

**DOST TNA Form 01****APPLICATION FOR TECHNOLOGY NEEDS ASSESSMENT**

Name of Enterprise: Occidental Mindoro State College (OMSC)		
Contact Person: Mary Yole Apple Declaro-Ruedas	Position: Associate Professor V/ Director for Extension	
Office Address: Brgy. Labangan, San Jose Occidental Mindoro	Tel. No. 09088961782	Fax No.
	E-mail Address:	
Factory Address:	Tel. No.	Fax No.
	E-mail Address:	
Website:		

**GENERAL AGREEMENTS:**

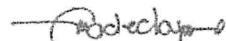
1. The applicant shall, at the earliest opportunity, make available to the DOST Regional Office No. IVB-MIMAROPA all information (manuals, procedures, etc.) required to establish the technology status of the selected core business functions and management systems;
2. If DOST IVB-MIMAROPA is not satisfied that all the requirements for business registration are complied with, it shall inform the applicant of the observed deficiencies before starting the assessment;
3. When the required inputs to the assessment are already supplied by the applicant, including Attachment A, the DOST IVB-MIMAROPA will assess the firm through the core business functions and management systems, whichever is applicable to identify technology needs and verify compliance to standards vis-à-vis existing practices;
4. When the DOST IVB-MIMAROPA has completed the technology assessment, a report will be prepared on the results of the assessment with accompanying recommendations and opportunities for improvement. The report prepared will define the scope of activities, functions, management practices and locations assessed. The applicant shall not

claim or otherwise imply that the report applies to other locations, product or activities not covered by the report;

5. The applicant agrees that the report will not be used until permission has been granted by the DOST IVB-MIMAROPA;
6. The applicant agrees that the receipt and acceptance or acknowledgment of the report ends the assessment stage; any technical assistance ensuing from the recommendations of the report will be viewed as a separate project.

#### **UNDERTAKING**

I agree to undertake and observe the above General Agreements as stipulated by the Department of Science and Technology Regional Office No. IV-B-MIMAROPA.



**MARY YOLE APPLE DECLARO-RUEDAS**

October 09, 2023

Date

Attachment A.

### **Enterprise Profile**

Name of Enterprise Occidental Mindoro State College (OMSC)

Production of Site/Location Magsaysay, Occidental Mindoro

CDA Registration : NA Year Registered NA

#### Brief Background:

Garlic (*Allium sativum*) is a shallow-rooted plant with bulb forming close to the surface. The bulblets are known as cloves. Garlic is frequently used as food seasoning. It has attracted particular attention because of its widespread use around the world and the cherished beliefs many have had that it has kept them healthy, and given them more vigor (Milner, 2010).

According to Acdal (2006), there are only ten regions in the Philippines which produced garlic. These are follows: Ilocos Region, MIMAROPA, CALABARZON, and Central Luzon, Bicol regions Cagayan Valley, Western Visayas, Central Visayas, CAR, and Eastern Visayas. The Occidental Mindoro province ranked second as the garlic producing in the Philippines with 17% share to the national production (BAS, 2013) but with a decreasing area planted, dwelling from 3,800 hectares in 2008; 3,600 in 2009; and 3,000 last year (Declaro-Ruedas, et al., 2013).

Garlic yields are decreasing due to a number of constraints, among which lack of balanced nutrient supply, poor soil fertility, weed infestation, diseases, and moisture stress are the major ones (Shiferaw, 2014). There are numerous problems in garlic production that accounted to low yield or reduction of yield. Some of these are level of fertilizer application, weed management practice, irrigation and mulching.

In Mindoro, Philippines, garlic cultivars planted include 'Mindoro White' (MW), 'Lubang' (LB), 'Batanes White' (BW), and 'Ilocos White' (IW) (Ragas et al, 2019). According to Stavelikova (2008), garlic (*Allium sativum L.*) is a monocotyledonous herb that produces a bulb, an aggregate of sheath-covered cloves serving as the main economic organ. Garlic is a dry season crop because it is harvested during the hot summer months (Agribusiness, 2011).

