

## The salt industry in Occidental Mindoro: Improving the production

Saulong, Via Mae T. ✉

*Divine Word College of San Jose, Philippines* ([viamaesaulong@gmail.com](mailto:viamaesaulong@gmail.com))

Limos-Galay, Jenny A.

*Divine Word College of San Jose, Philippines*

Tampol, Renato A.

*Divine Word College of San Jose, Philippines*



ISSN: 2243-7770  
Online ISSN: 2243-7789

OPEN ACCESS

**Received:** 21 April 2023

**Revised:** 8 May 2023

**Accepted:** 16 May 2023

**Available Online:** 16 May 2023

**DOI:** 10.5861/ijrsm.2023.1014

---

### ***Abstract***

This study was conducted for the purpose of improving the production of salt farms in Occidental Mindoro. This study identified the profile of the salt farms in Occidental Mindoro; its size, number of salt beds, salt bed lining and method of producing salt. The self-constructed and validated questionnaire was used to gather data from 30 salt producers. The findings of the study revealed that all of the salt farms are using solar evaporation as method of producing salt. Occidental Mindoro produces ordinary, yellow and green qualities of salt which are determined by the market. The actions being taken of salt producers in dealing with the most of the identified challenges of Occidental Mindoro's salt industry were very highly evident. Absence of facility to determine salt quality is not really a problem if a salt farm have good management, and disciplined in the process of making salt to produce a good quality of salt. Meanwhile, absence of post-harvest facility like warehouse is not the reason of majority of salt producers why their salt is immediately sold but, they already have a sure buyer. For the technology, salt producers are eager to discover new technology and methods that will help increase their salt production. It is recommended by the researcher that improving the quality of salt is needed for it to be sold in a high price Through combined efforts of the salt producers, farmers and the government, salt industry in Occidental Mindoro will prosper again.

***Keywords:*** salt production, challenges in salt production, improvement, government, Occidental Mindoro

## The salt industry in Occidental Mindoro: Improving the production

### 1. Introduction

Salt (sodium chloride) is an important mineral needed by a living cell for growth and a nation for agro-industrial stability. For chemists, it is sodium chloride but to most laymen, it is just an ordinary white crystal added to a meal which if lacking, would spoil a delicious recipe (Aypa, 2019). Throughout time, salt played an important role in human societies. It was used as a form of currency and for the preservation of foods, such as meat and fish. Salt was a precious commodity that played an important part in the development of the ancient world (Elias et al., 2019).

Worldwide, the Philippines ranked 28<sup>th</sup> among 91 countries in terms of the production of salt. In 2019, salt production reached 1,147.97 metric tons (MT) with an average annual growth rate of three percent (3.0%). China with 63,603.9 MT topped the global production of salt, followed by the United States, India, Chile, and Australia (The World Atlas, 2017). The Philippines was overtaken by Austria which is on the 27<sup>th</sup> with 1,206.58 MT and Italy at 1,107.72 MT (Bartolome, 2022). But only 6% of the annual global production of salt is used for kitchen consumption. The salt sold in the form of table salt generally contains an anti-caking agent and is iodized to prevent iodine deficiency (PAKTUZ, 2019). In the study of Bartolome (2022), it was mentioned that a large portion of salt produced globally is used in the production of heavy chemicals, ceramics, glasses, textiles and metals. By assisting in the maintenance of internal balance, normal physiological activities and treatment of medical issues like sore throat, toothaches and digestive issues through consumption of saline solutions, it is also a very important compound for proper nutrition and function of the human body. Pangasinan is the largest salt producer in the Philippines. According to the data collected by local salt industry stakeholders, annually it has a salt production of 60,000 MT then followed by Occidental Mindoro with 45,000 MT and Bulacan, which contributed 5,000 MT (Philippine Daily Inquirer – Sotelo, 2022).

