GENDER INTEGRATION IN FISHERIES AND AQUACULTURE PRODUCTION IN NIGERIA: THE ROLES OF CULTURE, EDUCATION AND TECHNOLOGY.

Prof Yemi AKEGBEJO-SAMSONS*
[Dr Deji ADEOYE and Prof Ben OFFEM]
*Federal University of Agriculture
Dept of Aquaculture & Fisheries Mgt
PMB 2240, Abeokuta, Nigeria
CONGRATS OUR OWN STELLA WILLIAMS, E ku oriire mama wa

THANKS MERYL
FOCUS OF THIS PAPER

1. Aquaculture and fisheries Production (Global)
2. Aquaculture and fisheries Production (Africa)
3. Aquaculture and Fisheries Production (Nigeria)
4. Gender Integration in AF Production (General)
5. Gender Integration in AF Production in Nigeria
6. Role of Culture, Education and Technology
7. Specific Discussion
8. Conclusion
9. Appreciation
In 2012, the Fisheries and Aquaculture Department of the FAO undertook a gender stocktake (Reantaso 2012).

► The question: “To what extent are gender equality and women’s empowerment principles taken into account in fisheries and aquaculture development research, projects and policy support?”

► The results:

- Lack of common understanding among professionals,
- Lack of information and
- Lack of human and financial resources as far as gender equality is concerned, globally, regionally and nationally.
The fisheries sub-sector is a significant source of fish food and livelihood for many people living in the coastal communities, as it supplies animal protein necessary for growth and income for many households in these rural communities.

The value added by the fisheries sector in Africa as a whole in 2011 was estimated at more than US$24 billion, 1.26 percent of the GDP of all African countries (FAO, 2014).
In many parts of the world, women have engaged actively in fish business. In the European countries for instance, women control 39% of the fish Industry. In Asia (India, Bangladesh, Malaysia) women make huge amount of money for themselves and their families (Aquilar, 2002).
Marine artisanal fisheries and related processing, inland fisheries, contribute one third of the total catches in African countries.

Aquaculture is still developing in Africa and is mostly concentrated in a few countries but it already produces an estimated value of almost US$3 billion per year (FAO, 2014).
About 27.3% of the people engaged in AF are women, with marked differences in their share among Fishers (3.6%), Processors (58%) and Aquaculture workers (4%) (FAO, 2014)
All over the world, women contribute in multiple ways to the production, processing, marketing and management of fish and other living aquatic resources.

In the fishing communities women participate actively in fisheries and also play a part in the maintenance of their families.
ROLE OF WOMEN: GENERAL

1. Women’s contributions have become the subject of global consideration.

2. Women occupy strategic place in the production, processing, trade and use of the fishery resource.

3. Women engage in fish harvesting in inshore waters.

4. Women control land-based activities, such as net-weaving, processing and marketing of fish.

5. Women largely are involved in fisheries processing, post-harvest activities and trade.
This study seeks to examine the role of Culture, Education and Technology in Gender Integration in Aquaculture and Fisheries in Nigeria.
Map of Nigeria / States showing the study sites

Lagos, Ogun, Ondo, Delta and Cross River
1. Five coastal states in Nigeria were deliberately chosen for the study.

2. Women groups that are active in this 2-sector economy (AF) were purposefully selected.

3. In each state, five women groups were selected for the research work.
   Mean sample size of group: 26
1. Selection of 5 Women AF Groups in each state

2. Meeting with the groups (Interviews, administration of questionnaires, data collection)

3. Visits and on-the-spot interaction with members of the different groups.

4. Data analysis
5 Coastal states selected:

(a) Cross River, (27 selected members)
(b) Delta, (24 selected members)
(c) Lagos, (28 selected members)
(d) Ogun (27 selected members)
(e) Ondo (26 selected members)

Total: 132
The study utilized Primary data collected from the members of 5 Women groups in each of the Coastal states (Mean sample size: 26) using Multi-stage sampling method.