The poor yield of garlic may be due to the lack of inadequate soil and water management practices with reference to soil water shortage in the soil profile. Successful garlic cultivation largely depends on the optimum cultural management practices. These include judicious manuring, efficient use of residual soil moisture, land preparation and mulching (Kabir et al, 2016). Further, the poor yield of garlic may be due to inadequate soil and water management practices in particular to soil water shortage in the soil profile. However, a considerable amount of fallow land can be brought under garlic cultivation through utilization (Alam et al, 2017).

Year enterprise was established: NA

Initial capitalization: NA

- Type of Organization:
- Single Proprietorship
  - Cooperative/Association
  - Partnership
  - LGU/SUC
  - Profit
  - Non-Profit

Enterprise Registration No: NA Year Registered : NA

Classification according to capital

Present Capitalization                   

- Micro (less than 1.5 M)
- Small (1.5 – 15 M)
- Medium (15- 100 M)

Classification according to employment (number of employees)

- Micro (1-9)
- Small (10-99)
- Medium (100-199)

Number of Employees:

Direct Workers NA  
Production \_\_\_\_\_  
Non-production \_\_\_\_\_  
Indirect/Contract Workers \_\_\_\_\_  
Total \_\_\_\_\_

Business Activity:

Food processing (please specify specific sector) \_\_\_\_\_

- Furniture (please specify specific sector) \_\_\_\_\_
- Natural fibers, gifts and home decors and fashion accessories (please specify specific sector)
- Metal and engineering (please specify specific sector) \_\_\_\_\_
- Aquatic and marine resources (please specify specific sector)
- Horticulture/Agriculture (please specify specific sector) Farming System study for garlic
- Others, please specify \_\_\_\_\_

1. Specific product or service the enterprise offers its customers:

NA

2. Reason why assistance is being sought:

The technology can provide farmers who are members of the cooperatives an improvement in their garlic production that could redound to additional income and access to technical services.

