Labor Market Intelligence Report

# Agricultural and Fisheries Mechanization (AFMECH)

Technical Education and Skills Development Authority

2015

# AGRICULTURAL AND FISHERIES MECHANIZATION

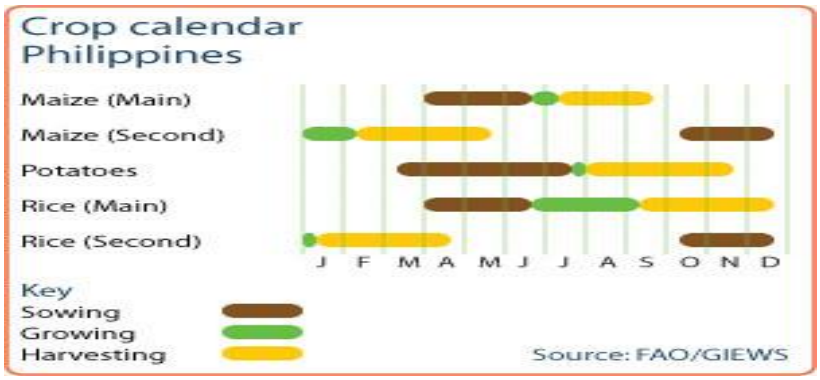
## I. Agricultural Mechanization (AFMech) in the Philippine Context

According to the World Bank statistics, as of 2012, 32% of the Philippine workforce [1] are employed under the Agriculture sector (% of total employment)). According to the World Bank statistics, as of 2013, the Agriculture sector contributes 11.2% of the Philippine GDP[2] (Agriculture, value added (% of GDP)). These prove the importance of the Agriculture sector in the Philippines. However, unfortunately, as essential as it may seem, this industry is beset by obstacles which include, but are not limited to, manufacturing constraints, marketing constraints, inadequate polices, fragmented research and development, and extension and support services.

### 1. Manufacturing Constraints

- Limited Capital
  - ✓ The working capital cycle (WCC)[3] takes a very long time. This makes the business firm to wait longer to earn.
  - ✓ There is a very big discrepancy between the exchange rate of Philippine peso and US Dollar.
- Seasonality of Demand
  - ✓ The demand for specific products differs according to season. Thus, producing too soon will be costly and producing too late can result to lost opportunity (Table 1).

**Table 1. Crop Calendar: Philippines**




*Source: Google Images*[4]

[1] "Employees are people who work for a public or private employer and receive remuneration in wages, salary, commission, tips, piece rates, or pay in kind. Agriculture corresponds to division 1 (ISIC revision 2) or tabulation categories A and B (ISIS revision 3) and includes hunting, forestry and fishing." (Employment in agriculture (% of total employment), 2015)

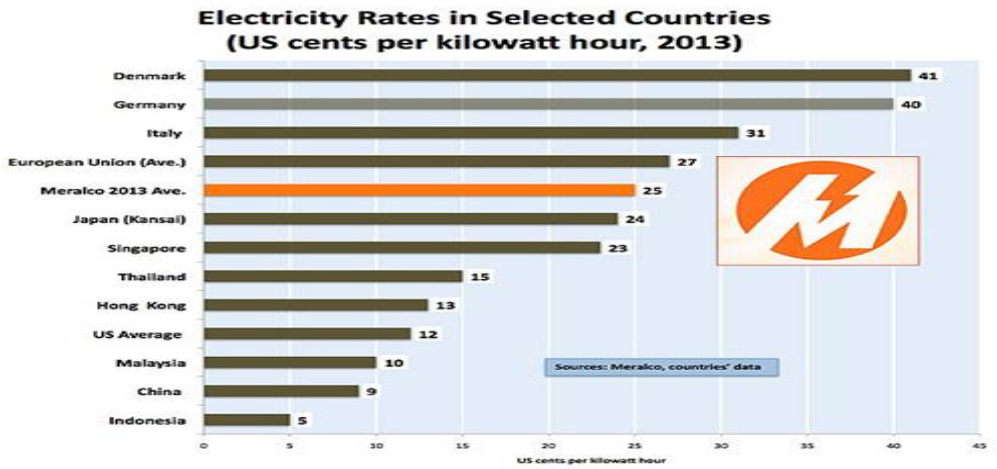
[2] "Agriculture corresponds to ISIC divisions 1-5 and includes forestry, hunting and fishing, as well as cultivation of crops and livestock production. Value added is the net output of a sector after adding up all outputs and subtracting intermediate inputs. It is calculated without making deductions for depreciation of fabricated assets or depletion and degradation of natural resources. The origin of value added is determined by the International Standard Industrial Classification (ISIC), revision 3." (Employment in agriculture (% of total employment), 2015)

[3] "The WCC is the amount of time it takes to turn the net current assets and current liabilities into cash. The longer the cycle is, the longer a business is tying up capital in its working capital without earning a return on it. Therefore, companies strive to reduce its working capital cycle by collecting receivables quicker or sometimes stretching accounts payable." (What is the working capital cycle, 2015)