In the Philippines, solar evaporation techniques are the predominant way of salt production. Between November and April, the summer months, when there is plenty of sunlight and the weather is suitable for the creation of salt crystals in specially constructed salt ponds, are when salt is produced. Also, there is cooking technique where the stock is evaporated in a sizable cooking vessel by applying heat while the seawater is condensed in a water tank. Cooking often uses the rice hull as a heat source (Bartolome, 2022). Salt industry in the Philippines is ruined by climate change and the salt producers' dependence on age-old production methods. These severely affected salt farms which led to the incessant deterioration of the industry. The country depends now on imports to keep up with local demands (Francisco, 2022). The Philippines used to be salt self-sufficient but today, it is a huge importer of salt. Import is estimated at around 550,000 MT of salt every year which constitutes around 93 percent of the country's salt requirement (Mangaluru, 2022).

Salt is not included among the priority commodities of the country, despite its recognized significance in various industrial activities and its known domestic value (Bartolome, 2022). It is actually an "orphan" with no government agency tasked to oversee it, unlike other commodities, such as sugar, tobacco, and even carabao (Macapagal, 2022). The Department of Agriculture (DA) issued the implementing guidelines of the Development of Salt Industry Project (DSIP), which will be carried out until the end of this year and zero in on bolstering local production by using the latest technologies to ensure ample domestic supply (Lagare, 2022). Meanwhile in the Senate, Majority Leader Joel Villanueva expressed hope that the committee would pass his bill, Senate Bill No. 1450, known as the Salt Industry Development and Revitalization Act, to help revive the industry and support local salt businesses. "We have an enormous untapped and neglected resource that can change the lives of about 60 percent of our population who lives in coastline zones," Villanueva emphasized (Casayuran, 2023).

The academic sector is also exerting efforts for the revitalization of the salt industry and one of those is through the very first Philippine Salt Congress that was held in Lingayen, the capital of Pangasinan. The three-day event gathered researchers, government leaders, and prominent figures in the salt industry. Together, they discussed the latest studies and issues regarding salt production in the Philippines while seeking ways to uplift the local salt industry (Dela Cruz, 2022). The present state of the Philippine salt industry is far from what it used to be but, there is hope. With all the plans and efforts of the government and events such as the first Philippine Salt Congress of the academic sector, definitely the Philippine salt industry will prosper again. The industry can expect support for the salt farmers, greater opportunities for salt producers and amendment of laws that hinder local salt production.

Salt industry in the Philippines has great potential because salt is a universal need (Dejareco, 2023). Boosting the country's salt industry would not only benefit salt producers, salt farmers and their families, but also every Filipino consumer and the local economy.

**Statement of the Problem** - The continuous decrease of the salt production in Occidental Mindoro was the reason for the researcher in pursuing this study. Thus, this study aimed to improve the salt production in the province given the challenges of the industry. Specifically, it attempted to answer the following questions: (1) What is the profile of the salt farms in Occidental Mindoro in terms of: size of salt farm, number of salt beds, salt bed lining, and method of producing salt? (2) What is the assessment of salt producers for the current production of their farms, in terms of: volume, value and quality of salt produced? (3) How do salt producers of Occidental Mindoro deal with the following challenges in their salt production: weather monitoring, lack of support from the government, absence of facility to determine product quality, lack of post-harvest facilities and technology? (4) What action plan can be formulated for the improvement of salt production in Occidental Mindoro?

**Significance of the Study** - The researcher believes that the outcome of this study can bring great benefits to the following: To the consumers, there will be a sufficient supply of local salt in the market. They can avail salt with good quality. The findings of the study may be found useful by concerned government agencies such as Department of Agriculture (DA), Bureau of Fisheries and Aquatic Resources (BFAR), Department of Science and Technology (DOST) and Department of Trade and Industry (DTI) and Technical Education and Skills Development Authority (TESDA). This will help them in implementing programs that will aid and support the salt industry in the Philippines, specifically in Occidental Mindoro. This study will present the assistance needed by the salt producers and their salt farms that can be provided by the provincial government. In view of the data/information that will be gathered, it will provide for planning developmental projects in support of the salt industry in their respective municipality.

