDATION
 প্রথম বায়দ্য ফাউন্ডেশন
 IFAD Investing in rural people



End-line Survey

At the end of the project, WAVE Foundation conducted an end-line survey by a specialist consultant. The survey involved 149 onion farmers, 4 FGDs (with 36 farmers) and 6 Key Informant Interviews. Face to face interview had been carried out following Paper and Pencil (PAPI) method in the overall end-line survey.



Regular monitoring of the activities

During the project period, project related field staffs, focal person, senior level staffs of WAVE Foundation and representatives of PKSf were regularly monitoring the project related activities of the farmers and had given their necessary suggestions.



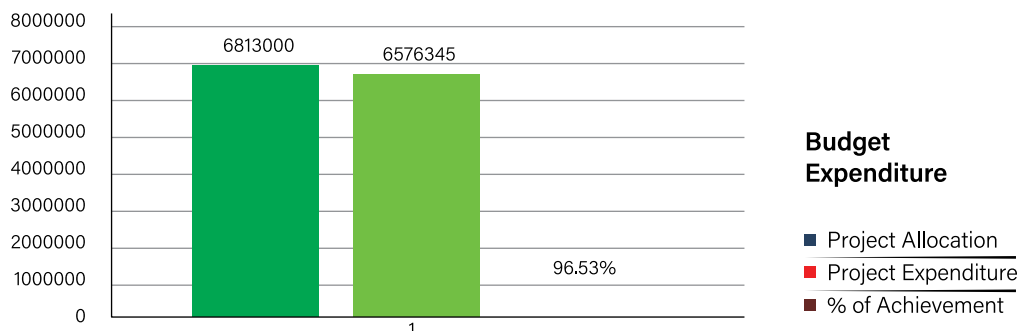
At a glance the numerical achievement of the project

Sl.	Activities Name	Achievement
1	Orientation of the project staffs	1 batch
2	Workshop on project oriented	1 batch
3	Farmers survey & land selection	1500 farmers
4	Baseline survey	1
5	Training on Business Awareness and Accounting for Small Entrepreneurs	1 batch
6	Training on modern technology of onion cultivation throughout the year	1500 farmers
7	Training of inputs suppliers, member of irrigation committee & dealers	25 persons
8	Training on onion seed production	100 farmers
9	Established Demonstration Plot	50 plots
10	Established Storage (Farmers level)	10 storages
11	Workshop on Exchange of Experience and Removal of Obstacles	3 workshops
12	Cross visit (seasonal)	100 farmers
13	Workshop on Extension Marketing	3 batches
14	Print Media publication (Writing & Printing)	3
15	Participate in Agriculture Fair	3 times
16	Distribution of leaflet on year-round onion production	3000 leaflets
17	End line Survey	1
18	Publication on End line Survey Report	1
19	Bi-monthly Meeting	18 meetings



BUDGET UTILIZATION OF THE PROJECT

The total allocation of the project from PKSF was TK. 68,13,000 for proper completion of project activities. At the end of the project period, the total expenditure was Tk. 65,76,345 which is 96.53% of the total allocation.