[4] https://www.google.com.ph/search?q=crop+calendar+philippines&espv=2&biw=667&bih=615&tbm=isch&tbo=u&source=univ&sa=X&ei=iTYmVfLlDoW78gX-54DYCg&ved=0CBsQsAQ#imgrc=I-Myz1Pk7-6sJM%253A%3BeaL5BeGDT1cvcM%3Bhttp%253A%252F%252Fwww.fao.org%252Fgiews%252Fcountrybrief%252Fcountry%252FPHL%252Fgraphics%252F1.jpg%3Bhttp%253A%252F%252Fwww.fao.org%252Fgiews%252Fcountrybrief%252Fcountry.jsp%253Fcode%253DPHL%3B302%3B262

- Lack of Qualified Workers
  - ✓ There is a big turnover of qualified workers since most, if not all, of the trained workers work for foreign countries. Based on the report from POEA, new hires in agricultural workers increased from 1,349 in 2009 to 2,233 in 2013.
- Prohibitive Trucking and Shipping Rates
  - ✓ It more expensive to ship domestically than ship internationally.
- High Cost of Energy
  - ✓ The Philippines is one of the countries with high electricity in the world which impede investors to invest in the country, in general. (Table 2)

**Table 2. Electricity Rates in Selected Countries (US Cents per kilowatt**



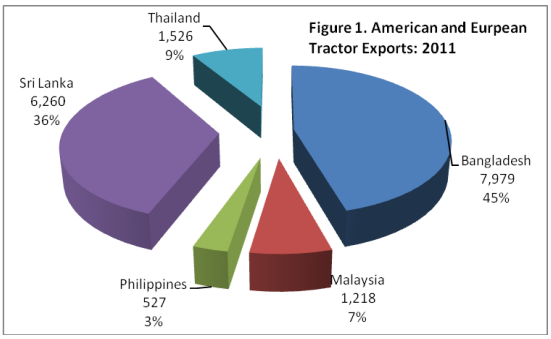

*Source: Agricultural and Fisheries Mechanization Summit*[5]

## 2. Marketing Constraints

Marketing agricultural products and services is critical. There are at least seven (7) concerns relative to the marketing aspect of the Philippine agriculture:

- Competition from Imported Products. Given with the zero tariff in the agricultural products, with the exception of rice, corn and sugar, entry of import products is unfavorable to local products.

- Limited Volume
  - ✓ In 2011, Philippine exports to American and European countries were only amounting to 527 units, representing only three percent of total exports from nearby ASEAN countries.




*Source: Agricultural and Fisheries Mechanization Summit*[5]

- Low Disposable Income of Farmers
- Cut Throat Competition
- Door Access to Financing
- Proliferation of Substandard Machinery and Equipment
- Limited access to affordable and appropriate machinery due to high cost of acquisition and maintenance, and mismatch to needs and prevailing conditions

Thus, an enabling law is needed in order to find an array of possible solutions to the hurdles just presented earlier. After 23 years in the making, RA 10601 or the Agricultural and Fisheries Mechanization (AFMech) Law is regarded as the solution to the problems afflicting the Agriculture sector. The AFMech Law, approved by President Aquino on June 5, 2013, took effect after 23 days of its signing.

## II. Strategic Policy Goals of AFMech Law[6]

The Law offers three (3) strategic policy goals towards the country's Agro-industrial development thrust.

1. **Provide access to farmers and fishermen to affordable and appropriate Agri-Fishery Machinery and Equipment**
   - Establishment of agri-fisheries machineries and equipment service centers in SAFDZs and ARCs for
     a. Custom plowing, harrowing, etc.
     b. Repair and troubleshooting services
     c. Training, after sales service and warranty
   - Promote Contiguous Farming and Infrastructure Support for economies of scale of agri-fisheries machineries
   - Promotion of Local Manufacturing and Assembling to lower down the cost of Agricultural and Fishery Machinery and Equipment

[5] *(Updates/status of philippine agri-fisheries machinery manufacturing and distribution industry, 2014)*
[6] (The agricultural and fisheries mechanization law (republic act no. 10601) [PowerPoint presentation])