Data collected were summarized using Descriptive and Inferential Statistics.
FOCUS AND ACTIVITIES

Culture
Education and Technology

On Gender Integration
FOCUS ON GENDER INTEGRATION:
[AQUACULTURE]
FOCUS ON GENDER INTEGRATION: [FISHERIES]

HARVESTING from the wild TO VALUE ADDITION
Major Focus of Results & Discussion:

- **Harvesting, Processing and marketing of fishery products**
- **Aquacultural Practices (Pond construction to Marketing of fish)**
- **Key Roles of the women groups in AF**
- **Factors affecting Women integration within the states**
- **The Roles of CET in gender Integration**
RESULT 1: KEY ROLES OF WOMEN IN AF IN THE STUDY AREAS

A. Harvesting, Processing and marketing of fishery products

(a) Fish processing
(b) Fish marketing
(c) Fish transporting
(d) Women smoke and dry fish and cook for sale
(e) Fresh fish purchase by women for drying and processing for sale
(f) Women transport fish and act as middlemen.
RESULT 1: KEY ROLES OF WOMEN IN AF IN THE STUDY AREAS [CONT'D]

B. Aquacultural Practices (From pond construction to Marketing of fish)

(a) Fish Feed Preparation
(b) Fish production activities (fish food administration)
(c) Fish harvesting, sorting and grading
(d) Fish Preparation
(e) Value addition (smoking, branding, packaging)
(f) Marketing
Fisheries and Aquaculture value chains are: *Diverse, complex and dynamic systems*, with changing roles depending on *local norms resource access, control and mobility*, the *type of technology involved*, the *extent of commercialization*, and the *product involved*.
RESULTS

General Factors affecting Women integration within the states

(a) Geographic location,
(b) Local traditions and outlook,
(c) Historical mobility of women,
(d) Family support and interest,
(e) Community and peer group support,

(f) Age of the women

(g) Effectiveness of NGOs supports and

(h) Ineffective management across the production cycle
The Roles of CET in gender Integration

Culture ➔ Technology

Education ➔ Women in AF
Table 1. Fisheries Activity performed by the Women in the States

<table>
<thead>
<tr>
<th>Activities</th>
<th>Lagos (%)</th>
<th>Ogun (%)</th>
<th>Ondo (%)</th>
<th>Delta (%)</th>
<th>C/River (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) Fish farming</td>
<td>5.0</td>
<td>2.0</td>
<td>1.5</td>
<td>2.3</td>
<td>1.8</td>
</tr>
<tr>
<td>(b) Fresh Fish marketing</td>
<td>17.0</td>
<td>14.5</td>
<td>13.6</td>
<td>12.8</td>
<td>13.5</td>
</tr>
<tr>
<td>(c) Fresh Fish Distribution</td>
<td>5.6</td>
<td>3.5</td>
<td>2.1</td>
<td>2.6</td>
<td>1.6</td>
</tr>
<tr>
<td>(d) Sales of fingerlings</td>
<td>3.0</td>
<td>1.5</td>
<td>1.3</td>
<td>2.0</td>
<td>1.8</td>
</tr>
<tr>
<td><strong>TOTAL FOR AQUACULTURE</strong></td>
<td><strong>30.6</strong></td>
<td><strong>21.5</strong></td>
<td><strong>18.5</strong></td>
<td><strong>19.7</strong></td>
<td><strong>18.7</strong></td>
</tr>
</tbody>
</table>

Post harvest Activities:

<table>
<thead>
<tr>
<th>Activities</th>
<th>Lagos (%)</th>
<th>Ogun (%)</th>
<th>Ondo (%)</th>
<th>Delta (%)</th>
<th>C/River (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) Retail (fish) distribution</td>
<td>13.6</td>
<td>29.3</td>
<td>29.9</td>
<td>22.3</td>
<td>23.1</td>
</tr>
<tr>
<td>(b) Wholesale (fish) distribution</td>
<td>10.0</td>
<td>16.8</td>
<td>17.5</td>
<td>19.6</td>
<td>18.9</td>
</tr>
<tr>
<td>(c) Smoked fish distribution</td>
<td>45.8</td>
<td>32.4</td>
<td>34.1</td>
<td>38.4</td>
<td>39.3</td>
</tr>
<tr>
<td><strong>TOTAL (FISHERIES ACTIVITIES)</strong></td>
<td><strong>69.4</strong></td>
<td><strong>78.5</strong></td>
<td><strong>81.5</strong></td>
<td><strong>80.3</strong></td>
<td><strong>81.3</strong></td>
</tr>
<tr>
<td><strong>TOTAL FOR GENERAL AF ACTIVITIES</strong></td>
<td><strong>100</strong></td>
<td><strong>100</strong></td>
<td><strong>100</strong></td>
<td><strong>100</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>
A. ROLE OF CULTURE

Prevailing cultural attributes:

In all the states

(a) Cultural Male domination prevailed

(b) Relegation of women to the background was practiced (in most cases, women had little or no say in economic decisions in AF operations)

(c) Women are often forbidding from going to fish in the night
A. ROLE OF CULTURE

(d) Beliefs that pregnant women should not participate in fish harvesting during some seasons of the year

(e) Local laws that were perceived to be harmful to women were in force in some of the states.