In addition, the result of this study will greatly benefit them in a way that they will gain different ideas in improving their salt production. Also, it will open doors for many opportunities like expansion and improvement of their facilities, as government will now know and assist their needs later on. To the salt farmers and their families, these people are one of the main reasons why the researcher pursued this study because working in a salt farm is their work as a family and of course, main source of livelihood. To the local market, this study would help these markets to have sufficient supply of quality salt to be sold to the public. This industry needs all the support it could generate to be able to prosper again. Only maximize its resources, tap its many potentials and meet the growing demand. This study then becomes significant to entrepreneurs who are on the look for business opportunities. To Divine Word College of San Jose, this institution may serve as a data bank for salt research and literature in the future. Lastly, this study can be a point of reference for future researchers who want to pursue a similar undertaking to this study. Further be used for more in-depth study of the industry in the future.

**Scope and Delimitation of the Study** - This study looked into improving the salt production in Occidental Mindoro in terms of quality improvement. The scope of this study was delimited to top salt producing municipalities of San Jose and Magsaysay, Occidental Mindoro for the year 2022. This study was delimited to owners of salt farms in the said municipalities. The limitations encountered in the study were the rejection and

unavailability of some of the prospective respondents to participate in the study. However, the researcher did her best to cover the reasonable scope to improve the study.

## 2. Methodology

**Research Design** - Descriptive research was adopted by this study using the Input-Process-Output model (IPO) model. This method of research aims to accurately and systematically describe a situation or phenomenon. It describes how the following variables were dealt by the salt producers: climate change, lack of support from the government, absence of facility, post-harvest facilities and technology. In order to gather the variables included in input, the process of collecting of data that the researcher done were reading literatures related to salt and interviewing salt producers and farmers of different farms in San Jose and Magsaysay. The researcher also did an ocular inspection through visiting the salt farms in the said municipalities. By doing so, the researcher got enough data and information that she needed in formulating an action plan for the improvement of salt production in Occidental Mindoro.

**Sampling Procedure** - The researcher requested the assistance of the Tamaraw Salt Producers Cooperative of Occidental Mindoro (TAMACO) to provide the number of salt producers and other necessary data related to them. The final number of salt producers provided by the TAMACO consisted of 40 salt producers. The researcher sent letters of requests to those persons to invite them to participate in the study. However, the researcher was not able to retrieve all the 40 salt producers' answers but only 30 due to their unavailability and time constraints.

**Respondents of the Study** - The respondents of the study were the salt producers of San Jose and Magsaysay, Occidental Mindoro. There were approximately 40 salt producers in the province. Out of 40 salt producers, only 30 responded to the survey. The profile of the salt farms in this study shows that 86.7% of the salt farm owners have 31 hectares and above salt farm size. The rest of the respondents fairly have less than 10 hectares and 10 to 20 hectares salt farm size. Based on the data, majority of the respondents has a wide salt production area so it is expected that their salt farms were consist of many salt beds which comprised the 1,400 hectares salt production area in Occidental Mindoro as of 2022 (TAMACO report, 2023).

The data reveal that 36.7% or 11 salt farms have salt beds of 501 – 1000. While salt farms with 101 – 500 salt beds are 10 or 33.3% of the population. Salt farms with salt beds of less than 100 had the percent distribution of 3% only. This means that the majority of the salt farms in Occidental Mindoro have 500-1000 salt beds. Majority of the salt producers in the province has a high number of salt beds that corresponds to the width of their salt production area. It only means that there is no unused area in their salt farms. The high number of salt beds per salt farm resulted to a total of 35,000 salt beds that produced 52,500 metric tons of salt in Occidental Mindoro in 2022 (TESDA MIMAROPA).

In addition, the majority of the salt farms in Occidental Mindoro is using Vigan clay as lining of salt beds with 93.3 percent distribution. Majority of salt producers in Occidental Mindoro has enough capital to invest in Vigan clay but there is still some who cannot afford it or do not want to use it. Meanwhile, one from the respondents is using the High-Density Polyethylene or HDPE geomembrane. HDPE geomembrane is a synthetic membrane liner which perfectly holds the salt water during the process of evaporation (DA Memorandum Circular No. 34, Series of 2022). The result also shows that solar evaporation is still the only method being used in Occidental Mindoro. It is the applicable method since the province is in Type I Climate Region. Also, it is the cheapest method among others, according to Sotelo (2022).