Existing Value Chain Map in the working area

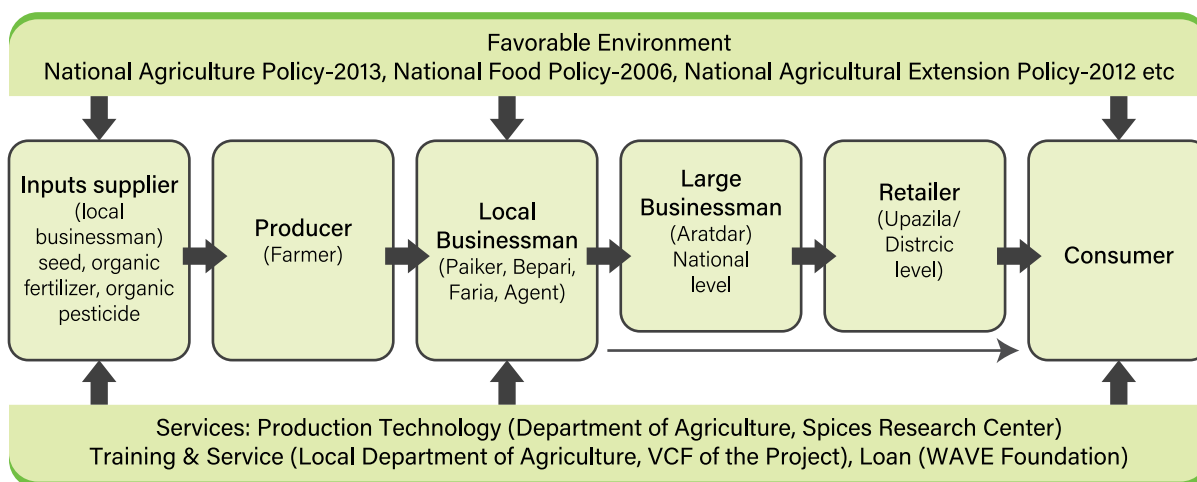


Figure: Existing Value chain Map in the working area

After the project period found that there were different actors shared their contribution in value addition, marketing cost and net marketing margin of onion marketing:

Table: Value Addition, Marketing Cost and Net Marketing Margin of Different Market Actors of Onion

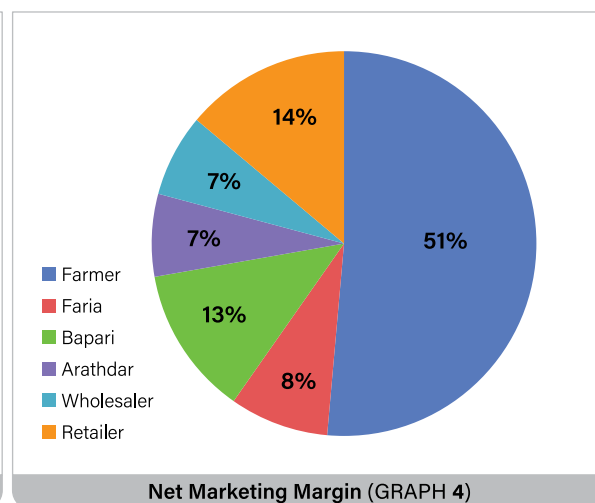
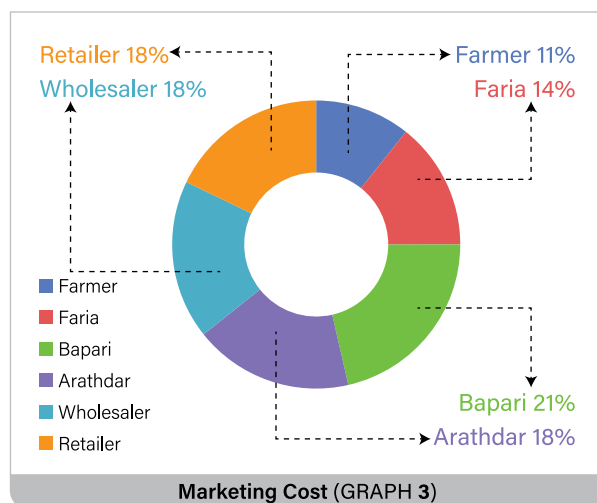
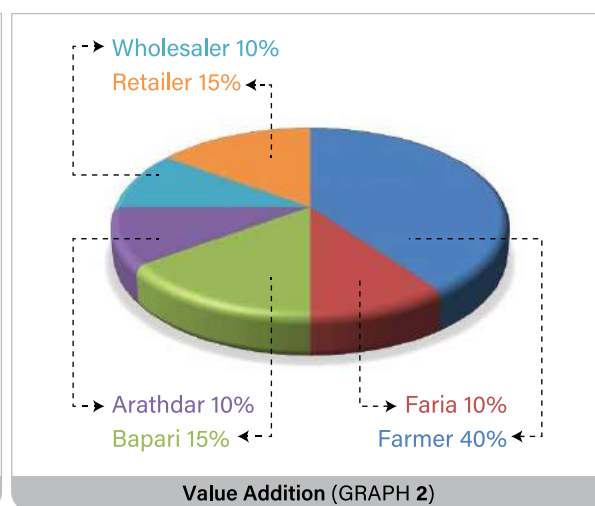
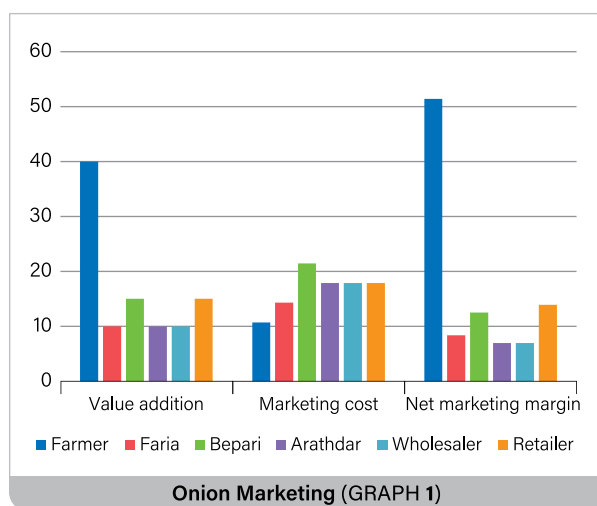
Actors	Value Addition		Marketing Cost		Net Marketing Margin	
	Tk. per Kg	Percentage	Tk. per Kg	Percentage	Tk. per Kg	Percentage
Farmer	40	40	3	10.70	37	51.40
Faria	10	10	4	14.29	6	8.33