3. Have you consulted any other individual/organization/Agency on any assistance?

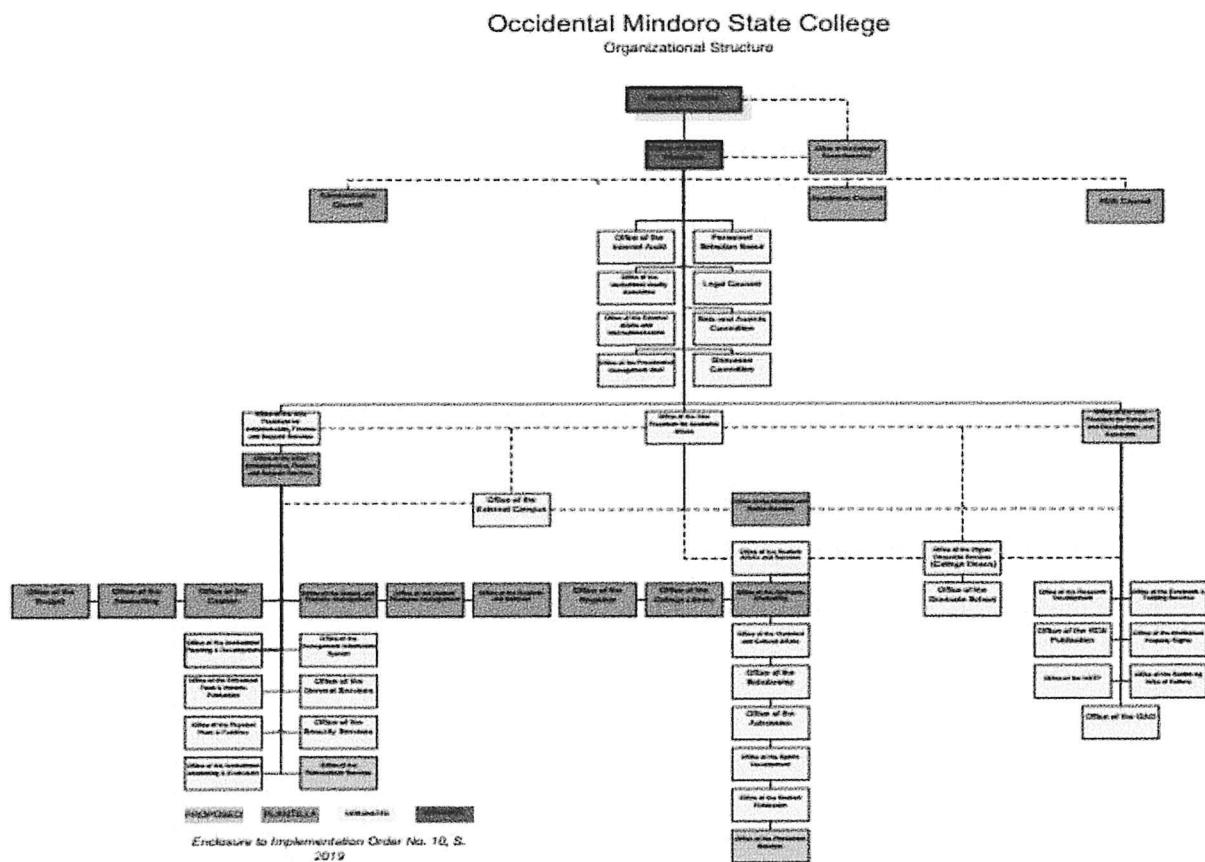
- Yes, from what company/ agency

Please specify the type of assistance sought

- No, why not

Other agency don't have program addressing R&D on garlic in relation to the study.

## Organizational Structure



#### 4. The Agency plan for the next 5 years?

To optimized the develop technology and technology adoption of local garlic farmers in the province.

### 5. Next 10 years?

Revitalized garlic farming system in the province. Technology adoption of local garlic farmers for at least 10% in the whole province.

## BENCHMARK INFORMATION

- Production and Supply Chain

- Raw Material

Operating Cost Components	Source	Unit Cost	Value Used/Year
N/A			

- Production/services

Product	Annual Production Volume	Unit Selling Price (PhP)	Annual Cost of Production (Php)
N/A			

- Production/Service Equipment

Type of Equipment	Specification	Capacity
None		

- Problems and Concerns

- Technology need for adoption and optimization

- Production Waste Management System

None

- Production Plan

Training is needed for the equipment maintenance for the equipment's

- Production Lay-Out

NA

- Process Flow

NA

- Inventory System  
No Current Inventory System
- Maintenance Program  
No specific schedules or programs about maintenance
- CGMP/HACCP Activities  
NA
- Supplies/Purchasing System  
NA
- Marketing Plan  
NA
- Market Outlets and Number  
NA
- Promotional Strategies  
NA
- Market Competition  
NA

#### Packaging

○ Nutrition Evaluation	N/A
○ Bar Code	N/A
○ Product Label	N/A
○ Expiry Date	N/A

#### ■ Finance

- Cash Flow or other related documents

NA

- Source(s) of capital/credit

The fund from National Budget

- Accounting System

None

#### ■ Human Resources

- Hiring and Criteria

Criteria by OMSC

➤ Incentives to Employees

None

➤ Training and Development

None

➤ Safety Measures Practiced

None

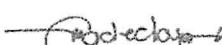
➤ Other Employee Welfare

None

➤ Other Concerns

Occidental Mindoro State College (OMSC) hopes that the DOST-MIMAROPA through PSTC Occidental Mindoro will assist in making project proposal for Technology assistance and collaboration on the implementation of the project.

Prepared by:

  
**MARY YOLE APPLE DECLARO-RUEDAS**  
Associate Professor V/ Director for Extension

Validated by:

  
**VINCENT S. LABINDAO**  
SRS II

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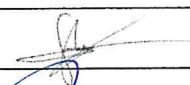
### TECHNOLOGY NEEDS ASSESSMENT (TNA) REPORT

<b>AGENCY NAME:</b>	Occidental Mindoro State College (OMSC)
<b>ADDRESS:</b>	Brgy. Labangan, San Jose Occidental Mindoro

#### **SCOPE OF ASSESSMENT\***

The TNA covered the following areas:

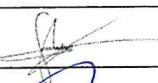
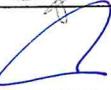
1. Strategic Direction
  - a. Vision and mission
  - b. Plans and Objectives
  - c. Strategic alliances and current agreement
2. Management Aspect
  - a. Human resource management
  - b. Purchasing
  - c. Work environment
  - d. Corporate social responsibility
  - e. Occupational health and safety management
3. Technical Aspect
  - a. Operational and outsourcing practices
    - production system
    - production planning and control
    - production lay-out
    - work improvement
    - equipment management and maintenance
    - quality assurance system
    - outsourcing practices
  - b. Product and Process Performance and Improvement
    - reengineering and Research and Development
    - Procedures for continuous improvement
    - Product Quality standards
  - c. Environmental Management System
    - Waste management
4. Marketing Aspect
  - a. Marketing plan
  - b. Market outlets and number

Reported by	<u>Vincent Labindao</u>	Signature		Date	<u>10/13/2023</u>
Name of TNA Team Leader					
Attested by	<u>Jerry B. Mercado</u>	Signature		Date	<u>Oct 20, 2023</u>
	Name of ARD				

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- c. Promotional strategies
  - d. Market competitors
  - e. Packaging
5. Finance
- a. Cash flow and other related documents
  - b. Sources of capital
  - c. Accounting system

\* Scope of TNA is based on Technology Assessment Plan (TAP)

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Attested by	<u>Jerry B. Mercado</u>	Signature		Date	<u>Oct 20, 2023</u>
Name of ARD					

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## SUMMARY OF ASSESSMENT

### BACKGROUND

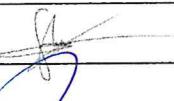
Garlic (*Allium sativum*) is a shallow-rooted plant with bulb forming close to the surface. The bulblets are known as cloves. Garlic is frequently used as food seasoning. It has attracted particular attention because of its widespread use around the world and the cherished beliefs many have had that it has kept them healthy, and given them more vigor (Milner, 2010).

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## METHODOLOGY

The technology needs assessment (TNA) was conducted through an ocular inspection of the proposed farm area. Interview with the local garlic farmers was done to get information on how the operation will go as well as the plans and requests of the Occidental Mindoro State College (OMSC). TNA leader also had his assessment and observations regarding the issues and future direction of the proposed project.

### Summary of Findings

#### 1. Strategic Direction

##### a. Vision and mission

A concrete mission and vision statement is not present since it is their first time to put up this kind of research on garlic. However, Occidental Mindoro State College (OMSC) envisions that project will help in improving the farm management of local garlic farmers which aim to improve production.

##### b. Plans and Objectives

DOST-Mimaropa thru PSTO Occ. Mdo. With Occidental Mindoro State College (OMSC) aims to improve the farming system of local garlic farmers of Occidental Mindoro through Technology-based Innovations.

Once the proposed assistance is acquired, assessment will be made for the impact and effectiveness.

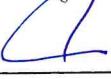
##### c. Strategic alliances and current agreements

The Occidental Mindoro State College (OMSC) has no specific strategic alliances or agreements related to this project.

#### 2. Management Aspect

##### a. Human resources

Occidental Mindoro State College (OMSC) will designate a project leader/focal person who will be accountable for the conduct of study.

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### b. Purchasing

The Occidental Mindoro State College (OMSC) has a procurement system that follows government rules, laws and regulations.

### c. Work Environment

The Occidental Mindoro State College (OMSC) is ISO certified, which establishes a quality work environment.

### d. Business Ethics and Social Responsibility

As a State University, OMSC is mandated through its fourfold function, to conduct extension and technical advisory services. The RA 8250 otherwise known as the General Appropriations Act mandates SUCs to conduct extension activities with the purpose of initiating, catalyzing, and sustaining the development of various communities, using expertise and available resources. Similarly, the RA 8435, also known as the Agriculture and Fisheries Modernization Act (AFMA), directs SUCs to prioritize research, extension, and development, and to primarily utilize research results through formal and non-formal education, extension, and training services.

Similarly, Republic Act 7722 mandates institutions of higher learning like State Universities and Colleges (SUCs) to respond to the call for societal transformation. The aim is to serve the poorest of the poor, the less privileged, the deprived and the oppressed (Elman,1998). Moreover, the DBM and CHED Joint Circular No. 1-B,s 2007 takes into account the level of performance of an institution in the areas of instruction, research and extension, as well as the management of resources.

