



Republic of the Philippines
OFFICE OF THE SECRETARY
Elliptical Road, Diliman
1100 Quezon City

ADMINISTRATIVE ORDER

NO. 19
Series of 2022

SUBJECT : INSTITUTIONALIZATION OF A CAREER PROGRESSION SYSTEM PROGRAM FOR AGRICULTURAL AND BIOSYSTEMS ENGINEERS IN THE DEPARTMENT OF AGRICULTURE AND ITS ATTACHED AGENCIES AND CORPORATIONS IN SUPPORT TO THE PROFESSIONALIZATION OF THE OneDA REFORM AGENDA

RATIONALE AND PURPOSE:

Pertinent provisions of RA No. 10601 (Agricultural and Fisheries Mechanization (AFMech) Law), RA No. 8435 (Agriculture and Fisheries Modernization Act of 1997 (AFMA)), and RA No. 10915 (Philippine Agricultural and Biosystems Engineering Act of 2016) mandates the strengthening of the Agricultural and Biosystems Engineering Groups of the Department of Agriculture (DA) and its Attached Agencies/Corporations. Career progression and specialization of DA Agricultural and Biosystems Engineers (ABEs) is an integral component of the strengthening.

The DA and its Attached Agencies and Corporations engage the services of Agricultural and Biosystems Engineers (ABEs) who play vital roles in the formulation, development, planning and implementation of the agri-fisheries mechanization, infrastructure, irrigation and other agri-fisheries engineering programs and projects, as well as in food security programs.

The establishment of their career progression and the development of their specialization consistent with the policy framework of RA No. 10915, RA No. 10912 (Continuing Professional Development Act of 2016) and RA No. 10968 (Philippine Qualifications Framework (PQF) Act) will greatly help in the pursuit of the Department's food security program, strengthen the delivery of agricultural and biosystems engineering services to farmers and fishermen through the development of high level competencies leading to staff's high morale and professionalism. This also operationalizes the establishment and implementation of Agriculture Career System of the Professionalization Key Strategy of the One DA Reform Agenda to Transform the Philippine Agriculture towards a Food Secure and Resilient Philippines with empowered and prosperous farmers and fisherfolks.

As such, the following guidelines is hereby issued to institutionalize the Career Progression and Specialization Program of Agricultural and Biosystems Engineers of DA and its Attached Agencies/Corporations:

A food-secure and resilient Philippines

with empowered and prosperous farmers and fisherfolk



Section 1. Career Progression- This is a process of developing or moving towards a more advanced state in the ABE's position and outlines the route to reach identified career development goals¹. The career progression shall start from lower level of Engineer position (Agricultural and Biosystems), Engineer I to Engineer V and other managerial/executive ABE positions. This also covers other positions whose functions involves the practice of agricultural and biosystems engineering pursuant to Section 5 of RA No. 10915.

Section 2. Specialization- The Specialization/s which an ABE can pursue, pursuant to Section 35 of RA No. 10915, shall include the following:

No.	Specialization/Cluster of Specialization
1	Agricultural and Biosystems (AB) Machinery and Power Engineering
	Agriculture Renewable/Bioenergy Engineering
	Agricultural and Biosystems Automation and Instrumentation
	<i>Note: This also applies to No. 2,3 and 4</i>
2	Irrigation and Drainage Engineering
	Soil and Water Conservation Engineering
	Agrometeorology
	Aquaculture and Fisheries Engineering
	Forest Engineering with focus on agroforestry engineering
	AB Resource and Conservation Management
	Agricultural and Bio-information System
	<i>Note: This also applies to No. 1,3 and 4</i>
3	Agricultural and Biosystems Buildings and Structures Engineering
	Farm Electrification
4	Agricultural and Bioprocess Engineering
	Food Engineering
	Agricultural and Biosystems Waste Management

The scopes of the above specialization are provided in Annex "A".

Section 3. Competency Standards- The development/formulation of competency standards based on the duties and functions of various levels of Engineer (Agricultural and Biosystems) positions shall be the responsibility of concerned offices/operating units of DA and its Attached Agencies/Corporations. The competency standards shall be in accordance with the scope of practice of ABEs pursuant to RA No. 10915 and aligned to the Philippine Qualification Framework. In line with this, the menu of competency standards of various levels of Engineer positions are provided under Annexes B.1, B.2 and B.3 which will serve as guide/reference.

Section 4. Training and Capacity Development Program – All concerned bureaus, attached agencies/corporations, regional field offices and other operating units of DA shall formulate and implement appropriate trainings and capacity development programs for their ABEs towards the upgrading of their competencies and the development of

¹ Pursuant to Sec. 3 (c) of IRR of PQF Act

specialization/s. This shall lead towards the attainment of competency standards of various level of Engineer (Agricultural and Biosystems) positions and specializations as indicated in Annexes A, B.1, B.2 and B.3. The trainings and capacity development shall include post-graduate degree programs (Master and Ph.D.) on ABE and attendance to Continuing Professional Development (CPD) programs designed for the ABE profession.

The Agricultural Training Institute (ATI) and the Bureau of Agricultural and Fisheries Engineering (BAFE) shall provide the necessary technical assistance. Moreover, the BAFE shall consolidate the DA-wide training and capacity development programs.

Section 5. Technical Working Group. A Technical Working Group (TWG) on ABE Career Progression and Specialization shall be composed of the following:

- Chairperson : Director, Bureau of Agricultural and Fisheries Engineering
- Vice Chairperson : Director, Agricultural Training Institute
- Members : Director/Representative, Bureau of Soils and Water Management
- : Chief, DA Human Resource Management Office
- : Head of the ABE Group/Representative of Bureaus/Attached Agencies and Corporations
- : Representative from RAEDs
- : Representatives from CHED Technical Committee on Agricultural and Biosystems Engineering
- : Representative from PRC Board of Agricultural and Biosystems Engineering

The BAFE shall serve as the Secretariat of the TWG.

Section 6. Functions of the Technical Working Group- The functions of the TWG on Career Progression and Specialization are as follows:

- a) Review the job description and competency standards of various levels of Engineer (Agricultural and Biosystems) positions to align them with Section 5 of RA No. 10915 and Levels 6 to 8 of the PQF;
- b) Identify other positions whose functions involved the practice of agricultural and biosystems engineering for career progression and specialization;
- c) Assist in the formulation of appropriate training and capacity development program for the ABEs;

Section 7. Assistance to LGU ABE Groups- In line with the implementation of the Mandanas Ruling and Joint DA-DBM-CSC-DA Memorandum Circular No. 2, series of 2020, the BAFE, ATI and RFO-Regional Agricultural Engineering Divisions (RAEDs) shall coordinate and assist LGUs in implementing the Career Progression and Specialization of

the ABEs assigned under their respective jurisdictions. At the national level, the BAFE shall coordinate with DILG for the necessary support and advocacy.

Section 8. *Coordination with Other Agencies/Institutions*- The BAFE shall coordinate with the following national government agencies and other concerned stakeholders:

- a) Civil Service Commission- for the review and updating of the Qualification Standards of Engineer (AB) positions;
- b) PRC, CHED and PQF National Steering Committee- for the recognition of the career progression and specializations of DA ABEs for PQF levels 6 to 8;
- c) DBM- for the review and updating of the duties and functions of Engineer (AB) positions of DA, as well as in the creation of Engineer (AB) plantilla positions;
- d) Farmers Cooperatives/Associations and other institutions employing ABEs for the development and implementation of their ABE Career progression and specialization program.