(f) Traditional rights were enforced on some women participation in fishing expedition in some states.

Generally, traditional practices, beliefs and laws hinder the women from some activities.
B. ROLE OF TECHNOLOGY

 Evaluated from 2 perspectives,

 (a) Aquaculture and  
 (b) Fisheries activities

OUR OBSERVATIONS..............................
B. ROLE OF TECHNOLOGY

- Aquaculture sector requires the need for tech use than the fisheries subsector, based on our findings.

- Specific areas in *Aquaculture that require Tech* cut across the entire production levels

- However the role of Tech in the *Fisheries sector* is limited to value addition which spans from fish preservation (smoking) to packaging and fish sales.
# Table 2: Technology Adoption

<table>
<thead>
<tr>
<th>Technology adoption</th>
<th>States</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lagos (%)</td>
</tr>
<tr>
<td>Fish farming</td>
<td></td>
</tr>
<tr>
<td>(a) Fish feed procurement</td>
<td>3.5</td>
</tr>
<tr>
<td>(b) Fish seed/fingerling procurement</td>
<td>17.2</td>
</tr>
<tr>
<td>(c) Use of organic manure</td>
<td>2.1</td>
</tr>
<tr>
<td>(d) Land prep/ Pond construction</td>
<td>11.8</td>
</tr>
<tr>
<td>Capture Fishery (OBE)</td>
<td>6.8</td>
</tr>
<tr>
<td>General Fish processing</td>
<td></td>
</tr>
<tr>
<td>(a) Fish smoking</td>
<td>37.8</td>
</tr>
<tr>
<td>(b) Flavour, texture and taste</td>
<td>10.5</td>
</tr>
<tr>
<td>(c) Fish packaging</td>
<td>10.3</td>
</tr>
</tbody>
</table>
Table 3: Types of Smoking Technology (% prevalence)

<table>
<thead>
<tr>
<th>Types</th>
<th>Lagos</th>
<th>Ogun</th>
<th>Ondo</th>
<th>Delta</th>
<th>C/River</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) Modern Kilns</td>
<td>45</td>
<td>35</td>
<td>25</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>(b) Standing oven</td>
<td>20</td>
<td>25</td>
<td>10</td>
<td>10</td>
<td>30</td>
</tr>
<tr>
<td>(c) Mud oven</td>
<td>10</td>
<td>5</td>
<td>15</td>
<td>25</td>
<td>10</td>
</tr>
<tr>
<td>(d) Full drum</td>
<td>10</td>
<td>20</td>
<td>20</td>
<td>25</td>
<td>20</td>
</tr>
<tr>
<td>(e) Half drum</td>
<td>15</td>
<td>15</td>
<td>30</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>
Some examples

Mud oven

Half-Drum

Modern Kilns
Table 4: Use of modern types of Aquacultural Technology (% prevalence)

<table>
<thead>
<tr>
<th>Types</th>
<th>Lagos</th>
<th>Ogun</th>
<th>Ondo</th>
<th>Delta</th>
<th>C/River</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) Pond construction (manual/machine)</td>
<td>nil</td>
<td>nil</td>
<td>nil</td>
<td>nil</td>
<td>nil</td>
</tr>
<tr>
<td>(b) Fingerling production/transport</td>
<td>25.7</td>
<td>15.5</td>
<td>14.8</td>
<td>12.9</td>
<td>9.0</td>
</tr>
<tr>
<td>(c) Feed production</td>
<td>10</td>
<td>5</td>
<td>15</td>
<td>25</td>
<td>10</td>
</tr>
<tr>
<td>(d) Harvesting methods (manual)</td>
<td>nil</td>
<td>nil</td>
<td>nil</td>
<td>nil</td>
<td>nil</td>
</tr>
<tr>
<td>(e) Fish transportation</td>
<td>nil</td>
<td>nil</td>
<td>nil</td>
<td>nil</td>
<td>nil</td>
</tr>
</tbody>
</table>
It was observed that experience of group members overrides “certified education” in all the states.

Over 64.4% of the women in the groups do not have initial basic background in Aquaculture and Fisheries Mgt.