2. **Provide protection and support to Agri-Fishery Machinery Buyers, Owners, Manufacturers and Distributors**
    - Provision of After-Sales Service Warranty by suppliers to their clients/buyers
    - Mandatory testing and evaluation by AMTEC on all agri-fishery machinery sold in the market in accordance with the guidelines to be promulgated by the DA Secretary to validate Manufacturer's Specifications
    - Standards development and enforcement
    - Penalties and sanctions for prohibited acts i.e. selling of machinery which are substandard or without warranty or after sales service
    - Registration of agri-fishery machinery owners
        a. Guidelines and procedures to be promulgated by the DA Secretary
        b. Enabling policy of Sec. 18, R.A. No. 7609 (Magna Carta for Small Farmers) – "xxx for purposes of monitoring, all farm machinery and equipment must be registered with the municipal government"
        *Benefits on the Registration of Agri-Fishery Machinery Owners*
            - ✓ for fast/easy recovery from theft
            - ✓ Registration Documents for loan collateral
            - ✓ for rational program allocation and easy monitoring
    - Registration, Classification and Accreditation of Agri-Fishery Manufacturers, Distributors, Dealers and Importers
        a. Protection from fly by night suppliers and distributors
    - Incentives for Local Manufacturers and Assemblers of Agri-Fishery Machinery
        a. Loans from Agricultural Competitiveness Enhancement Fund
        b. Incentives under Article 39, EO 226 as amended- Tax holiday, etc.

3. **Strengthen Agri-Fishery mechanization support services**
    - Formulation and Implementation of National and Local Agri-Fisheries Mechanization Program
    - Formulation and Implementation of Unified Agri-Fisheries Mechanization RDE Agenda
        a. Organization of Agri-Fisheries Mechanization RDE Network
        b. Institutionalization of UPLB's Agricultural Mechanization Development Program
        c. Renewable Energy RDE
    - **Human Resources Development**
        a. Upgrading of agri-fisheries mechanization and engineering laboratory facilities and faculty training program of concerned SCUs through research grand and funding support
        **b. Trainings and Scholarship Program**

**c. Skills Certification of Agri-Fishery Machinery Operators & Technicians by TESDA**

- Manpower Complement Requirement of agricultural engineers and agri-fishery machinery technicians and operators in Agri-Fishery Machinery Service Centers in accordance with BOAE and DOLE guidelines
- Strengthening of NAFC-Agricultural and Fishery Mechanization Committee from the national to the local levels as advisory and consultative body, and to integrate, coordinate, unify and monitor agri-fisheries mechanization and infrastructure projects
- Strengthening PhilMech's mandate on agri-fishery mechanization and post harvest Research, Development and Extension
  a. AS Chairman and Secretariat of Agri-Fisheries Mechanization RDE Network
  b. Establish Agri-Fisheries Mechanization and Engineering Resource Network
- Renaming Bureau of Agricultural and Fishery Products Standards (BAFPS) to Bureau of Agricultural and Fisheries Standards (BAFS) and expanding its mandate to include standards development on agri-fishery machinery and engineering
- Institutionalization of Agricultural Machinery Testing and Evaluation Center (AMTEC) of the University of the Philippines, Los Baños (UPLB)
  a. As Premier Testing Center in the Country
  b. Establishment of AMTEC in Visayas and Mindanao
- Strengthening of the Agricultural Engineering Groups of DA and LGUs
  a. Created under Section 49 of R.A. No. 8435 (AFMA) and E.O. No. 86 of 1999
  b. to ensure smooth and expeditious implementation of agri-fisheries mechanization, infrastructure and other agri-fisheries engineering projects

- **Funding of Provisions/Allocation for the AFMech Law Implementation**
  a. DA-under General Appropriation Act and ACEF
  b. BAR, CHED, TESDA and LGUs

"Through mechanization, land and labor efficiency shall be improved, thus increasing farm production and productivity"[7]. In addition, "mechanizing the Philippine agriculture and fisheries plays a very important role in the attainment of the Food Sufficiency/ Security Program of the Department of Agriculture"[8].

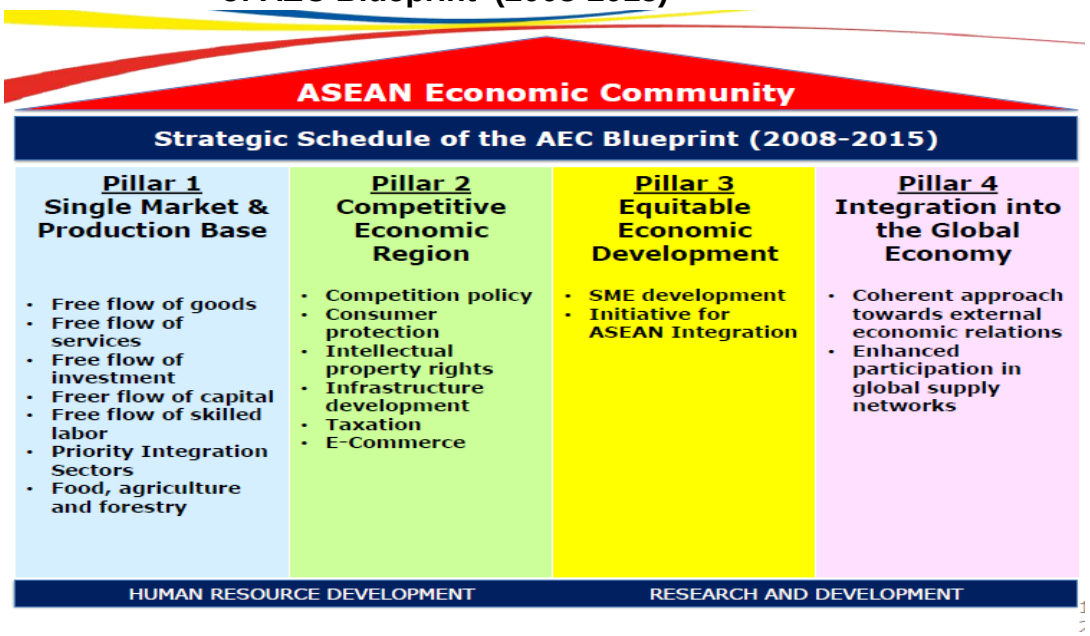
[7] (Philippine agricultural and fisheries mechanization summit [PowerPoint presentation], 2014)
[8] Ibid.