Section 9. *Registry of ABEs*- The BAFE shall establish and maintain a registry of ABEs of DA Regional Field Offices, bureaus, attached agencies and corporations and other DA implementing units for Career Progression and Specialization. As such, all DA bureaus, attached agencies/corporations and RFOs shall submit the names of their ABEs, provide the following information and encode to the ABEMIS:

- a) Position
- b) Job Description
- c) Education
- d) Specialization
- e) Trainings attended and work experiences

Section 10. *Funding* - The funding necessary for the implementation shall be included in the *National Expenditures Program (NEP) for 2023 and onward*. The ATI, Banner Programs and RFOs shall include the training and capacity development for the ABEs of DA and LGUs under the Extension Support, Education and Training (ESET) of the NEP 2023 and the succeeding years.

Section 11. *Separability Clause* - If any section or provision of this AO is held or declared unconstitutional or invalid by a competent court, the other sections or provisions hereof shall continue to be in force as if sections or provisions so annulled or voided had never been incorporated herein.


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Section 12. Repealing Clause-All DA administrative issuances or parts of said administrative issuances inconsistent with this AO are hereby revised, amended, modified and/or superseded as the case may be by this AO.

Section 13. Effectivity- This issuance shall take effect immediately upon its approval.

APPROVED this 20th day of June 2022.


WILLIAM D. DAR, Ph.D.
Secretary *an.*

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ANNEX A: SCOPE OF ABE SPECIALIZATIONS

No.	Specialization/ Cluster of Specialization	Scope
1	Agricultural and Biosystems Power and Machinery	1) Agricultural and biosystems (AB) mechanization planning, policy development, project development/ management/ monitoring/ evaluation, R and D, education, training and extension; 2) Design, preparation and evaluation of technical specifications, testing and evaluation, marketing, manufacture, inspection and valuation of AB power and machinery; 3) Design, development and management of AB Machinery Service Centers; and 4) Design, development and application of bio mechatronics.
2	Irrigation and Drainage Engineering	Project development/feasibility studies (land/soil classification survey, hydrological investigation for surface and ground water, cropping calendar and planting pattern development, irrigation diversion requirement, discharge calibration and establishment of discharge rating table and calibrated staff gauges social investigation, economic appraisal, environmental impact analysis); project implementation services (topographic survey and profiling; preparation of engineering design and cost estimates, work and financial planning and programming, contract preparation and administration, construction supervision and monitoring to include CPES and material testing); Supervision/management on the operation and maintenance (irrigation delivery scheduling, water management, repair and rehabilitation of damaged irrigation facilities, maintenance of canals and structure, inspection, monitoring, evaluation, research, training, education and extension of irrigation and drainage facilities/projects).
	Soil and Water Conservation Engineering	Planning, designing, supervision/management on the construction, operation and maintenance, research, training, education and extension, and monitoring and inspection of soil and water conservation facilities such as not but limited to conservation agriculture, intercropping and diversified cropping, contour farming, buffer strips and terracing, land conditioning and mulching, rainwater harvesting (thru small farm reservoirs, farm ponds and small water impoundments), flood control, managing aquifer recharge and waste water recycling and re-use). These also include evaluation studies of the interactions and impacts of soil and water conservation methods on soil, biodiversity, and the entire environment.

No.	Specialization/ Cluster of Specialization	Scope
1	Agrometeorology	Planning, designing, supervision/management on the installation, operation and maintenance of agrometeorological instruments/facilities and the provision of agrometeorological services, including but not limited to agrometeorological observations and issuance of farm weather forecasts, and the conduct of research, training, education and extension of agrometeorological activities.
2	Agricultural and Biosystems Buildings and Structures	Planning, designing, supervision/management on the construction, operation and maintenance, inspection, monitoring, evaluation, research, training, education and extension of agricultural and biosystems buildings and structures, and farm land levelling and reconstruction.
3	Renewable/ Bioenergy Engineering	<p>Planning, designing, supervision/management on the construction, operation and maintenance, inspection, monitoring, evaluation, research, training, education and extension of renewable/bio-energy facilities/projects for agricultural and biosystems applications.</p> <p>It also include technology development, energy conversion, energy resource assessment, biomass fuel characterization, harnessing renewable energy sources, energy conversion systems, energy efficiency, feasibility studies, business plan, among others on renewable/bioenergy engineering for agricultural and biosystems applications.</p>
	Farm Electrification	Planning, designing, supervision/management on the construction, operation and maintenance, inspection, monitoring, evaluation, research, training, education and extension on farm electrification.
4	Agricultural and Bioprocess Engineering	Planning, designing, supervision/management on the construction, operation and maintenance, inspection, monitoring, evaluation, research, training, education and extension of agricultural and biosystems process engineering facilities/projects/activities in compliance to GMP, HACCP, ISO, & Halal and other related standards.
	Food Engineering	Planning, designing, supervision/management on the construction, operation and maintenance, inspection, monitoring, evaluation, research, training, education and extension of food engineering facilities/projects/activities in compliance to GMP, HACCP, ISO and Halal and other related standards.

No.	Specialization/ Cluster of Specialization	Scope
5	Agricultural and Biological Waste Management	Planning, designing, supervision/management on the construction, operation and maintenance, inspection, monitoring, evaluation, research, training, education and extension of agricultural and biological waste management facilities/projects.
6	Forest Engineering	Planning, designing, supervision/management on the construction, operation and maintenance, inspection, monitoring, evaluation, research, training, education and extension of Forest Engineering facilities/projects/activities.
	Agricultural and Biological Resource Conservation and Management	<p>Planning, designing, inspection, monitoring, evaluation, research, training, education and extension of agricultural and biosystems resources conservation measures and management such as, but is not limited to :</p> <ol style="list-style-type: none"> 1) Area development for agriculture, settlement and recreation; 2) Parks and plant nurseries either located in urban, rural or protected areas; 4) Study and analysis of agricultural system as an integrated component of landscape; 5) Monitoring and conservation of natural resources; 6) Rehabilitation of forest, lakes, rivers and idle lands; and mining sites using bioengineering technologies/practices 7) Sustainable use, development, management, and exploitation of the agricultural, forest ecosystem including creeks, springs and ground waters for irrigation, and watersheds within the Strategic Agricultural and Fishery Development Zones (SAFDZs), National Integrated Protected Areas (NIPAs) and Ancestral Domains/Ancestral Lands. <p><i>(Note : Referenced with Section 4(i) of R.A. No. 10915</i></p>
7	Aquacultural Engineering	Planning, designing, supervision/management on the construction, operation and maintenance, inspection, monitoring, evaluation, research, training, education and extension of Aquacultural Engineering facilities, projects and practices.

No.	Specialization/ Cluster of Specialization	Scope
8	Agricultural and Biosystems Automation and Instrumentation	Planning, designing, supervision/management on the construction, operation and maintenance, inspection, monitoring, evaluation, research, training, education and extension of AB Automation and Instrumentation facilities/projects/activities.
	Agricultural and Bio-information System	Planning, designing, supervision/management on the construction, operation and maintenance, inspection, monitoring, evaluation, research, training, education and extension of Agricultural and Bio-Information System.