However, most of the Executive members of the groups were highly educated (Table 5).
<table>
<thead>
<tr>
<th>Educational Background</th>
<th>States</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lagos (%)</td>
</tr>
<tr>
<td>(a) Primary School</td>
<td>10</td>
</tr>
<tr>
<td>(b) Secondary School</td>
<td>26</td>
</tr>
<tr>
<td>(c) Adult Education</td>
<td>12</td>
</tr>
<tr>
<td>(d) Higher Education</td>
<td>44</td>
</tr>
<tr>
<td>(e) No formal Education</td>
<td>8.0</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 5: Educational Background of the women in the states
From our findings, Culture varies from one state to another thus the attendant effects are highly diverse.

The beliefs and adherence to “undefined” cultural philosophy that governs some fishery activities by women were very obvious in all the states.
SPECIFIC DISCUSSION

- Education is paramount in all human endeavors
- Education has a role to play in the adoption of new innovations
- Education is a catalyst for easy adaptation of new technological practices
- Training and retraining broadens education
SPECIFIC DISCUSSION

- Spreading education among women especially farm women should be encouraged.
- Location specific and need based training programmes should be regularly organized.
- Adopting flexible timings and training approaches for women.
SPECIFIC DISCUSSION

TECHNOLOGY

1. General low adoption level of technologies in most of the activities by the women.

2. Non availability of appropriate adoption methods

3. Lack of modern adoptable aquacultural techniques, where available, very expensive.
4. From pond construction to harvesting, most activities are done with human labour.

5. Smoking of fish products and value addition practices reflected some measures of Modern Technology application in some states, this can be improved.
SPECIFIC DISCUSSION

- Training sessions for young women fold need to be organized regularly.

- Development of women-friendly aquaculture and Fisheries technologies
<table>
<thead>
<tr>
<th>Constraints</th>
</tr>
</thead>
<tbody>
<tr>
<td>(i) Low literacy</td>
</tr>
<tr>
<td>As Reported by</td>
</tr>
<tr>
<td>Nwabueze (2010); Felsing et al. (2001); Ashaletha et al. (2002); Sultana (2002); FAO (1996); Gätke (2008); Murshed et al. (2008); Van Crowder (1997); Little and Edwards (2003); Minh et al. (1996); Bueno (1997); Samet (1997)</td>
</tr>
<tr>
<td>(ii) Limited access to modern technology</td>
</tr>
<tr>
<td>As Reported by</td>
</tr>
<tr>
<td>Sultana (2002); Mukherjee et al. (2002); FAO (1996); SFLP (2006); Kusakabe (2003); Van Crowder (1997)</td>
</tr>
<tr>
<td>(iii) Lack of government strategies for addressing gender issues</td>
</tr>
<tr>
<td>As Reported by</td>
</tr>
<tr>
<td>Bueno (1997); Sujatha and Dixitulu (1998); Survarna et al. (1998); Nwabueze (2010)</td>
</tr>
<tr>
<td>(iv) Lack of access to credit and finance</td>
</tr>
<tr>
<td>As Reported by</td>
</tr>
<tr>
<td>FAO (1996); Kusakabe (2003); Van Crowder (1997); Harrison et al. (1994); Hoa (1998)</td>
</tr>
</tbody>
</table>

Table 6: Some constraints to women’s participation in aquaculture
<table>
<thead>
<tr>
<th>(v) Lack of women’s organization, women extension worker</th>
<th>FAO (1998); Hourihan (1986); Murray et al. (1998)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(vi) Male dominant society</td>
<td>Felsing et al. (2001); Ibrahim and Yahaya (2011)</td>
</tr>
<tr>
<td>(vii) Lack of access to resources</td>
<td>Nwabueze (2010); Van Crowder (1997)</td>
</tr>
<tr>
<td>(viii) Lack of access to market and rural infrastructure</td>
<td>FAO (1996)</td>
</tr>
</tbody>
</table>

Source: De & Pandey (Int. J. Agr. Ext. 02(01) 2014. 81–88)
Based on our findings:

- Lack of collateral to obtain bank loan
- Lack of modern fish processing facilities
- Inadequate extension services
- Inadequate storage facilities
- Poor marketing arrangement
- Lack of encouragement from Government
RECOMMENDATIONS

(i) Prototype *backyard farming* (Pond/Tanks) can be established to train the women regularly.

(ii) *Integrated Fish Farming in small holder units – fish/vegetables/cassava should be constructed.*

(iii) *Enclosures/ pens and cages for women in estuarine communities and villages close to rivers, stream and flood plains could be provided.*

(iv) *Fish Farm Estate Technology for Women groups should be established.*
Deep appreciation to:
Ann (Executive Director, IIFET),
Meryl (Gender in Fisheries and Aquaculture)
Marianne (Travel Coordinator) and
The World Bank (Funding agent)
FELICITATIONS

THANK YOU

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