It should be noted, however, that implementation of the law is just one part of the equation. Stakeholders from the national to the local levels are required to participate and support in the process of formulating action plans for the various components of the law. For the effective and efficient implementation of the various components of the law, these stakeholders are also encouraged to give inputs in the form of suggestions and recommendations in the finalization of the guidelines. Thus, summits are necessary in order to bridge the gap between the law and its actual implementation.

## III. AFMech Law and the ASEAN Economic Community 2015

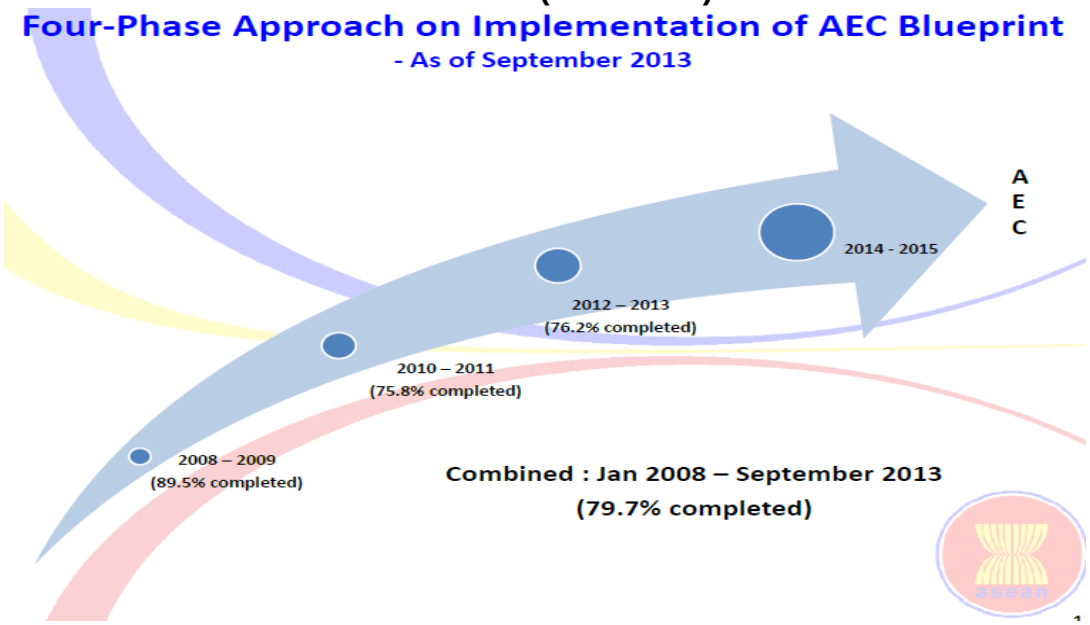
The AFMech Law is a safety net measure for the Philippine Agriculture sector in preparation for the ASEAN Economic Community 2015. The AEC was signed last November 11, 2007 in Singapore during the 40th Anniversary of ASEAN and 13th ASEAN Summit. The members of the ASEAN include Brunei Darussalam, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand and Vietnam. The AEC Blueprint provides strategic schedule as indicated below: (Figure 2)

**Figure 2: ASEAN Economic Community Strategic Schedule of AEC Blueprint (2008-2015)**




It is expected, therefore, that by end of 2015, all action items and specific commitments by all ASEAN member economies are in implementation mode. (Figure 3)