**Research Instrument** - The researcher-made questionnaire was the main research instrument used in this study. This questionnaire was composed of three parts which are the profile of the salt farm, assessment of current production and challenges. The first part of the questionnaire ascertained the profile of the salt farm in terms of its size, number of salt beds, salt bed lining and method of producing salt. Part two of the questionnaire helped in the assessment of the current production of salt farms in terms of volume, value and quality of salt

produced. The last part of the questionnaire are about how the producers are dealing with different challenges for the salt industry in Occidental Mindoro. The researcher-made questionnaire was validated using the expert validity. The researcher enlisted the help of five (5) Graduate School Professors of the Divine Word College of San Jose. All of them tested the applicability and appropriateness of each item of the questionnaire in relation to the problem under study. The reliability of the instrument was tested by the use of the split-half method. After the questionnaire was administered once to twenty respondents composed of two (2) salt farm owners, four (4) managers and 14 caretakers of salt farms, then the Spearman-Brown correction formula for the odd-even items was applied. Items with zero variance were deleted. There are forty items in the questionnaire which were tested for inter-item reliability. The result of the reliability test is given below.

**Table 1**

*Reliability Results of the Instruments*

Items	Reliability Coefficients	Interpretation
Challenges in Salt Farm Industry		
Climate Change	0.968	Very High Reliability
Lack of Support from Government	0.753	High Reliability
Absence of Facility	0.664	Moderate Reliability
Post-harvest Facilities	0.913	Very High Reliability
Technology	0.709	High Reliability

The computed coefficients for the indicators of the challenges in the salt farm industry resulted in a generally high reliability. The questionnaire is ready for administration to the group of salt farm owners.

**Data Gathering Procedure** - The list of producers as respondents of the study was requested from the TAMACO. Request letters to conduct the study were noted and approved by the adviser and endorsed by the manager of TAMACO. The researcher distributed the survey questionnaires through going to the house or salt farms of salt producers. When given a permission to visit the salt farms the researcher took the opportunity to do so and got a chance to interview not only the salt producers but also the workers. On the same day, the validated questionnaires with the answer of salt producers were all retrieved.

**Statistical Treatment of the Data** - The weighted mean and percentage were applied to describe how the salt producers are dealing with different challenges of the salt industry in Occidental Mindoro. For the interpretation of the responses, Likert Scale was employed and the following limits were used: 4.20 – 5.00 Strongly Agree (Very High Extent); 3.40 – 4.19 Agree (High Extent); 2.60 - 3.39 Uncertain (Moderate Extent); 1.80 – 2.59 Disagree (Low Extent); 1.00 – 1.79 Strongly Disagree (Very Low Extent)

**3. Results and Discussions**

**Table 2**

*Frequency and Percent Distribution of Salt Production for the year 2022 by Volume - in bags with 50 kg of salt*

Volume	Frequency	Percent
Less than 10,000	5	16.7
10,001 - 50,000	19	63.3
50,001 - 100,000	3	10.0
100,001 and above	3	10.0
Total	30	100.0

Based on the profile of the salt farms, it is expected that majority of the respondents has a high volume of production because of the width of salt farms and high number of salt beds. Last 2022, 63.3% of the respondents had produced 10,001 - 50,000 bags of salt or 500,000 to 2,500,000 kgs. This is equivalent to 500 to 2,500 metric tons. While, the five (5) respondents or 16.7% had produced less than 10,000 bags of salt. Based on the survey, the remaining 6 respondents or 20% are equally divided to 50,001 - 100,000 and 100,001 and above. Those all comprised the 52,500 metric tons of salt produced in the province for the year 2022 (TAMACO report, 2023).