**ANNEX B. MENU OF COMPETENCY STANDARDS OF ENGINEER (AGRICULTURAL AND BIOSYSTEMS) POSITIONS OF THE
DEPARTMENT OF AGRICULTURE AND ITS ATTACHED AGENCIES/CORPORATIONS BASED ON RA NO. 10915
AND PQF LAW**

POSITION

ENGINEER III AND ENGINEER IV (AGRICULTURAL AND BIOSYSTEMS)

DUTIES/FUNCTIONS AND SPECIFIC COMPETENCIES	PQF LEVEL ALIGNMENT (PQF LEVEL 7)		
	Knowledge, Skills and Values	Application	Degree of Independence
	Demonstrated advanced knowledge and skills in a specialized or multi-disciplinary field of study for professional practice, self-directed research and/or lifelong learning	Applied in professional/creative work or research that requires self-direction and/or leadership in a specialized or multi-disciplinary professional work/research	High substantial degree of independence that involves exercise of leadership and initiative individual work or in teams of multi-disciplinary field
Performs advanced/ specialized level of professional practice in agricultural and biosystems engineering pursuant to Section 5 of R.A. No. 10915 that requires initiative, creativity, substantial degree of independence, leadership in teams and in multi/inter-disciplinary fields	Demonstrated advanced knowledge and skills in ABE or its specialization acquired in higher education (Master's Degree/ specialized trainings and other formal, non-formal and life-long learning	Applied in professional works that requires self-direction and/or leadership in ABE practice or multi-disciplinary works	High substantial degree of independence that involves exercise of leadership and initiative individual work in ABE practice or in teams of multi-disciplinary field

DUTIES/FUNCTIONS AND SPECIFIC COMPETENCIES	PQF LEVEL ALIGNMENT (PQF LEVEL 7)		
	Knowledge, Skills and Values	Application	Degree of Independence
1. Supervise the preparation of and/or reviews feasibility studies and project proposals of agricultural and biosystem engineering facilities/projects¹; 1.1. Applies advanced knowledge and skills on agricultural and biosystems engineering; 1.2. Applies principles and standards in the preparation of project feasibility studies; 1.3. Applies relevant guidelines and requirements of concerned funding/credit institutions; 1.4. Uses/applies relevant data and information gathered 1.5. Review and/or analyze the pre-feasibility study conducted whether to proceed to full blown feasibility study 1.6. Lead the preparation of and/or reviews feasibility study and project proposals of ABE facilities/projects	1.1, 1.2, 1.3, 1.4, 1.5, 1.6	1.1, 1.2, 1.3, 1.4, 1.5, 1.6	1.1, 1.2, 1.3, 1.4, 1.5, 1.6

¹ Agricultural and Biosystems Engineering Facilities refers to irrigation and drainage, soil and water conservation and management systems and facilities, agrometeorological systems, agricultural and biosystems power, and machinery, agricultural and biosystems buildings and structures, renewable/bio-energy systems and farm electrification, agricultural and bio-processing and post harvest facilities and system, agricultural and biological waste utilization and management, agricultural and bio-information system, agricultural and biosystems resource conservation and management, and agricultural and bio-automation and instrumentation system (Section 5, RA No. 10915)

DUTIES/FUNCTIONS AND SPECIFIC COMPETENCIES	PQF LEVEL ALIGNMENT (PQF LEVEL 7)		
	Knowledge, Skills and Values	Application	Degree of Independence
2. Supervise the preparation of and/or reviews engineering designs, plans, specifications and cost estimates/program of works of agricultural and biosystem engineering facilities/projects; 2.1. Applies advanced knowledge and skills on agricultural and biosystems engineering; 2.2. Applies relevant guidelines and requirements of concerned government agencies; 2.3. Uses/applies relevant data/information gathered 2.4. Supervise ABEs in the preparation of and/or reviews engineering designs, plans, specifications and cost estimates/program of works of agricultural and biosystem engineering facilities/projects 2.5. Reviews conceptual/general plan/s of ABE facilities/projects 2.6. Reviews process flow by unit of operation for agricultural buildings and structures 2.7. Reviews equipment layout 2.8. Reviews detailed engineering designs and cost estimates/ program of ABE facilities/projects 2.9. Reviews technical specifications of AB machinery/facilities	2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, 2.9	2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, 2.9	2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, 2.9

DUTIES/FUNCTIONS AND SPECIFIC COMPETENCIES	PQF LEVEL ALIGNMENT (PQF LEVEL 7)		
	Knowledge, Skills and Values	Application	Degree of Independence
3. Manages the construction of agricultural and biosystems engineering facilities/projects; 3.1. Applies advanced knowledge and skills on agricultural and biosystems engineering; 3.2. Applies principles, standards/manual of construction management; 3.3. Uses/Applies relevant guidelines, requirements and regulations of concerned government such as PCAB, CPES and the government procurement law; 3.4. Supervises Project Engineers and other construction workers of ABE facilities/projects.	3.1, 3.2, 3.3, 3.4	3.1, 3.2, 3.3, 3.4	3.1, 3.2, 3.3, 3.4
4. Manages the installation, operation, and maintenance of agricultural and biosystems engineering facilities/projects; 4.1. Applies advanced knowledge and skills on agricultural and biosystems engineering; 4.2. Applies principles, standards/manual of O & M of ABE facilities/projects; 4.3. Uses/Applies relevant guidelines, requirements and regulations of concerned government such as NAMMDAC and the government procurement law; 4.4. Supervises Project Managers Manages and other workers in the installation, operation and maintenance of ABE facilities/projects.	4.1, 4.2, 4.3, 4.4.	4.1, 4.2, 4.3, 4.4.	4.1, 4.2, 4.3, 4.4.

DUTIES/FUNCTIONS AND SPECIFIC COMPETENCIES	PQF LEVEL ALIGNMENT (PQF LEVEL 7)		
	Knowledge, Skills and Values	Application	Degree of Independence
5. Supervises the investigation, inspection, monitoring, evaluation and technical audit on agricultural and biosystems machinery and equipment, structures and facilities, and agricultural and biosystems engineering projects 5.1. Applies advanced knowledge and skills on agricultural and biosystems engineering ; 5.2. Applies relevant guidelines and requirements of government regulations such government procurement law, AFMech Law, Constructors Performance Evaluation System, etc. ; 5.3. Supervises inspection/evaluation/monitoring of ABE facilities/projects and prepare reports/findings. 5.4. Supervises CPES Evaluates of ABE facilities/projects	5.1. ,5.2, 5.3, 5.4	5.1. ,5.2, 5.3, 5.4	5.1. ,5.2, 5.3, 5.4
6. Supervises valuation of agricultural and biosystems machinery and equipment, structures and facilities, and agricultural and biosystems engineering projects for loan collateral, feasibility studies and other purposes; 6.1. Applies advanced knowledge and skills on agricultural and biosystems engineering; 6.2. Applies relevant guidelines and requirements of government regulations such registration of agricultural machinery, Personal Property Security Act, etc. 6.3. Supervises and/or reviews valuation reports of AB machinery and ABE facilities	6.1, 6.2, 6.3	6.1, 6.2, 6.3	6.1, 6.2, 6.3