Bepari	15	15	6	21.43	9	12.50
Arathdar	10	10	5	17.86	5	6.94
Wholesaler	10	10	5	17.86	5	6.94
Retailer	15	10	5	17.86	10	13.89
Total	100	100	28	100	72	100

Source: Field Survey 2020

Figure: Value Addition, Marketing Cost and Net Marketing Margin of Different Market Actors in Onion Marketing (Graph 1); Share of Different Actors in Value Addition of Onion (Graph 2); Share of Different Actors in Marketing Cost of Onion (Graph 3) and Share of Different Actors in Net Marketing Margin of Onion (Graph 4)
Table: Price and Value Addition at Different level of VCs at Dhaka market (end-line)



Price and Value Addition at Different level of VCs	Onion (Tk./kg)
Farmers	30
Faria	40
Local Atartder	55
Dhaka Paiker	70
Dhaka Aratder	85
WS/Dhaka Paiker	95
Retailer	110

Source: Field Survey, 2020

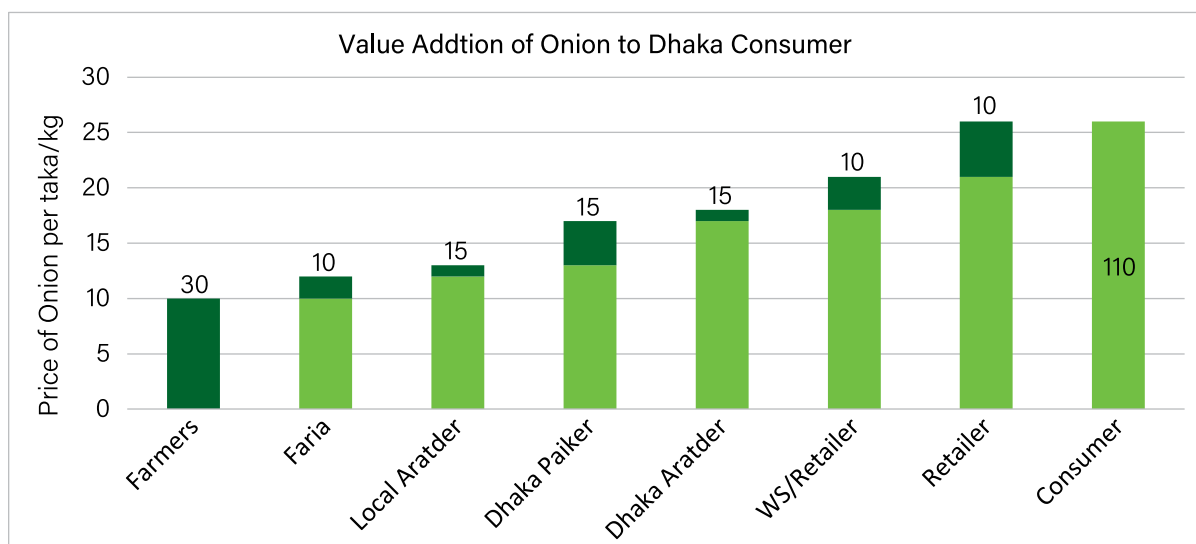


Figure : Cost Progression of Onion along with VC at Dhaka market

OUTPUT OF THE PROJECT

- As a result of the implementation of this project, an additional 8,527 decimal of land in the area has come under onion cultivation in Rabi & Summer seasons.
- After the end of the project period, currently there are 5 agricultural sub-sectors (Inputs suppliers, producer, different businessman, retailer and service department) working in the working area.
- In the project area, the process of onion marketing involves multiplicity of middlemen. The intermediaries involved in the chain include: Farmer, Farias, Beparis, Aratdars, Wholesalers, Retailers and Consumer. Faria purchased 100% from the producer, beparis 66.67% from producer and 33.33% from faria. Aratdar buys 12.5% from producer, 25% from Faria and 62.5% from Bepari. Wholesaler purchased 11.11% from faria, 44.44% from bepari and 44.45% from the Aratdar. Retailer purchased 54.29% from producer 31.42% from faria and 14.29% from wholesaler.



- Existing Onion Supply Chain of the Project Area-



- 1500 numbers of onion farmers (100% of target members) have received training on year-round onion production, onion business, marketing and information of onion market.
- In the project area 1425 numbers of onion farmers (95% of target members) have used quality onion seeds and involved in onion production and marketing.
- Total 1425 numbers of onion farmers (95% of target members) have used organic fertilizer for year-round onion production.
- 100 numbers of entrepreneurs were received training on onion seed production,
- 203 onion cultivators have set up cost-effective commercial onion storage and sold that stored onion off-season.
- Private companies and various businesses actors have been interested to collect onions from onion growers in the working area and interested in building partnerships with selected value chains.

