

## **Gender Roles in the Seaweed Industry Cluster of Southern Philippines: The DICCEP Experience**

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### **Abstract**

Recognising the long value chain of seaweed production, a seaweed industry cluster was developed to enhance seaweed production in Davao, southern Philippines. The seaweed industry cluster was an inter-agency, multi-sectoral initiative to develop a road map for the seaweed industry and its stakeholders in Davao Region. This was designed to increase the income of fisherfolk, improve the regional contribution of the industry and to sustain productivity and competitiveness. Based on the industry cluster approach, a capability building project was implemented through the Davao Industry Cluster Capacity Enhancement Project (DICCEP). After training on the industry cluster approach, three pilot projects were implemented. DICCEP: (1) established seaweed farms for the benefit of farmers, (2) created a directory of seaweed farmers and traders, and (3) developed a database on seaweed production. It also trained 95 farmers and housewives on seaweed value adding and entrepreneurship. The project helped farmers to generate income, and processors to develop new value-added seaweed products. Throughout, DICCEP was sensitive to the gender breakdown among participants in the Cluster. Although men took the main leadership roles, women were active in production and, particularly, post-harvest processing. Men were also active in post-harvest processing and their skills should not be overlooked.

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## Introduction

The seaweed industry is an important aquaculture industry in the Philippines and, in 2008, accounted for nearly 70% by volume of aquaculture production. More than half of the production came from Mindanao regions but, within Mindanao, the Davao Region contributed only 0.12% to the total Mindanao production in 2003. From this low base, however, the production volume has been increasing rapidly: the 2004 production was 80% higher than that for 2003, and the 2005 production was 53% higher than the 2004 production.

By province, within the Davao Region, Davao del Sur accounts for 67% of the total regional output followed by Davao Oriental at 33%. In 2005, the prospect of establishing a processing plant in Davao City encouraged the industry to continue improving its production performance.

Compared to other Mindanao regions, the Davao region has the lowest utilisation of its total potential seaweed production area. The existing area planted with seaweed is 447 ha with Davao del Sur accounting for about 50%. Between 2005 and 2010, the utilised area was expected to expand by about 188 to 252 ha. Yield was also expected to increase to between 2,511 and 2,762 tonnes, based on the current rates of 3.93 tonnes ha<sup>-1</sup>. Davao Oriental was also expected to improve its yield as it had the largest potential area for expansion (BFAR/DTI, 2005).

Seaweed production in the Davao region is dominated by small-scale farmers who still suffer from problems of low productivity due to unfavourable farm locations, diseases and vulnerability to markets that they access through rural traders, wholesalers, retailers and processors. The produce of the more progressive farmers usually passes more directly to markets compared to the longer routes used by small-scale farmers. The progressive farmers have better access to transport and so can sell directly to the big exporters and/or processors. The produce of the small-scale farmers, on the other hand, has to pass through a series of middlemen before it reaches the exporters and/or the processors. Because exporters or processors determined the buying price, the small-scale farmers who are the majority of the producers receive only a small part of the value and profit. A large share goes to the middlemen, assemblers and wholesalers. The large-scale exporters/processors may be subsidiaries of foreign processors, independent exporters or processors/exporters. Growers have limited market information about the buying prices, and they have limited control over the pricing of products. As a result, they are poorly rewarded for their efforts and risks. Post-harvest inefficiencies also cause wastage and reduce both product quality and the incomes of farmers.

### *The seaweed industry cluster approach*

To support the various actors in the industry, the seaweed industry cluster approach was implemented to enhance seaweed production in the region. The Manual of Operations of the DICCEP described the industry cluster concept and its approaches (DTI-JICA, 2010).

An industry cluster is a geographic concentration of a specific industry together with its supporting and peripheral industries and service providers. It has potential to address four important factors for economic development: (1) demand conditions, (2) input factor conditions, (3) firm structure, strategy and rivalry, and (4) related and supporting industries. A cluster approach is an organised effort to increase the growth and competitiveness of a cluster within a region, involving cluster firms, government and/or the research community, and leveraging the potential of the industry cluster.

The Davao Industry Cluster, established in June 2009, is led by a Cluster Team that is the core organisation of the cluster approach. The Cluster Team's role is to maximise the advantage of industry clustering by networking with relevant stakeholders and support agencies, planning the actions of initiatives of the Cluster, and carrying out activities to improve competitiveness and growth of the industry.

### ***Gender roles in the Davao industry cluster for seaweed***

Under the Cluster Team for the seaweed industry cluster, Project Implementation Teams (PIT) (or Technical Working Groups (TWG)) are organised to implement the project efficiently. The activities of the TWG/PITs enable proactive collaboration, particularly securing the participation of those who have expertise in the diverse and relevant fields. A gender analysis of participants in the teams showed that project management is not totally dominated by men but also includes women, e.g., two of the six members of the Cluster Team are women. However, the team leaders are usually male.

The Cluster aims to promote a globally competitive seaweed industry to improve the socio-economic conditions of the stakeholders. To achieve this, the Cluster collaborates with the private sector, government agencies, academe, fisherfolks and other stakeholders for a well-coordinated approach and unified direction. It includes several different associations of seaweed farmers, local buyers and traders, processors, academics and concerned government agencies.

After production, harvesting and early stage processing, dried seaweed from the Davao region is sold to local traders/buyers in Davao del Sur, Davao Oriental and Davao City. Once the required volume is aggregated, the traders sell their stocks either to Martsons Inc., the sole seaweed processor in the region, or to seaweed processors in Cebu. Three projects carried out by participants in the Davao Industry Cluster illustrate the characteristics of the industry cluster approach and the gender roles in the Davao seaweed industry.