DUTIES/FUNCTIONS AND SPECIFIC COMPETENCIES	PQF LEVEL ALIGNMENT (PQF LEVEL 7)		
	Knowledge, Skills and Values	Application	Degree of Independence
7. Supervises planning, management and coordination of agricultural and biosystems engineering programs, projects and policies 7.1. Applies advanced knowledge and skills on agricultural and biosystems engineering; 7.2. Applies relevant government policies, guidelines such as AFMA, etc. 7.3. Supervises the planning and implementation of plans, programs, projects and activities relative to ABE; 7.4. Lead policy development, negotiation and coordination on ABE	7.1, 7.2, 7.3, 7.4	7.1, 7.2, 7.3, 7.4	7.1, 7.2, 7.3, 7.4
8. Supervise/Lead ABE consultancy projects/services 8.1. Applies advanced knowledge and skills on agricultural and biosystems engineering ; 8.2. Uses/applies relevant policies, standards, guidelines on the procurement/engagement of consultancy services by the government and private groups; 8.3. Package and negotiate ABE consultancy projects 8.4. Reviews consultancy bid/offer documents and conduct the necessary negotiations; 8.5. Lead/supervises the implementation of consultancy projects 8.6. Reviews or evaluates project consultancy reports.	8.1, 8.2, 8.3, 8.4, 8.5, 8.6	8.1, 8.2, 8.3, 8.4, 8.5, 8.6	8.1, 8.2, 8.3, 8.4, 8.5, 8.6

DUTIES/FUNCTIONS AND SPECIFIC COMPETENCIES	PQF LEVEL ALIGNMENT (PQF LEVEL 7)		
	Knowledge, Skills and Values	Application	Degree of Independence
9. Supervise the preparation of, and reviews and/or evaluates farm development plans, farm suitability maps and land use maps/reports for agricultural, livestock and poultry, fishery, aquaculture and forest production and processing 9.1. Applies advanced knowledge and skills on agricultural and biosystems engineering; 9.2. Uses/applies relevant government policies, standards, guidelines and regulations such as Comprehensive Land Use Planning, contiguous farming, SAFDZs, etc. 9.3. Supervise ABEs and technical staff in the preparation of farm development plans, farm suitability maps and land use maps/reports for agricultural, livestock and poultry, fishery, aquaculture and forest production and processing 9.4. Reviews/evaluates farm development plans, farm suitability maps and land use maps/reports for agricultural, livestock and poultry, fishery, aquaculture and forest production and processing.	9.1, 9.2, 9.3, 9.4	9.1, 9.2, 9.3, 9.4	9.1, 9.2, 9.3, 9.4
10. Lead the conduct of research and development on agricultural and biosystems engineering 10.1. Applies advanced knowledge and skills on agricultural and biosystems engineering; 9.2 Uses/applies relevant programs, policies and guidelines on the provision of grants/funding support by R & D by concerned government and private agencies and international organization; 9.3 Acts as R & D Project Leader 9.4. Reviews and defend R and D Reports.	9.1,9.2,9.3, 9.4	9.1,9.2,9.3, 9.4	9.1,9.2,9.3,9.4

DUTIES/FUNCTIONS AND SPECIFIC COMPETENCIES	PQF LEVEL ALIGNMENT (PQF LEVEL 7)		
	Knowledge, Skills and Values	Application	Degree of Independence
11. Supervise training and extension on agricultural and biosystems engineering 11.1. Applies advanced knowledge and skills on agricultural and biosystems; 11.2. Uses/apply relevant programs, policies and guidelines on the provision of grant/funding of training and extension by concerned government and private agencies and international organization; 11.3. Reviews ABE training needs assessment 11.4. Reviews training designs 11.5. Supervises the conduct of ABE trainings 11.6. Supervises ABEs and other personnel in the establishment ABE demonstration/learning sites 11.7. Supervises ABEs and other technical personnel in the provision of technical/ business advisory services 11.8. Reviews/supervises the development of ABE extension promotion materials and conducts info campaign; 11.9. Reviews Information, Education and Communication (IEC) materials	11.1, 11.2, 11.3, 11.4, 11.5, 11.6, 11.7, 11.8 , 11.9	11.1, 11.2, 11.3, 11.4, 11.5, 11.6, 11.7, 11.8 , 11.9	11.1, 11.2, 11.3, 11.4, 11.5, 11.6, 11.7, 11.8 , 11.9
12. Prepares and implements training program of agri-fishery machinery technicians and operators of agri-fishery machinery service centers/pools, and agricultural and biosystems engineering technicians and operators in agricultural and biosystems plants, establishments, facilities, and projects 12.1. Applies advanced knowledge and skills on agricultural and biosystems engineering; 12.2. Uses/applies relevant training regulations and other policies/requirements of TESDA; 12.3. Prepares and implements training program of agri-fishery machinery technicians and operators;	12.1, 12.2, 12.3, 12.4	12.1, 12.2, 12.3, 12.4	12.1, 12.2, 12.3, 12.4

DUTIES/FUNCTIONS AND SPECIFIC COMPETENCIES	PQF LEVEL ALIGNMENT (PQF LEVEL 7)		
	Knowledge, Skills and Values	Application	Degree of Independence
13. Manage ABEs and agricultural, fishery and forestry machinery technicians and operators of agri-fishery machinery service centers/pools, and agricultural and biosystems engineering technicians and operators in agricultural and biosystems plants, establishments, facilities, and projects 13.1. Applies advanced knowledge and skills on agricultural and biosystems engineering; 13.2. Uses/applies relevant training policies, regulations and standards of government and the hiring/employment institutions 13.3. Supervise and/or manage ABEs and agricultural, fishery, forestry/AB machinery technicians and operators,	13.1, 13.2, 13.3	13.1, 13.2, 13.3	13.1, 13.2, 13.3
14. Supervise testing and evaluations of agricultural and biosystems machinery, and other related agricultural and biosystems engineering facilities, equipment and projects 14.1. Applies advanced knowledge and skills on agricultural and biosystems engineering; 14.2. Uses/applies programs, policies, guidelines, and standards on testing and evaluation of AB machinery and facilities of AMTEC, DA and concerned government agencies 14.3. Supervises testing and evaluation of AB machinery and facilities 14.4. Reviews reports	14.1, 14.2, 14.3, 14.4,	14.1, 14.2, 14.3, 14.4,	14.1, 14.2, 14.3, 14.4

DUTIES/FUNCTIONS AND SPECIFIC COMPETENCIES	PQF LEVEL ALIGNMENT (PQF LEVEL 7)		
	Knowledge, Skills and Values	Application	Degree of Independence
15. Manage Fabrication and Manufacture of Agricultural and Biosystems Machinery and Equipment 15.1. Applies advance knowledge and skills on agricultural and biosystems engineering; 15.2. Applies relevant guidelines, requirements and regulation in the manufacturing of agricultural and biosystems machines and equipment; 15.4. Supervise the preparation of fabrication plan (equipment and manpower requirement); 15.5. Reviews production cost estimates; 15.6. Manage the ABEs and other personnel of firms and establishments engaged in the fabrication/manufacturing of agricultural and biosystems machinery and equipment;	15.1, 15.2, 15.3, 15.4, 15.5, 15.6	15.1, 15.2, 15.3, 15.4, 15.5, 15.6	15.1, 15.2, 15.3, 15.4, 15.5, 15.6
17. Reviews and defend environmental studies of the ABE component of agricultural, fisheries, agro-industrial and biosystems projects and its monitoring under the Environmental Impact Assessment (EIA) system 17.1. Applies advanced knowledge and skills on agricultural and biosystems engineering; 17.2. Uses/applies government programs, policies and regulations on environmental protection and management and other pertinent forestry, bio-diversity, natural resources conservation and environmental laws. 17.3. Reviews and defend environmental studies and plans of ABE facilities/component of the projects and its monitoring under the Environmental Impact Assessment (EIA) system such as Environmental Impact Statement (EIS), Initial Environmental Examination (IEE) Report, Programmatic Environmental Performance Report and Management Plan (PEPRMP)- Environmental Performance Report and Management Plan (EPRMP),	17.1, 17.2, 17.3., 17.4.	17.1, 17.2, 17.3., 17.4.	17.1, 17.2, 17.3., 17.4