OUTCOME OF THE PROJECT

- At the end of the project, 1425 numbers of onion farmers (95% of target members) have been continuing their year-round onion production and marketing activities.
- Yearly about 36 metric tons (more than 3 core taka) onions have been sold in the project area through the value chain activities of the project.
- Before the project period, Farmers used to give extra irrigation before harvesting onions. As a result, the onions could not be stored for 4-5 days and lost weight. Under the project the onion farmers received training from WAVE and maintained scientific method for onion cultivation and followed proper irrigation method. For this reason, farmers are avoiding extra irrigation and storing onions in their own house or storage rooms for 4-5 months.
- Prior to the project, onions were cultivated and sold only during the Rabi season in the project areas. But now onions are being produced in the project area during the Kharif (summer) and Rabi seasons and the produced onions are entering various markets of the country including the local market.
- In order to meet the financial needs of the farmers, linkages with WAVE Foundation has been made under the project. About 95% of the project members have received loan services from WAVE Foundation. Among them, 44% members have used their loans for onion production.



IMPACT OF THE PROJECT

- For implementing the project, the total production cost reduced from Tk.33,211 to Tk.32,483 per bigha land (33 dc) in summer season.
- Prior the project, the farmers of the working area cultivated onion only during Rabi season and production/yield was 5,280 kg per bigha land. End of the project, the farmers of the working area cultivated onion during Rabi and Summer seasons and the average Onion production/yield increased and calculated as 5,412 kg per bigha (Only Rabi season). In the summer season, the average production/yield is 3,267 kg per bigha (33 dc) land.
- As a result of the project, onion production of about 95% farmers has increased by 33%.
- Maximum onion farmers were showing their interest on build onion storage. Farmers have set up cost-effective commercial specialized storage for onions as it would help farmers store the crop for a longer period and avoid post-harvest losses (from 10% to 15%) and total production cost reduce to 25-30%.
- Onion sales to farmers have increased by 55% due to onion cultivation in 2 seasons per year, increase in cultivated land, yield increase and reduction in loss during onion preservation.
- Net incomes increased and calculate as Tk. 125,887 per bigha land where prior the project net income was Tk. 9,029 per bigha. As a result of the project, net income increased 1,294%.

