Republic of the Philippines
DEPARTMENT OF SCIENCE AND TECHNOLOGY

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Administrative Order No. 014
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Subject: PROJECT MONITORING AND EVALUATION (M&E) PROTOCOL OF THE DEPARTMENT OF SCIENCE AND TECHNOLOGY (DOST)

I. RATIONALE

Research and development (R&D) management is conducted to ensure that R&D investments are allocated to activities that will result in achieving the DOST's strategic objectives. It encompasses a wide range of processes that include strategic planning, program/project development, monitoring and evaluation (M&E), and optimization. Alignment with the strategic objectives does not only start with M&E but huge part of it begins with planning, that is, prioritization, foresight, and stakeholder engagement. Human resource and institutional capacity are also vital components in R&D management and play a crucial role in the delivery of expected outputs.

This Administrative Order harmonizes DOST practices for efficient R&D management, inclusive of stakeholder engagement and measurement of impact of programs/projects.

II. SCOPE/COVERAGE

The DOST M&E Protocol covers a set of activities, guidelines, evaluation tools and indicators that are specifically designed to track the performance of the various components or steps in the implementation of its R&D agenda. It aims to provide a feedback mechanism for DOST to be able to improve its processes which shall result in significant R&D outputs, outcomes, and impacts. It was created based on existing M&E models and best practices being integrated in the functions of the Councils.

This M&E Protocol is intended for the use of DOST and its partners through results-based management. The data to be gathered during the conduct of the M&E Protocol may be used for reporting purposes to the Department of Budget and Management (DBM), Congress, Media and the general public.

III. CENTRAL RESPONSIBILITY

The implementation of this M&E Protocol shall be the responsibility of all grant-giving institutions within the Department primarily the Sectoral Councils (*i.e.*, Philippine Council for Agriculture, Aquatic, and Natural Resources Research and Development, Philippine Council for Health Research and Development, and Philippine Council for Industry, Energy, and

Emerging Technology Research and Development). With necessary modification, the same protocol must be adopted by the National Research Council of the Philippines and other DOST agencies, namely DOST Regional Offices, DOST Research and Development Institutes, among others with grants-in-aid and budget for their internal R&D.

IV. DEFINITION OF TERMS

The terms herein used shall mean as follows:

1. Activity--refers to an action taken or work performed through which inputs are used to produce specific outputs. Examples of activities include: equipment purchase and laboratory setup, experiments and prototyping work, trainings, conference attendance, etc.

2. Client Satisfaction Survey--refers to a tool to measure the level of satisfaction of clients for goods and services rendered.

3. DOST Project Management Information System (DPMIS)--refers to the online system that contains information on project proposals, funded projects, and researchers that can be accessed by the proponents and Project Managers. The system is managed by the DOST-Planning and Evaluation Service (PES).

4. Ex-ante analysis--refers to M&E tool used to validate underlying assumptions and indicators of programs/projects. It is used to determine plan/program/project benefits or value (expected and actual).

5. HNRDA----refers to the Harmonized National Research and Development Agenda serves as a guide for public investment in R&D to ensure a cohesive convergence and integration of R&D efforts towards the shared goal of inclusive socio-economic growth and a better life for Filipinos. HNRDA will serve as a platform of DOST to determine the R&D programs that will be funded by the government and ensure that results of S&T endeavors are geared towards and utilized in areas of maximum economic and social benefit for the people in the next five (5) years (2017-2022).

6. Impact--refers to the direct or indirect change in the economy, environment, society, and beyond contributions to academic knowledge that may be attributed to the project.

7. Impact pathway—refers to the plausible steps of how research outputs will contribute to sets of outcomes. The impact pathway identifies the different phases, the actors involved, their networks and interactions, the flow of resources and the progressive integration of different forms of knowledge and know-how into outcomes and impacts.

8. Input--refers to the financial, human, and material resource used in the conduct of a project.

9. Outcome--refers to the change in practices, behavior/skills/attitude, institutions, government policy and plans, and accessibility to programs (*e.g.*, services) as a result of interventions or R&D outputs.