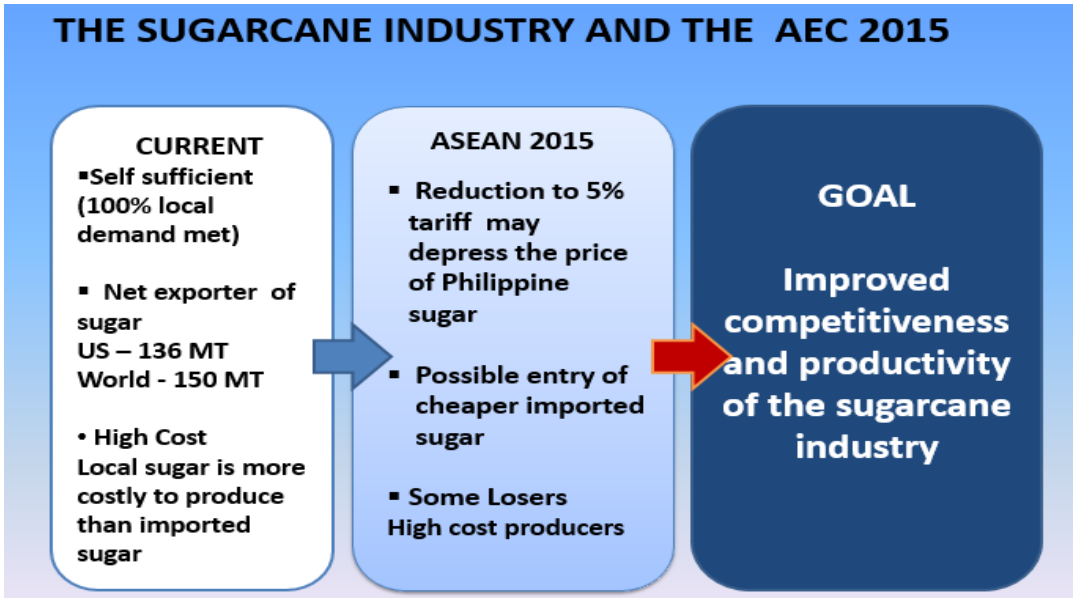
**Figure 3: Four-Phase Approach on Implementation of AEC Blueprint (2008-2015)**




*Source: (Perspective: AFMech Law and AEC 2015 [PowerPoint presentation])*

Taking the Philippine sugarcane industry as an example, in order for the industry to remain competitive with the integration of the AEC in 2015, the industry has to improve its competitiveness and productivity. (Figure 4)

**Figure 4. The Sugarcane Industry and the AEC 2015**




*Source: (Perspective: AFMech Law and AEC 2015 [PowerPoint presentation])*

*Factors Contributing to Low Sugarcane Farm Productivity*[9]:

- Fragmented farms due to Comprehensive Agrarian Reform Law
- Small farms have low farm productivities
- Small farmers have no financial capability in procuring the necessary inputs
- Poor conditions of farm-to-mill roads
- No public irrigation for sugarcane farms

Through mechanization, the Agriculture sector will be able to achieve a very competitive price by increasing farm production, reducing production costs and improving product quality[10]. This can be attained by (1) increasing Cropping Intensity, (2) attaining better plant growth area and yield per unit area, (3) reducing post harvest losses at 10-37% for rice and 30% for corn and (4) diversifying farms and farm products through agro-processing[11].

The mechanization of selected Philippine crops are generally low resulting to low farm productivity as indicated in Table 3. All farm operations require immediate action in order to increase the farm productivity.

**Table 3. Mechanization Status of Selected Philippine Crops**

**Mechanization Status of Selected Philippine Crops**

| Operation | Rice and Corn | Vegetables, Legumes and Rootcrops | Coconut | Sugarcane | Fruits | Fiber Crops |
|---|---|---|---|---|---|---|
| Land Preparation | Intermediate to High | Low | | Intermediate to High | Low | Low |
| Planting/Transplanting | Low | Low | Low | Low to Intermediate | Low | Low |
| Crop Care Cultivation | Low | Low | Low | Low to High | Low | Low |
| Harvesting | Low | Low | Low | Low | Low | Low |
| Threshing/Shelling/ Dehusking | Intermediate to High | Low (Legumes) | Low | | | |
| Cleaning | | Low | | | | |
| Drying | Low | Low (Legumes and Rootcrops | Low | | | Low |
| Milling/Village Level Processing | High | Low | Low | | Low | Low |

*Source : PCARRD 2009*

***Low Mechanization-*** *Use of non-conventional power, man and animal*
***Intermediate Mechanization-*** *non-conventional power in combination with mechanical power operated by man*
***High Mechanization-*** *solely use of mechanical power operated by man*

*Source: (Perspective: AFMech Law and AEC 2015 [PowerPoint presentation])*

[9] (Perspective: afmech law and asean economic community 2015 [PowerPoint presentation])
[10] Ibid.
[11] Ibid.

Under the AEC, there will be a free flow of goods including agri-fishery machinery and equipment. Also, there will be the process of import/export within ASEAN and its trading partners which include China, Japan, Korea, India, Australia and New Zealand.

To protect the Agriculture sector, the AFMech Law has safety net policies on the entry of imported Agri-Fishery Machinery and Equipment. These policies include[12]:

1. Mandatory testing and evaluation by AMTEC on agri-fishery machinery sold in the market,
2. Registration of agri-fishery machinery and equipment manufacturers, fabricators and importers,
3. Development and Enforcement of the Philippine Agricultural Engineering Standards,
4. Local assembling and manufacturing of agri-fishery machinery and equipment; and
5. Incentives to local manufacturers and assemblers for agri-fisheries machinery.