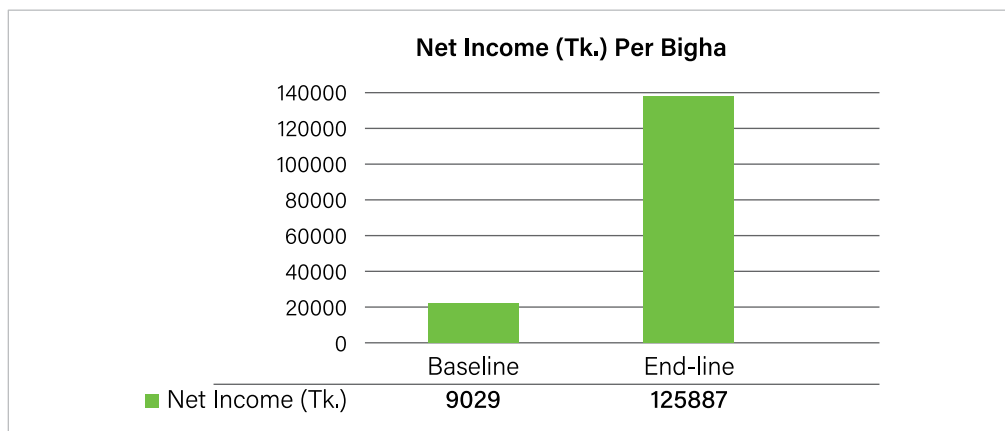


Figure: Net Income (Baseline and End-line study)

- Farmer gets their most of the earning from onion cultivation. This time the earnings ratio is huge because of high market price. Prior of project, from onion income was 10% contributing to their family income but end of the project it is 52%. People are more interested to cultivate year-round onion.



Table : Household Average Annual Income both in baseline and end-line survey

Income (Average)	Baseline survey		End-line survey	
	Average Amount (Tk.)	Share % (by sources)	Average Amount (Tk.)	Share % (by sources)
Agriculture (W/O Onion)	76,297	47%	95,501	20%
Onion	15,409	10%	249,146	52%
Livestock	21,987	14%	35,487	7%
Fisheries	600	0%	0	0%
Homestead gardening	103	0%	3,978	1%
Labor	18,923	12%	17,644	4%
Small Business	26,789	17%	61,769	13%
Others (excluding loan)	1,188	1%	19,747	4%
Total	161,297	100%	483,272	100%