**ANNEX B.1. MENU OF COMPETENCY STANDARDS OF ENGINEER (AGRICULTURAL AND BIOSYSTEMS) POSITIONS OF THE
DEPARTMENT OF AGRICULTURE AND ITS ATTACHED AGENCIES/CORPORATIONS BASED ON RA NO. 10915
AND PQF LAW**

POSITION

ENGINEER 1 AND II (AGRICULTURAL AND BIOSYSTEMS)

DUTIES/FUNCTIONS AND SPECIFIC COMPETENCIES	PQF LEVEL ALIGNMENT (PQF Level 6)		
	Knowledge, Skills and Values	Application	Degree of Independence
	Demonstrated broad and coherent knowledge and skills in their field of study for professional work and lifelong learning	Application in professional/ creative work or research in a specialized field of discipline and/or further study	Substantial degree of independence and/ or teams of related fields with minimal supervision
Performs general scope of professional practice in agricultural and biosystems engineering (ABE) pursuant to Section 5 of R.A. No. 10915	Demonstrated broad and coherent knowledge and skills for ABE professional practice acquired as graduate of BS Agricultural Engineering/ Agricultural and Biosystems Engineering (BSAE/BSABE) and Continuing Professional Development after passing the Agricultural Engineer/ABE Licensure examination given by the Board of Agricultural Engineering or PRBABE and PRC	Application in professional works in ABE	Substantial degree of independence and/or teams of related fields with minimal supervision

DUTIES/FUNCTIONS AND SPECIFIC COMPETENCIES	PQF LEVEL ALIGNMENT (PQF Level 6)		
	Knowledge, Skills and Values	Application	Degree of Independence
1. Prepares project studies/proposals and feasibility studies of agricultural and biosystem engineering facilities/projects; 1.1 Applies knowledge and skills on agricultural and biosystems engineering and the Philippine Agricultural Engineering/Philippine Agricultural and Biosystems Engineering Standards; 1.2 Applies principles and standards in the preparation of project feasibility studies; 1.3 Applies relevant guidelines and requirements of concerned funding/credit institutions; 1.4 Uses/applies relevant data and information gathered; 1.5 Conduct pre-feasibility study whether to proceed to full blown feasibility study 1.6 Prepares feasibility studies of ABE projects 1.7 Prepares project proposals of ABE projects	1.1, 1.2, 1.3,1.4. 1.5, 1.6, 1.7	1.1, 1.2, 1.3,1.4. 1.5, 1.6, 1.7	1.1, 1.2, 1.3,1.4. 1.5, 1.6, 1.7

DUTIES/FUNCTIONS AND SPECIFIC COMPETENCIES	PQF LEVEL ALIGNMENT (PQF Level 6)		
	Knowledge, Skills and Values	Application	Degree of Independence
2. Prepares engineering designs, plans, specifications and cost estimates/program of works of agricultural and biosystems facilities; 2.1. Applies knowledge and skills on agricultural and biosystems engineering and the Philippine Agricultural Engineering/Philippine Agricultural and Biosystems Engineering Standards; 2.2. Applies relevant guidelines and requirements of concerned government agencies; 2.3. Uses/applies relevant data/information gathered 2.4. Prepares general/conceptual engineering design of ABE facilities/ projects 2.5. Prepares process flow by unit of operation for agricultural buildings and structures 2.6. Prepares equipment layout 2.7. Prepares detailed engineering designs, plans, specifications and cost estimates/ program of work of ABE facilities/projects 2.8. Prepares technical specifications of AB machinery/facilities	2.1., 2.2, 2.3, 2.4., 2.5, 2.6. 2.7, 2.8	2.1., 2.2, 2.3, 2.4., 2.5, 2.6., 2.7, 2.8	2.1., 2.2, 2.3, 2.4., 2.5, 2.6., 2.7. 2.8

DUTIES/FUNCTIONS AND SPECIFIC COMPETENCIES	PQF LEVEL ALIGNMENT (PQF Level 6)		
	Knowledge, Skills and Values	Application	Degree of Independence
3. Supervises the construction of agricultural and biosystems engineering facilities/projects; 3.1. Applies knowledge and skills on agricultural and biosystems engineering, Philippine Agricultural Engineering/Philippine Agricultural and Biosystems Engineering Standards, and principles on construction management; 3.2. Applies relevant guidelines, requirements and regulations of concerned government such as PCAB, CPES and the government procurement law; 3.3. Supervises the construction of ABE projects in the field.	3.1., 3.2., 3.3.	3.1., 3.2., 3.3.	3.1., 3.2., 3.3.
4. Supervises the operation, and maintenance of agricultural and biosystems engineering facilities/projects; 4.1. Applies knowledge and skills on agricultural and biosystems engineering, Philippine Agricultural Engineering/Philippine Agricultural and Biosystems Engineering Standards; 4.2. Applies relevant guidelines, requirements and regulations of concerned government agencies government procurement law; 4.3. Supervises the operation and maintenance of ABE facilities/projects.	4.1., 4.2, 4.3.	4.1., 4.2, 4.3.	4.1., 4.2, 4.3.

DUTIES/FUNCTIONS AND SPECIFIC COMPETENCIES	PQF LEVEL ALIGNMENT (PQF Level 6)		
	Knowledge, Skills and Values	Application	Degree of Independence
5. Conducts investigation, inspection, monitoring, evaluation and technical audit on agricultural and biosystems machinery and equipment, structures and facilities, and agricultural and biosystems engineering projects. 5.1. Applies knowledge and skills on agricultural and biosystems engineering and Philippine Agricultural Engineering/Philippine Agricultural and Biosystems Engineering Standards; 5.2. Applies relevant guidelines and requirements of government regulations such government procurement law, AFMech Law, Constructors Performance Evaluation System (CPES)etc. ; 5.3. Conducts inspection/evaluation/monitoring of ABE facilities/projects and prepare reports/findings.	5.1, 5.2., 5.3.	5.1, 5.2., 5.3.	5.1, 5.2., 5.3.
6. Conducts valuation on agricultural and biosystems machinery and equipment, structures and facilities, and agricultural and biosystems engineering projects for loan collateral, feasibility studies and other purposes; 6.1. Applies knowledge and skills on agricultural and biosystems engineering and Philippine Agricultural Engineering/Philippine Agricultural and Biosystems Engineering Standards, 6.2. Applies relevant guidelines and requirements of government regulations such registration of agricultural machinery, Personal Property Security Act, Philippine Valuation Standards etc. 6.3. Conducts valuation on AB machinery and ABE facilities	6.1, 6.2, 6.3.	6.1, 6.2, 6.3.	6.1, 6.2, 6.3.

