Community capacity building issues in Malaysia have been given serious attention by the government, private sector, and NGOs, where day by day a number of new programmes are introduced and sought by the community to support the initiatives. This paper discusses the establishment of capacity building programmes among the poor rural community in the District of Semporna, Sabah, Malaysia. In relation to this, the capacity building programmes were carried out to enhance the level of community participation and skills advancement for the long term process of modern sustainable seaweed cultivation. The study was conducted in between 2011 and 2013. A qualitative research approach which involves an in-depth interviews and field observation methods were adopted and the data were analysed using qualitative analyses techniques. The findings revealed that the introduction of seaweed cultivation using the Estate Mini System and Cluster System under the initiative of the Department of Fisheries Sabah has exposed the community to the application of new technologies such as the varieties of seeds, seeds and nursery management, fertilising and tying of seeds, the activity of solar drying, and the casino table technique in the process of seaweed cultivation. The study is significant for the fishermen experiencing the process of lifelong learning, which also enable them to enhance their knowledge and survival skills in their respective fields of employment. Moreover, capacity building programmes could change the mind-set of the community to be more open in receiving new approaches in the production of seaweed cultivation. Finally, this paper draws some practical implications and suggestions for future research directions.