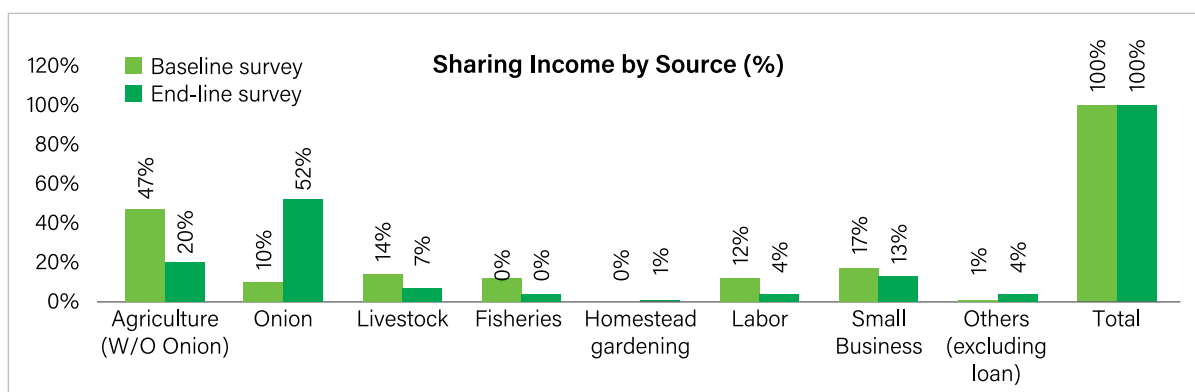


Figure : Sharing Income by Source (%) both in baseline and end-line survey

- Under this project, as a result of year-round onion production increase, post-harvest interventions, marketing etc. activities have resulted in creating full-time employment of 967 peoples and part-time employment of 528 peoples.
- During the project period, onion farmers were incorporated with the mainstream microcredit program of WAVE Foundation. They have taken loan (seasonal loan) for onion cultivation and others have taken loan for other IGA purpose from WAVE Foundation.
- The gross return was found higher from onion cultivation than that of Cauliflower, Cabbage, Chili, Taro Root, Bottle Gourd, Cucumber, Jute, Maize, Wheat and Rice. Bellow table shown the average cost, return and benefit ratio of different HYV crops.



Table : Production Benefit of Onion over other crops (Calculation of 33 decimal)

Crops	Cost of production	Earning by Sales	Profit
Onion	36483	162360	125887
Cauliflower	19800	100000	80200
Cabbage	18840	75000	56160
Chili	25640	80000	54360
Taro Root	35750	90000	54250
Bottle Gourd	22700	70000	47300
Cucumber	26700	70200	43500
Jute	11990	27000	15010
Maize	17850	24750	6900
Wheat	8690	11200	2510
Rice	18690	19600	910

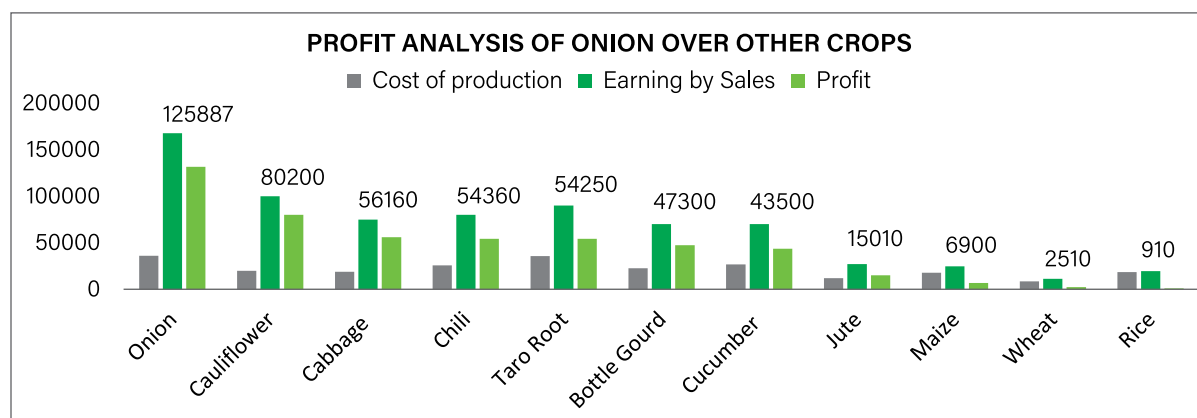


Figure: Production Benefit of Onion over other crops

CHALLENGES

- Scarcity of summer onion seeds & quality onion bulb.
- Poor attention given by the public and private seed producing agency to produce summer onion seeds like other spice crops.
- Suitable land is less to grow summer onion.
- Lack of improved drainage system in the summer season for onion production.
- Lack of technological information and less publicity about summer onion to the growers level.
- Lack of processing Centre and specialized onion cold storages or scarcity of seed storage facility.
- Disease and insect attack.



- Competition with other High Yielding Vegetables
- Poor seed yield.
- Lack of hybrid as well as open pollinated (OP) high yielding varieties.
- Unstable onion market.