Other than the free flow of goods under the AEC, there will also be the free flow of services and skilled labor. The ASEAN integration therefore offers more accessible and wider labor market. Thus, Agricultural Engineers and Agri-Fishery Machinery Technicians and Operators from other ASEAN member economies have the opportunities to explore the Philippine labor market which can in effect replace Filipino skilled workers.

To protect Filipino workers, the AFMech Law has safety net policies on this as well. These policies include[13]:

1. Skills Certification of Agri-Fishery Machinery Technicians and Operators,
2. Training and Scholarship Program for Agricultural Engineers and Agri-Fishery Machinery Technicians and Operators, and
3. Upgrading of Laboratory Facilities and Faculty Development of Higher Education Institutions.

Lastly, to contribute to the ASEAN Food Security program, the AFMech Law has a policy to improve farm productivity and increase farm production.

## IV. AFMech Law and TESDA

In aiding the implementation of the AFMech Law, TESDA is tasked to do the following as indicated in the AFMech Law:

- DOLE and TESDA shall be responsible in the training of agricultural and fisheries machinery technicians and operators. (Sec.12)

[12] (Perspective: afmech law and asean economic community 2015 [PowerPoint presentation])
[13] Ibid.

- ✓ The ATI shall coordinate and collaborate with DOLE and TESDA for the formulation and implementation of a National Training Program for agricultural and fishery machinery technicians and operators. (Rule12.3)

- TESDA, in collaboration with the DA, the BoAE and the national associations of agricultural engineers and agricultural machinery assemblers, manufacturers and distributors, shall undertake skills certification and accreditation systems for agricultural and fishery machinery operators and technicians. (Sec.14)
  - ✓ The DA, through ATI, shall coordinate with TESDA on the development and formulation of the necessary competency standards for skills certification and the accreditation of competency assessors and assessment centers of agricultural and fishery machinery operators and technicians in coordination and consultation with the DA, BoAE, PSAE and AMMDA within six (6) months after the approval of these IRR.
- TESDA will allocate funding annually for skills certification and training programs.

## V. TESDA Program Initiatives Relative to the Agriculture & Fisheries Sector

As of November 2014, there are **137** training providers offering **316** TESDA-registered programs relative to the agricultural sector; these are situated nationwide, except for NCR. Region IX has the highest number of TVET providers and consequently highest number of registered programs. Please note however, that most of these registered programs are for the whole agri-fishery sector and not for the agri-fishery mechanization alone.

**Table 4. Number of TVET Providers and TESDA – Registered Programs November: 2014**

| Region | No. of Training Providers | No. of Programs |
|---|---|---|
| I | 10 | 31 |
| II | 4 | 10 |
| III | 9 | 19 |
| IV-A | 9 | 21 |
| IV-B | 5 | 10 |
| V | 9 | 24 |
| VI | 4 | 8 |
| VII | 10 | 27 |
| VIII | 13 | 22 |
| IX | 22 | 54 |
| X | 12 | 23 |
| XI | 7 | 17 |
| XII | 4 | 11 |
| CAR | 1 | 4 |
| CARAGA | 7 | 19 |
| ARMM | 11 | 16 |
| **TOTAL** | **137** | **316** |

Out of 133 TVET providers, 21 are TESDA Technology Institutions (TTIs) are Agriculture and Fishery schools that offer agri-fishery programs. Table 5 provides the list of TTIs.

**Table 5. List of TESDA Technology Institutions that Offer Agri-Fishery Programs**

| NO. | Region | Province | TTI |
|---|---|---|---|
| 1 | I | Ilocos Norte | Marcos-Agro Industrial School |
| 2 | | | Bangui Institute of Technology |
| 3 | II | Nueva Vizcaya | Kasibu National Agricultural School |
| 4 | IV-A | Quezon | Quezon National Agricultural School |
| 5 | V | Camarines Sur | Camarines Sur Institute of Fisheries & Marine Sciences |
| 6 | V | Masbate | Masbate School of Fisheries |
| 7 | | Sorsogon | Sorsogon National Agricultural School |
| 8 | VII | Siquijor | Lazi National Agricultural School |
| 9 | VIII | Eastern Samar | Arteche National Agricultural School |
| 10 | | Eastern Samar | Balanggiga National Agricultural School |
| 11 | | Northern Samar | Las Navas Agro-Industrial School |
| 12 | IX | Zamboanga del Norte | Dipolog School of Fisheries |
| 13 | X | Lanao del Norte | Lanao del Norte National Agro-Industrial School |
| 14 | | Misamis Occidental | Oroquieta Agro-Industrial School |
| 15 | | Misamis Oriental | Kinoguitan National Agricultural School |
| 16 | XI | Campostela Valley | Davao National Agricultural School |
| 17 | | Davao City | Wangan National Agricultural School |
| 18 | | | **Regional Training Center-Korea-Vocational Training Center (Korphil Davao)** |
| 19 | | Davao Oriental | Lupon School of Fisheries |
| 20 | XII | South Cotabato | Surallah National Agricultural School |
| 21 | CARAGA | Agusan del Norte | Northern Mindanao School of Fisheries |