**Table 3***Frequency and Percent Distribution of Salt Production for the year 2022 by Value in Pesos per kilo*

Value	Frequency	Percent
2 – 4 pesos	13	43.3
5 – 8 pesos	17	56.7
8-10 pesos	0	0
11 pesos and above	0	0
Total	30	100.0

The data above shows that 56.7% of the respondents are selling their salt for the price that ranges from 5 pesos to 8 pesos per kilo. But the remaining respondents are selling their salt for only two (2) pesos to four (4) pesos per kilo. It can be perceived based on the pricing that the salt produces in Occidental Mindoro is in good quality. Most of the salt producers are selling their product for the price that is above the average farm gate price of salt in Occidental Mindoro for 2022, which is three (3) pesos according to TAMACO (2022).

**Table 4***Frequency and Percent Distribution of Salt Production for the year 2022 by Quality of Salt Produced*

Quality	Frequency	Percent
green	14	46.7
yellow	15	50.0
Blue	1	3.3
Total	30	100.0

Table 4 shows that most of that quality of salt produced in Occidental Mindoro is yellow followed by green and blue. Those are the most used quality of salt in the province aside from the white one that they are all producing. Yellow quality of salt is used for bagoong and dried fish production while, green and blue qualities of salt are two of the highest quality of salt in Occidental Mindoro that is used for human consumption (Gumban, 2022).

As presented in Table 5, the assessment of salt producers on how they are dealing with the challenges brought by weather monitoring, lack of support from the government, absence of facility to determine product quality, lack of post-harvest facilities and technology scored an overall mean of 4.07, 4.43, 4.82, 3.44 and 4.65 respectively and verbally translated as highly evident and very highly evident. In relation to weather monitoring, this study shows that the salt farmers accepted that they can do nothing about the climate change but still finding ways to lessen its effects to their production. Items that got the same mean rating are all regarding the weather monitoring system provided by the DOST. The said weather monitoring system somewhat meets the expectation of TAMACO that the weather updates coming from the system will help the producers and workers to plan strategies to make harvesting more productive and be less affected by climate change (TAMACO Project Proposal, 2017).

**Table 5***Mean extent of dealing with challenges in salt production*

Indicators	Composite Mean	Verbal Description
Weather Monitoring	4.07	Highly Evident
Lack of support from the government	4.43	Very Highly Evident
Absence of facility to determine product quality	4.82	Very Highly Evident
Lack of post-harvest facilities	3.44	Highly Evident
Technology	4.65	Very Highly Evident

*Scale: 4.20-5.00- Very Highly Evident; 3.40-4.19- Highly Evident; 2.60-3.39- Moderately Evident; 1.80-2.59- Fairly Evident; 1.00-1.79- Not Evident*

The assessment of salt producers on how they are dealing with the challenges related to lack of support from the government got an overall mean score of 4.43, interpreted as very highly evident. Though it is interpreted as highly evident, it seems like the initiative and efforts of government still failed to reach the small salt producers. This is consistent with the result of the study of Muyot and Asuncion (2022) that salt producers and farmers have

seen a very few local initiatives to help the shrinking salt industry in the province and even though DOST has initiated efforts to help the salt industry in the province, it has not reached the small salt producers according to their respondents. It can be perceived that salt producers are confident on their own efforts in dealing with the challenges brought by the lack of support from the government.

Product quality and quality assurance are crucial to salt production (Muyot & Asuncion, 2022). Salt producers agreed with all the items that are all about ensuring that the salt they are producing is in good quality which they believed is determined by the market. Also, it only shows that like any other businesses, quality is one of the important things to be considered in the salt production. Moreover, respondents agreed with what Gumban (2022) said that good management can substitute the absence of facility to determine salt quality as this item got a weighted mean of 4.87. But they also believe that they need state-of-the-art facilities to survive in the salt industry. So, it's the combination of those two factors. Table above shows that though this variable got the lowest composite mean among all the given variables, respondents' actions on the challenges regarding the post-harvest facility depict as highly evident as reflected by the composite mean of 3.44. But Philippine government must prioritize the improvement of post-harvest management and the provision of post-harvest facilities to improve the productivity and competitiveness of the salt farmers (Lamentillo, 2022). For those who have warehouse, they are using sack to pack their harvested salt. Also, they practice good housekeeping of their warehouse to ensure that salt is in good condition. Those are perceived in their mean rating of 4.33 or very highly evident.