DUTIES/FUNCTIONS AND SPECIFIC COMPETENCIES	PQF LEVEL ALIGNMENT (PQF Level 6)		
	Knowledge, Skills and Values	Application	Degree of Independence
7. Conducts planning, management and coordination works on agricultural and biosystems engineering programs, projects and policies 7.1. Applies knowledge and skills on agricultural and biosystems engineering, planning and project development and Philippine Agricultural Engineering/Philippine Agricultural and Biosystems Engineering Standards; 7.2. Applies relevant government policies and guidelines 7.3. Prepares, coordinate and implements plans, programs, projects and activities relative to ABE. 7.4. Develop/prepare policy studies/proposals on ABEs.	7.1, 7.2, 7.3, 7.4	7.1, 7.2, 7.3, 7.4	7.1, 7.2, 7.3, 7.4
8. Provides ABE consultancy services 8.1. Applies knowledge and skills on agricultural and biosystems engineering and Philippine Agricultural Engineering/Philippine Agricultural and Biosystems Engineering Standards; 8.2. Uses/applies relevant policies, standards, guidelines on the procurement/engagement of consultancy services by the government and private groups; 8.3. Provides ABE consultancy services and prepare reports.	8.1,8.2, 8.3	8.1,8.2, 8.3	8.1,8.2, 8.3

DUTIES/FUNCTIONS AND SPECIFIC COMPETENCIES	PQF LEVEL ALIGNMENT (PQF Level 6)		
	Knowledge, Skills and Values	Application	Degree of Independence
9. Prepares farm development plans, farm suitability maps and land use maps/reports for agricultural, livestock and poultry, fishery, aquaculture and forest production and processing. 9.1. Applies knowledge and skills on agricultural and biosystems engineering and Philippine Agricultural Engineering/Philippine Agricultural and Biosystems Engineering Standards; 9.2. Use/applies relevant government policies, standards, guidelines and regulations such as land classification maps, SAFDZs, etc. 9.3. Prepares farm development plans, farm suitability maps and land use maps/reports for agricultural, livestock and poultry, fishery, aquaculture and forest production and processing	9.1,9.2, 9.3	9.1,9.2, 9.3	9.1,9.2, 9.3
10. Conducts research and development on agricultural and biosystems engineering. 10.1. Applies knowledge and skills on agricultural and biosystems engineering and Philippine Agricultural Engineering/Philippine Agricultural and Biosystems Engineering Standards; 10.2. Use/applies relevant programs, policies and guidelines on the provision of grants/funding support for R & D by concerned government and private agencies and international organizations; 10.3. Prepares R and D Reports.	10.1,10.2,10.3	10.1,10.2,10.3	10.1,10.2,10.3

DUTIES/FUNCTIONS AND SPECIFIC COMPETENCIES	PQF LEVEL ALIGNMENT (PQF Level 6)		
	Knowledge, Skills and Values	Application	Degree of Independence
11. Conducts training and extension on agricultural and biosystems engineering 11.1. Applies knowledge and skills on agricultural and biosystems engineering and Philippine Agricultural Engineering/Philippine Agricultural and Biosystems Engineering Standards; 11.2. Uses/apply relevant programs, policies and guidelines on the provision of grant/funding of training and extension by concerned government and private agencies and international organization; 11.3. Conducts ABE training needs assessment 11.4. Prepares training designs 11.5. Prepares Information, Education and Communication (IEC) materials 11.6. Prepares patents and copyrights 11.7. Conducts ABE training and extension	11.1, 11.2, 11.3,11.4, 11.5. 11.6, 11.7	11.1, 11.2, 11.3,11.4, 11.5. 11.6.11.7	11.1, 11.2, 11.3,11.4, 11.5. 11.6, 11.7
12. Train agriculture, fishery forestry and machinery technicians and operators of agriculture, fishery and forestry machinery service centers/pools, and agricultural and biosystems engineering technicians and operators in agricultural and biosystems plants, establishments, facilities, and projects 12.1. Applies knowledge and skills on agricultural and biosystems engineering and Philippine Agricultural Engineering/Philippine Agricultural and Biosystems Engineering Standards; 12.2. Uses/applies relevant training regulations and other policies/requirements of TESDA; 12.3. Act as Trainer for agriculture, fishery and forestry machinery technicians and operators	12.1, 12.2, 12.3	12.1, 12.2, 12.3	12.1, 12.2, 12.3

DUTIES/FUNCTIONS AND SPECIFIC COMPETENCIES	PQF LEVEL ALIGNMENT (PQF Level 6)		
	Knowledge, Skills and Values	Application	Degree of Independence
13. Supervises agriculture, fishery forestry and machinery technicians and operators of agriculture, fishery and forestry machinery service centers/pools, and agricultural and biosystems engineering technicians and operators in agricultural and biosystems plants, establishments, facilities, and projects 13.1. Applies knowledge and skills on agricultural and biosystems engineering and Philippine Agricultural Engineering/Philippine Agricultural and Biosystems Engineering Standards; 13.2. Uses/applies relevant guidelines, policies and standards of the government and hiring/employment institutions; 13.3. Supervises agri-fishery machinery technicians and operators	13.1, 13.2, 13.3	13.1, 13.2, 13.3	13.1, 13.2, 13.3
14. Tests and evaluates agricultural and biosystems machinery, and other related agricultural and biosystems engineering facilities, equipment and projects 14.1. Applies knowledge and skills on agricultural and biosystems engineering and Philippine Agricultural Engineering/Philippine Agricultural and Biosystems Engineering Standards; 14.2. Uses/apply programs, policies, guidelines, and standards on testing and evaluation of AB machinery and facilities of AMTEC, accredited testing centers DA and concerned government agencies 14.3. Conduct field testing of AB machinery and facilities 14.4. Prepares reports	14.1, 14.2, 14.3, 14.4,	14.1, 14.2, 14.3, 14.4	14.1, 14.2, 14.3, 14.4

DUTIES/FUNCTIONS AND SPECIFIC COMPETENCIES	PQF LEVEL ALIGNMENT (PQF Level 6)		
	Knowledge, Skills and Values	Application	Degree of Independence
15. Supervise the Fabrication and Manufacture of Agricultural and Biosystems Machinery and Equipment 15.1. Applies knowledge and skill on agricultural and biosystems engineering and Philippine Agricultural Engineering/Philippine Agricultural and Biosystems Engineering Standards; 15.2. Applies relevant guidelines, requirements and regulation in the manufacturing of agricultural and biosystems machines and equipment; 15.3. Interpret design drawings for fabrication process; 15.4. Prepare fabrication plan (equipment and manpower requirement); 15.5. Estimate production cost; 15.6. Supervises the fabrication/manufacturing of agricultural and biosystems machinery and equipment;	15.1, 15.2, 15.3, 15.4, 15.5, 15.6	15.1, 15.2, 15.3, 15.4, 15.5, 15.6	15.1, 15.2, 15.3, 15.4, 15.5, 15.6
16. Participates in the preparation of environmental studies for ABE projects and its monitoring under the Environmental Impact Assessment (EIA) system 16.1. Applies knowledge and skills on agricultural and biosystems engineering and Philippine Agricultural Engineering/Philippine Agricultural and Biosystems Engineering Standards; 16.2. Uses/applies government programs, policies and regulations on environmental protection and management and pertinent forestry, bio-diversity, natural resources conservation and environmental laws. 16.3. Prepares environmental studies and plans of ABE facilities/components of the projects and its monitoring under the Environmental Impact Assessment (EIA) system such as Environmental Impact Statement (EIS), Initial Environmental Examination (IEE) Report, Programmatic Environmental Performance Report and Management Plan (PEPRMP)- Environmental Performance Report and Management Plan (EPRMP),	16.1, 16.2, 16.3	16.1, 16.2, 16.3	16.1, 16.2, 16.3

**ANNEX B.3 MENU OF COMPETENCY STANDARDS OF ENGINEER (AGRICULTURAL AND BIOSYSTEMS) POSITIONS OF
THE DEPARTMENT OF AGRICULTURE AND ITS ATTACHED AGENCIES/CORPORATIONS BASED ON RA NO.
10915 AND PQF LAW**