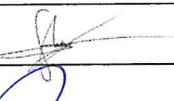
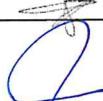
### e. Occupational Health and Safety Management

The Occidental Mindoro State College (OMSC) is ISO certified, which means that health and safety policies, systems, standards, and records, is incorporated in the different activities and program of the institutions.

## 3. Technical Aspect

### a. Operational and Outsourcing Practices

#### Production system

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NA

**Production Planning and Control**

NA

**Production Layout**

NA

**Work Study/Improvement**

Not yet practiced/ implemented.

**Equipment Management and Maintenance**

Scheduled equipment maintenance will be practiced once the research study has been operationalized.

**Quality Assurance System**

No planned warranty system.

**Outsourcing Practices**

This practice will be done once necessity has been determined.

**b. Product and Process Performance and Improvement****Re-engineering and Research and Development**

Not practiced

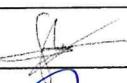
**Performance Measures and Results – Process**

Not practiced

**Performance Measures and Results – Product**

Not practiced

**Procedures for Continuous Improvement**

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Not practiced

### **Product Quality Standards**

NA

### **c. Environmental Management System**

#### **Waste Management**

NA

### **4. Marketing Aspect**

#### **a. Marketing Plan**

NA

#### **b. Market Outlets**

NA

#### **c. Promotional Activities**

Promotional activities will be done once the technology is optimized.

#### **d. Market Competitors**

NA

### **5. Finance**

#### **a. Cash Flow and other related documents.**

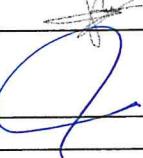
None

#### **b. Source of capital/credit**

National Budget

#### **c. Accounting System**

Agency internal accounting system based on Philippine Laws, Rules and Regulations on accounting procedure.

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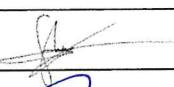
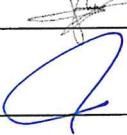
## CONCLUSIONS

Based on the interview and ocular inspection the TNA team concludes the following:

1. The Occidental Mindoro State College (OMSC) is dedicated to enhancing garlic production in the region through the implementation of recommended technologies. Specifically, the application of Gibberellic Acid (GA3) and other foliar fertilizers, developed by OMSC, including seaweeds, kohol amino acids, liquid trichoderma, and rabbit vermitea, will be promoted for adoption by local garlic farmers. These technologies have been identified as beneficial for improving garlic cultivation practices.

To facilitate the successful integration of these technologies, OMSC will take a proactive role in introducing and optimizing the new agricultural methods. This involves not only providing the farmers with access to the recommended technologies but also ensuring that these technologies are adapted and fine-tuned for the local context. The optimization process may involve tailoring the application of Gibberellic Acid and other fertilizers to suit the specific garlic varieties grown in Occidental Mindoro and addressing any other region-specific considerations.

OMSC recognizes the importance of knowledge transfer and skill development in the successful adoption of these technologies. To address this, the college will conduct training sessions for local garlic farmers. These training programs will cover various aspects, including the proper application of the recommended technologies, understanding the benefits, and mastering the skills necessary for successful implementation. By actively engaging and educating the farmers, OMSC aims to empower them with the knowledge and tools needed to maximize the benefits of these advanced agricultural practices. OMSC's initiative involves not only recommending advanced technologies for garlic production but also actively participating in their introduction, optimization, and the provision of training programs to ensure successful adoption by local farmers in Occidental Mindoro.

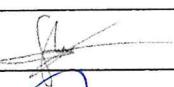
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## RECOMMENDATIONS

The following are recommended by the TNA team:

1. The DOST MIMAROPA should extend assistance to the for the automated solar powered drip irrigation technology for Occidental Mindoro State College (OMSC) for the conduct of study and for local garlic farmers for the adoption of technology.
2. DOST MIMAROPA should assist Occidental Mindoro State College (OMSC) in conducting the study, trainings and orientation on the said technology for proper implementation.

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