As can be seen from the data above, salt producers' way of dealing with challenges of salt production in terms of technology was depicted as very highly evident with a composite mean of 4.65. All those items are related to their improvement and the technology that they are using in the present. That only shows that they are not afraid of change and willing to adapt to it. Since quality is a big factor for the price of salt, indeed, the development of salt production technology is needed to increase productivity and quality of salt product (Guntur, 2018). Meanwhile, it is noticeable that item no. 3, regarding the helpfulness of weather monitoring system, got the lowest mean. It is just somewhat helpful but not really. It seems like they are not really satisfied with its usefulness.

**Table 6**

*Action Plan to Improve the Salt Production in Occidental Mindoro*

Challenges	Solutions	Persons/Agencies Involved	Recommendations
1. Weather Monitoring	Beside solar evaporation, try another method in producing salt	Salt producers and farmers	Discover alternative ways to produce salt vis a vis climate change.
	Be updated to the latest news about the weather	Salt producers and farmers	Frequently watch television or listen to radio regarding the weather update
2. Lack of support from the government	Stop mangrove destruction	Government and salt producers and farmers	Plant more mangrove trees and take good care of those.
	Stop importation	Government agencies related to salt industry	Support local salt producers and their product
	Stop conversion of salt farm into residential/commercial land.	National and local government	The government providing funds and salt farm construction equipment and materials to repair and maintain existing and newly developed salt farms to ensure continuous efficient production.
3. Absence of facility to determine product quality	Clean salt beds	Salt producers and farmers	Maintain cleanliness of salt beds.
	Try using High-Density Polyethylene or HDPE geomembrane	Salt producers and farmers	Invest in HDPE geomembrane.
4. Post-harvest facilities	Installation of central warehouse for salt production.	Government agencies related to salt industry	The government providing funds and support for post-harvest facilities.
	Look for a possible buyer immediately	Salt producers and farmers	Before the production, contact retailers, dealers and industrial users of salt.

5. Technology	Engage in research and development Try other methods of producing salt	Academe sector, salt producers and farmers and the government Salt producers and farmers	More research study about the salt industry Cooking method is also an ideal method to be tried. Adopt the salt production method of other countries or other provinces here in the Philippines that are applicable here in Occidental Mindoro.
	Inclusion of building or operating a machine producing salt in the future plans for salt industry.	TAMACO and government agencies related to salt industry	The government providing funds and support for research and development.

After analyzing and presenting the significant findings based on the data gathered, the researcher formulated the action plan to help the salt producers and farmers in the existing challenges in their production as shown in Table 6. In the challenges regarding the weather monitoring, actions to be taken are to be done by the salt producers and farmers like knowing the weather updates by listening to radio or watching television. While for the challenges brought by lack of support from the government, researcher suggests that salt producers and farmers to urge the government to the stop importation of salt, magroove destruction and conversion of salt farms into residential and commercial land. Planting more magroove trees will help improve the salt production in a way that it will serve as a natural filter. Before the seawater reaches the salt farms, it's already filtered (Pangasinan Provincial Tourism and Cultural Affairs Office, 2021).

Cleaning the salt beds before it will be used and using High-Density Polyethylene or HDPE geomembrane as salt bed lining are what the researcher is suggesting helping in overcoming the challenge of absence of facility to determine product quality. HDPE geomembranes are synthetic membrane liners used to control fluid migration or retention of liquids in a man-made project, structure, or system. During the process of evaporation, the geomembrane perfectly holds the salt water (DA Memorandum Circular No. 34, Series of 2022). Meanwhile, in the challenge of lack of post-harvest facility, government should exert effort regarding this challenge through installation of central warehouse for salt production while in the part of salt producers, before the production they should contact a possible buyer so they will not be needing a warehouse anymore.