SIGNIFICANT LEARNING OF THE PROJECT

- For summer onion cultivation, sandy loam soil with irrigation and drainage facilities has to be selected. The lands that are suitable for cultivation of cauliflower, cabbage, radish, carrot, vegetables and chilli, good results are obtained by cultivating summer onion in all these lands.
- It is very risky to produce summer onion seedlings and its seeds have to be sown in the seedbed during the rainy season. Therefore, through this project, farmers have gained practical knowledge on the issues at the field level of seedbed land selection for summer onion seedlings, seedbed preparation, seed treatment, seed sowing, mulching, fertilizer application, pest control, seedbed care and seedling age etc through this project.
- The importance of irrigation and drainage for summer onion cultivation is immense. Irrigation is important to increase the production of summer onions, just as important to have drainage facilities in case of excess rainfall. For this, the drain should be prepared in the land before planting the seedlings. The farmers have learned about these issues through the implementation of the project activities.
- For implementing the project activities farmers of the project area provide irrigation in four stages of onion growth. Namely, (i) Physical growth stage, (ii) At the time of inflorescence emerges stage, (iii) At the time of flowering stage and (iv) At the time of seed formation stage, a total of four irrigations should be provided at each stage.
- Acquisition of knowledge on different activities including main land preparation, planting distance of seedlings to seedlings, moderate amount of fertilizers application & irrigation, pest control, intercropping, harvesting time & method, and storage facilities. Perception of onion farmers have also been changed regarding summer onion cultivation technology, storage facilities and marketing.
- This summer onion cannot be stored for more than 1 month due to high water content in the onion. However, if the onion produced during the Rabi season is stored to build of cost-effective commercial specialized storage, it can be stored for 6-7 months without any post-harvest losses.
- As a result of preserving onions in the old traditional way, a large quantity of onion is wasted. Consequently, the farmers have faced severe financial losses. At present, the farmers are getting benefited financially due to setting up of cost-effective commercial specialized storage to store the onion for a longer period and avoid post-harvest losses.
- Onion seed production depends entirely on the movement/visit of the pollinators. Because of onion is a cross-pollinated crop. Onion pollination is of protandry nature,



so onions are cross-pollinated. This pollination is done by 100 percent different insects like honeybees, flies, houseflies, blowflies, seafood flies etc. As onion is a cross-pollinated crop, farmers are used bees in the onion field to increase seed production and improve the quality.

- Due to the white flowers of the onion, onion farmers are cultivating some border crops like coriander and aniseed with onions for attracting pollinating insects to onion pollination.

RECOMMENDATION

- To ensure timely supply of quality onion seeds at farmer's level for producing year-round (Kharif-01, Kharif-02 and Rabi season) onion varieties.
- GoB and NGO can arrange for summer onion seed production project. It will reduce the scarcity of summer onion seed and at the same time it will help farmers to know more about summer onion.
- Initiatives should be taken to increase the productivity of onion. Majority of small farmers were growing onion on less than acre of land, keeping in view this aspect, should be taken initiative for increasing the production and marketing facilities.
- To take initiative for building or improve capacity of farmers for year-round onion cultivation.
- Extend the year-round onion cultivation program in the different areas of Bangladesh.
- Increase summer onion production at homestead area.
- Take initiative for summer onion production as a inter cropping system with chilli, turmeric and ginger
- Maintain or build strong linkage with Ministry of Agriculture (MOA), BADC, BARI, Spices Research Institution and DAE for quality summer onion seeds production, storage and collection.
- Work for developing year-round onion production zone or special onion production zone.
- The farmers should be provided soft loan or easy access to finance for year-round onion production.
- Work for building, use and extent indigenous storage technology for preserving onion in off-season. It would be helpful to reduce post-harvest loss (about 30%), stable the onion market and increase farmer's income.
- The onion processing industries should introduce value added products such as onion flakes, onion powder and fried onion in the market.
- People are not willing to produce summer onion due to low onion price, heavy rainfall, lack of proper drainage system, scarcity of seed, over heating problem. But we can expect that people can be motivated to produce more onion year-round. From two years, onion farmers were getting a good price all over the country.



- High quality drainage system is also required to grow summer and winter onion. Promote to ensure quality drainage system to grow summer and winter onion.
- GoB can take initiatives to discourage onion import during the harvesting season.
- The policy makers, researchers, extension agencies, market actors should take appropriate policies to increase onion production for self-sufficiency.
- Onion based cropping pattern should be developed and disseminated to those areas of Bangladesh where their production is suitable.