The Regional Training Center-Korea-Vocational Training Center (Korphil Davao is a specialized training center which was established as part of the agreement between the Philippines and Korea on June 3, 2003. Generally, the Korphil Davao objective is to contribute to the skills development of the Filipino workforce in the agricultural and industrial development of the Philippines and to contribute to the regional development of Mindanao; and to provide training opportunities in various technology skills to farmers, farmers' children, cooperative farm workers, among others. The Korphil Davao offers training on agri machineries maintenance and repair trade, rice machinery operation NC II and motorcycle/small engine servicing NC II, among others.

Enrolment and graduates in the agri-fishery sector remains low. In 2014, there were only of 33,262 enrollees and 27,945 graduates, consisting only 1.64% and 1.56%, of the total TVET sector enrolees and graduates, respectively.

To date, there are **21** training programs with national standards (termed as promulgated Training Regulations), under the Agriculture and Fisheries sector. (Table 6)

**Table 6. Training Regulations Promulgated by the TESDA Board: 2014**

| | |
|---|---|
| 1. Agricultural Crops Production NC I<br>2. Agricultural Crops Production NC II**<br>3. Agricultural Crops Production NC III<br>4. Animal Health Care and Management NC III<br>5. Animal Production (Poultry-Chicken) NC II*<br>6. Animal Production (Ruminants) NC II*<br>7. Animal Production (Swine) NC II*<br>8. Aquaculture NC II<br>9. Artificial Insemination (Large Ruminants) NC II<br>10. Artificial Insemination (Swine) NC II<br>11. Fish Capture NC I | 12. Fish Capture NC II<br>13. Fishing Gear Repair and Maintenance NC III<br>14. Fishport/Wharf Operation NC I<br>15. Horticulture NC III<br>16. Landscape Installation and Maintenance (Softscape) NC II<br>17. Organic Agriculture Production NC II<br>18. Pest Management (Vegetables) NC II<br>19. Rice Machinery Operations NC II<br>20. Rubber Processing NC II<br>21. Rubber Production NC II |

There are also registered training programs with no promulgated training regulations (NTR) yet, such as Organic Agriculture Production, Fish and Shrimp Grow-out Operations, Artificial Drip Irrigation System, Organic Agriculture Production for Senior Citizen, Produce fruit bearing crops, and Trim and Prune Landscape Plants, to name a few.

Table 7 shows assessed and certified workers by qualification titles from 2010-2014. During the 5-year period, a total of 73,212 persons were assessed while 61,166 were certified. Horticulture NC II registered highest assessed and certified 32,880 and 26,922, respectively. This was followed by Animal Production NC II with 16,035 assessed workers and 13,101 certified.

**Table 7. Number of Assessed and Certified by Qualification in Agriculture and Fishery Sector: 2010-2014**

| Qualification | 2010 | | 2011 | | 2012 | | 2013 | | 2014 | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | C | A | C | A | C | A | C | A | C | A | C |
| ***Agriculture and Fishery*** | ***13,688*** | ***9,629*** | ***7,528*** | ***6,714*** | ***13,266*** | ***11,933*** | ***19,420*** | ***16,390*** | ***19,310*** | ***17,166*** | ***73,212*** | ***61,832*** |
| Agricultural Crops Production NC I | 3,044 | 2,696 | 1,542 | 1,455 | 2,804 | 2,528 | 2,198 | 1,941 | 2,955 | 2,613 | 12,543 | 11,233 |
| Agricultural Crops Production NC III | 99 | 77 | 94 | 86 | 254 | 227 | 177 | 164 | 577 | 558 | 1,201 | 1,112 |
| Animal Production NC II | 2,406 | 1,896 | 1,787 | 1,454 | 3,098 | 2,660 | 4,947 | 3,738 | 3,797 | 3,353 | 16,035 | 13,101 |
| Aquaculture NC II | 1,176 | 1,057 | 790 | 732 | 1,427 | 1,345 | 1,147 | 1,088 | 1,593 | 1,247 | 6,133 | 5,469 |
| Fish Capture NC II | 8 | 8 | 10 | 10 | 117 | 117 | 78 | 78 | 76 | 58 | 289 | 271 |
| Fish Capture NC I | 299 | 254 | 215 | 160 | 230 | 222 | 347 | 307 | 410 | 317 | 1,501 | 1,260 |
| Horticulture NC II | 6,575 | 3,573 | 2,999 | 2,730 | 5,191 | 4,697 | 9,454 | 8,068 | 8,661 | 7,854 | 32,880 | 26,922 |
| Horticulture NC III | 5 | 5 | 4 | 4 | 41 | 41 | 17 | 17 | 111 | 111 | 178 | 178 |
| Landscape Installation and Maintenance (Softscape) NC II | 66 | 55 | 43 | 39 | 64 | 56 | 36 | 15 | 26 | 26 | 235 | 191 |
| Pest Management (Vegetables) NC II | | | 26 | 26 | 2 | 2 | | | 46 | 46 | 74 | 74 |
| Rice Machinery Operations NC II | 10 | 8 | 18 | 18 | 38 | 38 | 8 | 7 | 114 | 111 | 188 | 182 |
| Rubber Production NC II | | | | | | | 907 | 863 | 905 | 833 | 1,812 | 1,696 |
| Rubber Processing NC II | | | | | | | 104 | 104 | - | - | 104 | 104 |
| Agricultural Crops Production NC II | | | | | | | | | 7 | 7 | 7 | 7 |
| Animal Health Care and Management NC III | | | | | | | | | 30 | 30 | 30 | 30 |
| Organic Agriculture Production NC II | | | | | | | | | 2 | 2 | 2 | 2 |