*Project 1 – Establishment of Model Cooperative Farms.* In 2010, recognising the large potential of the seaweed industry, the Davao Seaweeds Industry Cluster Team, which is a core team composed of representatives from different organisations, identified two potential municipalities for the establishment of Seaweeds Model Farms. These were farms at Tambo, Island Garden City of Samal in Davao del Norte (initially with one model farm) and Punta Biao, Digos City in Davao del Sur

(also with one model farm). The model farms were established in order to address the issue of low productivity due to such causes as unfavourable weather and vulnerability to diseases. The project was also designed to assist farmers address financing and marketing concerns.

To ensure seaweed quality and to reduce post harvest losses, technicians from the Philippine Bureau of Fisheries and Aquatic Resources (BFAR) and local consultants provided the 13 Punta Biao and 21 Samal farmers who operate as a group on the two model farms with hands-on development training. The training courses conducted were: (1) comprehensive basic and upgrading skills on seaweed farming incorporating good mariculture practices and proper harvesting and drying; (2) basic entrepreneurial skills and knowledge; (3) organisational development and value formation; and (4) an orientation seminar on financial record keeping and credit raising. The training strengthened cooperation and provided farmers with the competence to manage the seaweed farms professionally.

The gender participation was balanced at Punta Biao in Digos City (total of 13 farmers) but women dominated (71% of the 21 farmers) at Tambo in Samal.

*Project 2 Profiling of Seaweed Production in Model Farms.* In 2009, academic institutions were included in the Project. Schools, universities and colleges, and the Philippine Council for Aquatic and Marine Research and Development (PCAMRD) Zonal Center V, which is mandated to undertake research and development functions, participated. A database of seaweed farms in Davao Gulf was created, so the farms could be monitored to establish trends in production and identify industry gaps and potential areas for intervention. Academics also conducted a value chain analysis of the seaweed industry in major production centres in Davao region and on the model farms. The aim was to establish baseline information to help producers improve the efficiency of the marketing system and increase their incomes.

In total, 99 seaweed farmers and traders were surveyed in Punta Biao and 25 in Samal. Males carry out about 60% of the seaweed farming in each area. Of the two traders in Punta Biao, one was female and the other male. Trading in Punta Biao was dominated by females (six of seven traders).

In 2009, 21 producers in Tambo, Samal, were surveyed to determine their full range of activities. For all of the seaweed producers who responded from Tambo, seaweed farming was their primary source of income and fishing was their secondary income source. All of the seaweed farmers operated their seaweed farms on a household scale, with members of the family as helpers, and not through a cooperative or organisation. Thus, the Project's efforts to create the industry cluster and help the farmers cooperate in grading, packing and storing was a contribution to more efficient marketing. The seaweed farms of the respondents were 1-3.2 ha.

Of all the respondents, including seaweed farmers and others, most fished as their primary occupation (56%), with seaweed farming as a secondary source of income. The remainder, 44% of respondents, farmed seaweed as their sole source of livelihood. Other secondary sources of income included fishing (39%), sea cucumber collecting (29%), fish vending (14%), managing a *sari-sari* (small goods) store (5%), working in a rice mill (4%) or as a security guard (3%), while 1% each gained income from mat making, working as a barangay health labourer, laundry worker, construction labourer and driver. All respondents who were seaweed growers were members of a seaweed association and they operated their own seaweed farms. From among the respondents who engaged in seaweed farming as a secondary source of income, most of them (80%) owned a seaweed farm of 0.25 ha, 18% of them have 0.5 ha, and 1% own 1-1.5 ha farms.

*Project 3- Promotion and Training Programme for Seaweed Value Adding.* Project 3 aimed to: (1) create greater demand for seaweed by promoting value-added products, (2) provide training on the technology for seaweed value adding, (3) help promote the nutritional value of seaweed, (4) contribute to poverty alleviation, and (5) provide training to change the attitudes of farmers.

Many issues contributed to the limited production and utilisation of seaweed, among these were: (1) lack of skills on value adding; (2) low awareness on the nutritional values of seaweed; (3) a negative attitude among farmers, and (4) lack of training and promotion programmes. To address these issues, efforts were geared towards promoting value-added seaweed products and developing skills for production to augment income of farmers as well as reforming the attitude of farmers. The seaweed farmers who took advantage of the value adding courses were gender balanced in the Punta Biao course but women dominated in Samal (15 out of 21 attendees).

Seaweed is in demand due to the variety of its uses. With its high nutritive value, local utilisation is not limited to fresh salad preparation or dried forms for phycocolloid extraction. Seaweed is also included in foods such as *Eucheuma* cupcakes and tarts and in organic fertilisers such as KD Foliar Fertiliser. In Samal, more women than men (about 70% of 21) were involved in seaweed value-adding whereas in Punta Biao the female and male numbers involved in value adding were similar. This implies that both men and women show skills for value adding.

## **Conclusion**

The Davao Seaweed Cluster provided an integrated platform for understanding better the industry structure, engagement of women and men in different parts of the supply chain, and issues faced by the industry. The Cluster also enabled the producers to be reached and involved in planning and training, including value adding activities. It also drew in the combined skills and knowledge of the farmers, private sector, government and academe.

The Cluster in the Davao region, Philippines, was found to have both female and male participants. Even at the management level (Cluster Team), women have roles in planning, although the Cluster Team is led by a man. At the seaweed production and value adding level where farmers and housewives as family members are involved, a greater percentage of women are involved in Samal, Davao del Norte than in Punta Biao, Davao del Sur. The sample sizes on the model farms were small and few strong conclusions can be drawn on the difference. Men as well as women were found to have a significant role in value adding in both model farm locations.

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