SUCCESS STORY

NUR ISLAM HAS BENEFITED BY CULTIVATING BARI ONION-5

Nurul Islam lives in Sibpur village in Mojibnagar upazila of Meherpur district. He has been working in agriculture for about 15 years with his own land and other people's land. He cultivates paddy, jute, vegetables as well as different varieties of onion in Rabi season. Before becoming a member of this project, he used to cultivate onions in the traditional method. Seeing his interest, he was included in the program of the year-round onion cultivation project. Then he received training on modern methods of onion cultivation, onion seed production methods and seed preservation and modern technique of onion storage & onion preservation under the project. After receiving training, he cultivated BARI Onion-5 in one bigha of land. Besides, he produces onion seeds on his own 5 dc land. He also cultivates onions in one bigha of land in the summer (off-season). Thus he cultivates onions all year round and earns about Tk. 283,000. Below is the income and expenditure of his onion cultivation-

Sl.	Items	Land Size	Production	Expenditure	Sold	Profit
1	BARI Onion-5 (Rabi season)	33 decimal	160 mounds	35000	64000	29000
2	BARI Onion-5 (Summer season)	33 decimal	100 mounds	20000	160000	120000
3	Onion Seed Production	5 decimal	15 mounds	15000	45000	30000

The amount of money that Nur Islam has been able to earn by cultivating onions all year round is unmatched by any other crop. He is very happy about it. However, he also spoke about the risk of onion seed production. Seeds are more likely to be damaged by storms before they mature. Moreover, he can learn through training that if onion tubers are planted at the right time, it is possible to harvest the seeds at home before the onset of monsoon storms or rains. He gratefully acknowledges this support for the project. He said that after becoming a member of the project, he has learned the techniques of onion cultivation and onion seed production in a modern way. As a result, he has benefited. Thus, he has



Figure : BARI Onion-5 Demonstration Plot



increased onion cultivation throughout the year as he has benefited by cultivating onion and producing onion seeds throughout the year. He wants this BARI Onion-5 variety of onion to be cultivated more by the farmers of his District area and spread all over the country. This will one day remove the crisis that has arisen in Bangladesh. Nur Islam said that if there is the right direction with will and interest, people will reach their goal through hard work.



TO FULFILL DREAMS FOR PRESERVING ONIONS

Al-Amin lives in Sonapur village of Mujibnagar upazila of Meherpur district. There are 5 members of his family and Agriculture is the main source of income of him. He has been involved in agriculture for about 12 years. He cultivated onions in Rabi season every year along with different crops. He used to sell the onions produced by him from the field at a low price. It would have been as a small profit. In some years, even if a small amount of onion was stored in his living room in different year, most of the onion would be spoiled or rotten. After the project started in the area, he met the assistant facilitator working at the WAVE Foundation. He became aware of the project activities and expressed interest in becoming a member. Seeing his interest, he was included in the program of the year-round onion cultivation project. Then he received training on modern methods of onion cultivation, onion seed production methods and seed preservation and modern technique of onion storage & onion preservation under the project. In addition to training, he took



Figure: Onion Storage

tin, fan and various materials from the project of WAVE Foundation to build onion storage and built the storage. He stored about 150 mounds of onions grown on his own land. He sold these step by step when the price of onion increased. He sold onions for around Tk. 210,000 (Tk. 1,400 per mounds). Where he could not store the onion produced in another year, he could not sell it at a higher price. Al-Amin profited about Tk. 150,000 this year by storing onions in the traditional way and selling these step by step. Al-Amin said that by storing onions, I have been able to make a significant profit today, which has played an important role in my family income. He hopes to storage more onions in the future.



Conclusion

For implementing the activities of “Income Generation and Employment Creation for Entrepreneurs through Year-round Onion Cultivation & Marketing” Value Chain project under PACE project farmers are involved in onion cultivation in the working area and able to produce onions both in Rabi and Kharif seasons. As a result, farmers have been able to produce summer onion seeds, able to produce onions all the year including kharif season, able to increase onion production all the year, able to ensure maximum land utilization, able to reduce post-harvest loss. The project activities implemented by WAVE Foundation has created new markets, increased the income of farmers and created employment opportunity. Increased onion production is playing a role in resolving the country’s onion crisis which has been able to make a positive contribution to the national economy.





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