POSITION

ENGINEER V (AGRICULTURAL AND BIOSYSTEMS)

DUTIES/FUNCTIONS AND SPECIFIC COMPETENCIES	PQF LEVEL ALIGNMENT (PQF LEVEL 8)		
	Knowledge, Skills and Values	Application	Degree of Independence
	Demonstrated highly advanced systematic knowledge and skills in highly specialized and/or complex multi-disciplinary field of learning for complex research and or professional practice and/or for the advancement of learning.	Applied for professional leadership for innovation, research and/or development management in highly specialized or multi-disciplinary field	Full independence in individual work and/or in teams of multi-disciplinary and more complex setting that demands leadership for research and creativity for strategic value added. Significant level of expertise-based autonomy and accountability
Performs highly advanced level or highly specialized professional practice in ABE pursuant to Section 5 of R.A. No. 10915 that requires specialized cognitive, technical and research, managerial and executive competence	Demonstrated highly advanced systematic knowledge and skills in supervisory or executive or supervisory levels, complex or highly specialized professional practice in agricultural and biosystem engineering acquired in higher education (Doctoral Degree or specialized trainings and other formal, non-formal and life-long learning	Applied for professional leadership for innovation, research and/or development management in ABE practice or in multi-disciplinary field	Full independence in individual work and/or in teams of multi-disciplinary and more complex setting that demands leadership and creativity for professional practice in ABE. Significant level of expertise on ABE based autonomy and accountability.

DUTIES/FUNCTIONS AND SPECIFIC COMPETENCIES	PQF LEVEL ALIGNMENT (PQF LEVEL 8)		
	Knowledge, Skills and Values	Application	Degree of Independence
1. Manage the preparation and defend feasibility studies and project proposals of agricultural and biosystem engineering facilities/projects¹; 1.1. Applies highly advanced knowledge and skills on agricultural and biosystems engineering 1.2. Applies principles and standards in the preparation of project feasibility studies which include market, technical, social feasibilities, among others 1.3. Applies relevant guidelines and requirements of concerned funding/credit institutions; 1.4. Use/applies relevant data and information gathered 1.5. Recommends and defend feasibility studies and project proposal of ABE projects. 1.6. Recommend and defend project proposals of ABE projects	1.1, 1.2, 1.3, 1.4, 1.5, 1.6	1.1, 1.2, 1.3, 1.4, 1.5, 1.6	1.1, 1.2, 1.3, 1.4, 1.5, 1.6

¹ *Agricultural and Biosystems Engineering Facilities refers to irrigation and drainage, soil and water conservation and management systems and facilities, agrometeorological systems, agricultural and biosystems power, and machinery, agricultural and biosystems buildings and structures, renewable/bio-energy systems and farm electrification, agricultural and bio-processing and post harvest facilities and system, agricultural and biological waste utilization and management, agricultural and bio-information system, agricultural and biosystems resource conservation and management, and agricultural and bio-automation and instrumentation system (Section 5, RA No. 10915)*

DUTIES/FUNCTIONS AND SPECIFIC COMPETENCIES	PQF LEVEL ALIGNMENT (PQF LEVEL 8)		
	Knowledge, Skills and Values	Application	Degree of Independence
2. Decide/approve engineering designs, plans, specifications and cost estimates/program of works of agricultural and biosystem engineering facilities/projects; 2.1. Applies highly advanced knowledge and skills on agricultural and biosystems engineering; 2.2. Applies relevant guidelines and requirements of concerned government agencies; 2.3. Uses/applies relevant data/information gathered 2.4. Final review/approval of conceptual/general plan/s of ABE facilities/projects 2.5. Final review/approval of process flow by unit of operation for agricultural buildings and structures 2.6. Final review/approval of equipment layout 2.7. Final review/approval of detailed engineering designs and cost estimates/ program of ABE facilities/projects 2.8. Final review/approval of technical specifications of AB machineries/facilities	2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8	2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8	2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8

DUTIES/FUNCTIONS AND SPECIFIC COMPETENCIES	PQF LEVEL ALIGNMENT (PQF LEVEL 8)		
	Knowledge, Skills and Values	Application	Degree of Independence
3. Perform over-all supervision and/or management on the construction of agricultural and biosystems engineering facilities/projects; 3.1. Applies highly advanced knowledge and skills on agricultural and biosystems; 3.2. Applies principles, standards/manual of construction management of ABE facilities/projects; 3.3. Uses/Applies relevant guidelines, requirements and regulations of concerned government such as PCAB, CPES and the government procurement law; 3.4. Performs over-all supervision/management on the Project Engineers and other personnel on the construction of ABE facilities/projects.	3.1, 3.2, 3.3, 3.4	3.1, 3.2, 3.3, 3.4	3.1, 3.2, 3.3, 3.4
4. Perform over-all supervision and/or management on the operation, and maintenance of agricultural and biosystems engineering facilities/projects; 4.1. Applies highly advanced knowledge and skills on agricultural and biosystems; 4.2. Applies principles, standards/manual of O & M of ABE facilities/projects; 4.3. Uses/Applies relevant guidelines, requirements and regulations of concerned government such as NAMMDAC and the government procurement law; 4.4. Performs over-all supervision/management of ABEs and other personnel in the installation, operation and maintenance of ABE facilities/projects.	4.1, 4.2, 4.3, 4.4.	4.1, 4.2, 4.3, 4.4.	4.1, 4.2, 4.3, 4.4.

DUTIES/FUNCTIONS AND SPECIFIC COMPETENCIES	PQF LEVEL ALIGNMENT (PQF LEVEL 8)		
	Knowledge, Skills and Values	Application	Degree of Independence
5. Oversees/manages the investigation, inspection, monitoring, evaluation and technical audit on agricultural and biosystems machineries and equipment, structures and facilities, and agricultural and biosystems engineering projects 5.1. Applies highly advanced knowledge and skills on agricultural and biosystems engineering; 5.2. Applies relevant guidelines and requirements of government regulations such government procurement law, AFMech Law, Contractors Performance Evaluation System (CPES), etc. ; 5.3. Oversees/Manages Inspectors, Evaluators, Technical Auditors and Monitors of ABE facilities/projects and review/approve reports/findings. 5.4. Oversees/Manages CPES Evaluators of ABE facilities/projects	5.1, 5.2, 5.3, 5.4.	5.1, 5.2, 5.3, 5.4.	5.1, 5.2, 5.3, 5.4.
6. Over-all supervision on the valuation of agricultural and biosystems machineries and equipment, structures and facilities, and agricultural and biosystems engineering projects for loan collateral, feasibility studies and other purposes; 6.1. Applies highly advanced knowledge and skills on agricultural and biosystems engineering; 6.2. Applies relevant guidelines and requirements of government regulations such registration of agricultural machineries, Personal Property Security Act, etc. 6.3. Over-all supervision/management of ABEs and other personnel in the valuation of ABE facilities/machineries 6.4. Final review and/or approval of valuation reports of AB machineries and ABE facilities	6.1, 6.2, 6.3, 6.4	6.1, 6.2, 6.3, 6.4.	6.1, 6.2, 6.3, 6.4.