The Sector is among the priorities of TESDA in the training provision under the Training for Work Scholarship Program (TWSP). In recognition of the need to assist the Agri-fishery sector in developing the skills and competencies needed by the Sector, increase in budget allocation were noted.

**Table 8. Training for Work Scholarship Program Budget Allocation and Targets: 2013-2015**

| Year | Budget Allocation | Target | |
|---|---|---|---|
| | | Enrolment | Graduates |
| 2013 | 33,995,000 | 2,251 | 2,244 |
| 2014 | 228,000,000 | 24,683 | 22,215 |
| 2015 | 325,780,000 | 34,293 | 30,864 |

In 2015, TESDA had prioritized seven (7) qualification titles for the development of Training Regulations (TRs) in agricultural and fishery mechanization. The TRs for the three qualification titles (3), namely: (1) Farm Machinery Operations; (2) Farm Machinery Servicing; and (3) Maintenance and Dairy Processing had been developed while TRs for the following four (4) qualification titles shall be developed in 2016: (1) Drying and Milling Processing Plant Servicing; (2) Irrigation System Installation and Maintenance; (3) Aquaculture NC III (Mechanization); and (4) Biogas System Installation.

Given the passage of the AFMech Law and the support of relevant government agencies and TESDA's direction for continuous support in terms of developing the needed skills and competencies of workers, there will be more opportunities in agriculture mechanization.

## Bibliography


(n.d.). Retrieved from http://www.poea.gov.ph/stats/2013_stats.pdf

Agriculture, value added (% of GDP). (2015). Retrieved from The World Bank: http://data.worldbank.org/indicator/NV.AGR.TOTL.ZS/countries

Alcober, N. A. (2014, May 18). Tesda to offer courses in 'high-tech' farming. Retrieved from The manila times: http://www.manilatimes.net/tesda-to-offer-courses-in-high-tech-farming/97538/

crop calendar philippines. (n.d.). Retrieved from https://www.google.com.ph/search?q=crop+calendar+philippines&espv=2&biw=667&bih=615&tbm=isch&tbo=u&source=univ&sa=X&ei=iTYmVfLlDoW78gX-54DYCg&ved=0CBsQsAQ#imgrc=I-Myz1Pk7-6sJM%253A%3BeaL5BeGDT1cvcM%3Bhttp%253A%252F%252Fwww.fao.org%252Fgiews%252Fcountrybri

Employment in agriculture (% of total employment). (2015). Retrieved from The World Bank : http://data.worldbank.org/indicator/SL.AGR.EMPL.ZS

Perspective: afmech law and asean economic community 2015 [PowerPoint presentation]. (n.d.).

Philippine agricultural and fisheries mechanization summit [PowerPoint presentation]. (2014, June 26-27).

The agricultural and fisheries mechanization law (republic act no. 10601) [PowerPoint presentation]. (n.d.).

Updates/status of philippine agri-fisheries machinery manufacturing and distribution industury. (2014, June 26-27). Agricultural and fisheries mechanization summit.

What is the working capital cycle. (2015). Retrieved from divestopedia: http://www.divestopedia.com/definition/1234/working-capital-cycle-wcc

Mark John. Mini-Hydro Power Plants in Irrigation Canals. 2012. http://colors-and-grays.blogspot.com/2012/05/mini-hydro-power-plants-in-irrigation.html#.VnpOdVmo3GB. Colors-and-Grays Blogspot. December 23, 2015.

Pia Ranada. Machines on PH farms: Catching up with ASEAN integration. June 25, 2014. http://www.rappler.com/world/specials/southeast-asia/asean-journey/61467-agriculture-mechanization-ph-asean-integration. Rappler. December 23, 2015

FAO calls for steps to aid Philippine aquaculture-fishing sector. December 12, 2013.http://aquaculturedirectory.co.uk/fao-calls-for-steps-to-aid-philippine-aquaculture-fishing-sector/.Aquaculturedirectory. December 23, 2015

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