More research study about the salt industry is needed to continue improving the salt production in the Philippines. Trying other methods is also being suggested like the cooking method. This method produces salt by evaporating salt water in large open vats with heat source from cook stoves (DA Memorandum Circular No. 34, Series of 2022). Salt producers should consider the inclusion of operating a machine producing salt so solar heat will not be needed anymore to produce salt.

#### 4. Conclusions

Based on the findings, the following conclusions are drawn A great number of salt farms in Occidental Mindoro have a sizable area of 31 hectares and above utilizing Vigan clay as lining for salt beds with solar evaporation as the only method of producing salt. Salt production for 2022 had a good quality and was evidenced by a good price above the farm gate price. Salt farmers and producers must seek the assistance of government agencies and TAMACO to monitor change in the weather pattern which may disrupt their salt production. For a long time, the government has neglected the importance of salt industry leading to its dwindling production and even encouraged salt importation to the detriment of salt industry in the Philippines. Salt quality can be improved to command a higher price if good facility will be introduced to assist salt farm producers. Warehouse and other storage facilities are wanting in Occidental Mindoro and greatly affected salt production. The traditional method of salt production remains dominant in Occidental Mindoro which hinders its growth and development.

**Recommendations** - In relation to the conclusions derived from significant findings, the following recommendations are presented: Salt producers and salt farmers should focus more on improving salt quality.



When preparing salt beds and lining with tiles, press well the tiles so that there is no space where the mud or dirt below could float to tarnish the color of salt. Use plastic tiles or HDPE geomembrane as bed lining to produce good quality of salt. During period when solar evaporation is not possible, resort to “cooling salt meter” using rice husk to produce quality of salt. Government should assist the salt industry in Occidental Mindoro to produce quality salt. Through LGU, initiate a program to clean coastal areas to prevent garbage from contaminating salt water for salt production. Embark on a program of mangrove plantation and rehabilitation to help salt water remain clean. Provide fund for construction of a central warehouse or storage for quality salt. Discourage the conversion of salt farms into residential or commercial purposes. Minimize importation of salt. Provide funds to salt producers who want to improve their salt farms. TAMACO should encourage salt producers to modernize their salt farms and assist them in coordinating with proper government agencies to secure funds and technology. LGU should showcase our salt product including in venues like the night market in San Jose. The formulated action plan may be used by the salt producers in order to improve the salt production in Occidental Mindoro. More research is advised to help and find new ways to alleviate the plight of salt industry in Occidental Mindoro.