DUTIES/FUNCTIONS AND SPECIFIC COMPETENCIES	PQF LEVEL ALIGNMENT (PQF LEVEL 8)		
	Knowledge, Skills and Values	Application	Degree of Independence
7. Over-all supervision/management on the planning and management and coordination of agricultural and biosystems engineering programs, projects and policies 7.1. Applies highly advanced knowledge and skills on agricultural and biosystems engineering; 7.2. Applies relevant government policies, guidelines such as AFMA, etc. 7.3. Final review/approval of plans, programs, projects and activities relative to ABE. 7.4. Integrates ABE plans, programs, activities in development planning 7.5. Over-all supervision and management of ABEs and other support personnel in the development, planning, coordination and management of ABE programs, projects and policies	7.1, 7.2, 7.3, 7.4, 7.5	7.1, 7.2, 7.3, 7.4, 7.5	7.1, 7.2, 7.3, 7.4, 7.5
8. Manage ABE consultancy services 8.1. Applies highly advanced knowledge and skills on agricultural and biosystems engineering; 8.2. Uses/applies relevant policies, standards, guidelines on the procurement/engagement of consultancy services by the government and private groups; 8.3. Organize, manage and operate ABE consultancy firms, establishments and teams. 8.4. Lead the negotiations for ABE consultancy project 8.5. Final review or approval of project consultancy reports;	8.1, 8.2, 8.3, 8.4, 8.5	8.1, 8.2, 8.3, 8.4, 8.5	8.1, 8.2, 8.3, 8.4, 8.5

DUTIES/FUNCTIONS AND SPECIFIC COMPETENCIES	PQF LEVEL ALIGNMENT (PQF LEVEL 8)		
	Knowledge, Skills and Values	Application	Degree of Independence
9. Over-all supervision/management on the preparation and evaluation of farm development plans, farm suitability maps and land use maps/reports for agricultural, livestock and poultry, fishery, aquaculture and forest production and processing 9.1. Applies highly advanced knowledge and skills on agricultural and biosystems engineering; 9.2. Uses/applies relevant government policies, standards, guidelines and regulations such as Comprehensive Land Use Planning, contiguous farming, SAFDZs, etc. 9.3. Over-all supervision/management of ABEs and other personnel in the preparation of farm development plans, farm suitability maps and land use maps/reports for agricultural, livestock and poultry, fishery, aquaculture and forest production and processing 9.4. Final review and/or approval farm development plans, farm suitability maps and land use maps/reports for agricultural, livestock and poultry, fishery, aquaculture and forest production and processing	9.1, 9.2, 9.3	9.1, 9.2, 9.3	9.1, 9.2, 9.3
10. Supervises/manages the conduct of research and development on agricultural and biosystems engineering 10.1. Applies highly advanced knowledge and skills on agricultural and biosystems engineering; 10.2. Uses/applies relevant programs, policies and guidelines on the provision of grant/funding of R & D by concerned government and private agencies and international organization; 10.3. Acts as R & D Program Leader 10.4. Manage ABEs and other personnel of R & D institutions engaged in ABE R and D	10.1, 10.2, 10.3, 10.4	10.1, 10.2, 10.3, 10.4	10.1, 10.2, 10.3, 10.4

DUTIES/FUNCTIONS AND SPECIFIC COMPETENCIES	PQF LEVEL ALIGNMENT (PQF LEVEL 8)		
	Knowledge, Skills and Values	Application	Degree of Independence
11. Over-all supervision/management of the training and extension program on agricultural and biosystems engineering 11.1. Applies highly advanced knowledge and skills on agricultural and biosystems engineering; 11.2. Uses/apply relevant programs, policies and guidelines on the provision of grant/funding of training and extension by concerned government and private agencies and international organization; 11.3. Over-all supervision and management of ABEs and other personnel in public and private institutions engaged in ABE training and extension	11.1, 11.2, 11.3,	11.1, 11.2, 11.3,	11.1, 11.2, 11.3,
12. Over-all supervision and management on the training program for agri-fishery machinery technicians and operators of agri-fishery machinery service centers/pools, and agricultural and biosystems engineering technicians and operators in agricultural and biosystems plants, establishments, facilities, and projects 12.1. Applies highly advanced knowledge and skills on agricultural and biosystems engineering; 12.2. Uses/applies relevant training regulations and other policies/requirements of TESDA; 12.3. Over-all supervision/management of Trainers and Competency Assessors of ABE machinery technicians and operators 12.4. Over-all supervision/management on the planning and implementation of training programs for agriculture, fishery and forestry/AB operators and technicians	12.1, 12.2, 12.3. 12.4	12.1, 12.2, 12.3. 12.4	12.1, 12.2, 12.3. 12.4

DUTIES/FUNCTIONS AND SPECIFIC COMPETENCIES	PQF LEVEL ALIGNMENT (PQF LEVEL 8)		
	Knowledge, Skills and Values	Application	Degree of Independence
13. Over-all supervision/management of agriculture, fishery and forestry machinery technicians and operators of agri-fishery machinery service centers/pools, and agricultural and biosystems engineering technicians and operators in agricultural and biosystems plants, establishments, facilities, and projects 13.1. Applies highly advanced knowledge and skills on agricultural and biosystems engineering; 13.2. Uses/applies relevant training regulations and other policies/requirements of TESDA; 13.3. Act as Chief Supervisor for agriculture, fishery, forestry/AB machinery technicians and operators	13.1, 13.2, 13.3, 13.4	13.1, 13.2, 13.3, 13.4	13.1, 13.2, 13.3, 13.4
14. Manage the testing, evaluation and inspection of agricultural and biosystems machinery, and other related agricultural and biosystems engineering facilities, equipment and projects 14.1. Applies highly advanced knowledge and skills on agricultural and biosystems engineering; 14.2. Uses/apply programs, policies, guidelines, and standards on testing and evaluation of AB machineries and facilities of AMTEC, DA and concerned government agencies 14.3. Over-all supervision/management on the operation including the Test Engineers and other personnel of testing centers of AB machinery/facilities 14.4. Final review/approval of reports	14.1, 14.2, 14.3, 14.4	14.1, 14.2, 14.3, 14.4	14.1, 14.2, 14.3, 14.4

DUTIES/FUNCTIONS AND SPECIFIC COMPETENCIES	PQF LEVEL ALIGNMENT (PQF LEVEL 8)		
	Knowledge, Skills and Values	Application	Degree of Independence
15. Manages Fabrication and Manufacture of Agricultural and Biosystems Machinery and Equipment 15.1. Applies advance knowledge and skills on agricultural and biosystems engineering; 15.2. Applies relevant guidelines, requirements and regulation in the manufacturing of agricultural and biosystems machines and equipment; 15.3. Manage the operation including the ABEs and other personnel of fabrication/manufacturing plants/establishment of agricultural and biosystems machinery and equipment;	15.1, 15.2, 15.3,	15.1, 15.2, 15.3,	15.1, 15.2, 15.3,
16. Final review/ approve and defend environmental studies and plans of ABE facilities/component for agricultural, fisheries, agro-industrial and biosystems projects and its monitoring under the Environmental Impact Assessment (EIA) system 16.1. Applies highly advanced knowledge and skills on agricultural and biosystems engineering; 16.2. Use/applies government programs, policies and regulations on environmental protection and management and other pertinent forestry, bio-diversity, natural resources conservation and environmental laws. 16.3. Final review and approve and defend environmental studies and plans of ABE facilities/components of the projects and its monitoring under the Environmental Impact Assessment (EIA) system such as Environmental Impact Statement (EIS), Initial Environmental Examination (IEE) Report, Programmatic Environmental Performance Report and Management Plan (PEPRMP)- Environmental Performance Report and Management Plan (EPRMP),	16.1, 16.2, 16.3	16.1, 16.2, 16.3	16.1, 16.2, 16.3