## 5. References

- Aypa, S. (2019). *A Study on Viability of Salt-making in polyethylene plastic material as small-scale industry*.  
[https://www.nfrdi.da.gov.ph/tjpf/vol15\\_2](https://www.nfrdi.da.gov.ph/tjpf/vol15_2)
- Bartolome, G. J. C. (2022). *Journal on GIS Mapping of Salt Farms and Salt Supply Chain Actors in the Visayas and Mindanao, Philippines*. <https://iopscience.iop.org/article/10.1088/1755-1315/1006/1/012006/pdf>
- Businessmirror (2017). *Occidental Mindoro boosting salt industry through new tech*.  
<https://businessmirror.com.ph/2017/05/28/occidental-mindoro-boosting-salt-industry-through-new-tech/>
- BusinessWorld Publishing. (2022). *DA to expand area devoted to salt production*.  
<https://www.bworldonline.com/editors-picks/2022/09/15/474961/da-to-expand-area-devoted-to-salt-production/>
- Casayuran, M. (2023). *Senators seek development, revitalization of ‘diminishing’ PH salt industry*.  
<https://mb.com.ph/2023/01/18/senators-seek-development-revitalization-of-diminishing-ph-salt-industry/>
- DA Memorandum Circular No. 34, Series of 2022. *Implementing Guidelines for the Development of Salt Industry Project*. [https://www.da.gov.ph/wp-content/uploads/2022/09/mc34\\_s2022.pdf](https://www.da.gov.ph/wp-content/uploads/2022/09/mc34_s2022.pdf)
- Dejareco III, Z. (2023). *Salt shortage leads to importation*.  
<https://mb.com.ph/2023/01/10/salt-shortage-leads-to-importation/>
- Dela Cruz, J. (2022). *Worth Your Salt: A Call to Support the Philippine Salt Industry*.  
<https://www.manilatrade.com/the-philippine-salt-industry-current-state/>
- Elias, M., Laranjo M., Agulheiro-Santos A. and Maria Eduarda Potes M. (2019). *The Role of Salt on Food and Human Health*. <https://www.intechopen.com/chapters/67709>
- Francisco, A. B. (2022). *Salt-making as a stunting enterprise and practice*. <http://e-journal.unipma.ac.id>
- Gumban, E. (2022). *Salt industry output seen held back by reclamation, import competition*.  
<https://www.bworldonline.com/agribusiness/2022/09/12/473759/salt-industry-output-seen-held-back-by-reclamation-import-competition/>
- Guntur, G. (2018). *Development of salt production technology using prism greenhouse method*.  
<https://iopscience.iop.org/article/10.1088/1755-1315/106/1/012082/pdf>
- Lagare J. (2022). *Salt industry revival plan to start with ‘profiling’ – DA*.  
<https://newsinfo.inquirer.net/1665198/salt-industry-revival-plan-to-start-with-profiling-da#ixzz7tAcBKQhN>
- Lamentillo, A. (2022). *Invest in post-harvest facilities to improve agri productivity*.  
<https://mb.com.ph/2022/06/17/invest-in-post-harvest-facilities-to-improve-agri-productivity/>
- Macapagal, J. (2022). *Da Seeks To Improve Salt Production: Price drop on sugar seen*.  
[https://malaya.com.ph/news\\_business/da-seeks-to-improve-salt-production-price-drop-on-sugar-seen/](https://malaya.com.ph/news_business/da-seeks-to-improve-salt-production-price-drop-on-sugar-seen/)
- Mangaluru B. (2022) *Salt production. Salt production marginally up in 2021-22*.  
[www.thehindubusinessline.com/economy/agri-business/salt-production-marginally-up-in-2021-22/article65731713.ece](http://www.thehindubusinessline.com/economy/agri-business/salt-production-marginally-up-in-2021-22/article65731713.ece)

- Muyot, N. & Asuncion, C. (2022). *Constraints And Challenges of Salt Farming in Occidental Mindoro, Philippines*. <https://cognizancejournal.com/vol2issue6/V2I601.pdf>
- NASA Earth Observatory. (2019). *India's Largest Salt Producer*.  
<https://earthobservatory.nasa.gov/images/145756/indias-largest-salt-producer>
- PAKTUZ (2019). *Importance and Production of Salt in our Lives*.  
<https://www.paktuz.com/en/importance-and-production-of-salt-in-our-lives/>
- Pangasinan Provincial Tourism and Cultural Affairs Office (PTCAO). (2021) *Dasol Salt Farm*.  
<https://seepangasinan.com/places/dasol-salt-farm/>
- Sotelo, Y. (2022). *Pangasinan salt farmers feel pinch of ailing industry*.  
<https://newsinfo.inquirer.net/1661946/pangasinan-salt-farmers-feel-pinch-of-ailing-industry>
- TESDA MIMAROPA (2022). *Consultation Meeting on Salt Industry with Tamaco Board of Directors*.  
<https://tesdamimaropa.com/blog/2022/11/08/consultation-meeting-on-salt-industry-with-tamaco-board-of-directors/>
- The Official Website of the city of Las Piñas (2023). *Salt-Making Industry*.  
<https://www.laspinacity.gov.ph/lifestyle/24/salt-making-industry#:~:text=In%20the%2018th%20century%2C%20salt,beds%20known%20as%20%E2%80%9Cirsan%E2%80%9D.>
- The World Atlas (2017). *The World's Top Salt Producing Countries*.  
<https://www.worldatlas.com/articles/the-world-s-top-salt-producing-countries.html>