10. Output--refers to the resulting academic output such as: publications, patents filed, products developed, facilities and partnerships established, people trained and graduated,

public service provided and science-based policies passed or prepared from the completion of projects. Monitoring agencies should ensure that the DOST will always be cited and recognized in all the resulting outputs of DOST-funded projects.

11. Project Manager--refers to the DOST technical staff responsible for research planning, monitoring or overseeing the implementation of programs/projects, and ensuring the assessment of outputs, outcomes, and impacts.

12. Selection Criteria---refers to a standard that is used for evaluation of program/project proposal. It includes prioritization of funding to programs/projects aligned to HNRDA, relevance and responsiveness, readiness and chance of success, benefit to cost, partnership and collaboration, potential impact and sustainability as provided in the Administrative Order (A.O.) No. 009 Series of 2017 and the DOST-EXECOM directive.

13. Theory of Change--refers to the conceptual framing of the program or project. This provides a comprehensive description and illustration of how and why a desired change was expected to happen in a particular context. It identifies the sequence of events leading to a result and the underlying assumptions, which need to hold the theory to operate as expected. This provides the rationale for which impact pathways the project will pursue.

V. KEY PRINCIPLES OF THE M&E PROTOCOL

1. Emphasis on Pre-Proposal Stage Activities

   DOST recognizes that this component is a critical step in the R&D process. It is both a preparatory stage for all stakeholders to engage in R&D, proposal formulation and leveling off with researchers on what R&D outputs, outcomes, and impacts are expected from DOST grants.

2. Active Collection and Sharing of Data

   The M&E indicators are datasets that need to be gathered regularly. This is the responsibility of both the proponent and the Project Managers in each Council. The DOST Project Management Information System (DPMIS) shall serve as repository of all funded projects where proponents/project leaders and managers shall regularly fill in data for the project outputs (6Ps), outcomes and impact.

3. Project Evaluation by Experts

   DOST shall embark on building its pool of internal and external proposal/project evaluation experts. These experts are respected in their fields and have knowledge in DOST project evaluation and R&D management including R&D impact principles.

4. The Role of Project Managers

   Project Managers shall be an integral part of the R&D project. Once a project has been approved, the Project Managers shall help facilitate the success of the project. Project outputs, outcomes and impact (wherever is applicable) shall be compiled by the respective concerned DOST Offices through the assigned Project Managers.

5. Outputs, Outcomes, and Impacts

DOST shall measure not just outputs and outcomes but most importantly, project impacts. An important requisite is the incorporation of the theory of change to facilitate the determination of potential impacts as early as the proposal stage.

VI. M&E OF R&D PROGRAMS/PROJECTS

The process of R&D is composed of the following components: stakeholder engagement, call for proposals, proposal evaluation, project implementation, and project output/outcome/impact evaluation. As such, M&E is set up for each and every step.

1. Stakeholder Engagement

Activities:

a. *Setting of R&D priority*. All R&D plans must be aligned with the current DOST Priorities and Thrusts (*e.g.*, Harmonized National R&D Agenda 2017-2022). Priority setting per major R&D field is done every six (6) years with medium term planning with stakeholders at least every three (3) years.
b. *Conduct of Workshops with R&D proponents*. In coordination with higher education institutions and RDIs, the concerned DOST Offices shall provide workshops on the following:
    i. Proposal formulation
    ii. Project output communication
    iii. Scientific writing, and;
    iv. Impact Science: R&D outputs, outcomes, and impacts.
c. *Monitoring of Researchers. T*he DOST, through DPMIS, shall monitor its pool of researchers for various purposes, such as tracking the number of personnel involved in R&D and identifying researchers for directed research.
d. *Conduct of Ex-Ante Analysis*. The DOST shall commission the conduct of ex-ante analysis to validate the identified potential impacts of proposed programs/projects.

Indicators:

a. *Number of institutions engaged*. Each year, concerned DOST Offices shall keep track of the number of workshops conducted, number of institutions represented, and number of researcher attendees. Emphasis is given to early career researchers and institutions with an emerging research culture.
b. *Institution readiness (Research Readiness Level-RRL)*. This is a measure/assessment of research capacity of HEIs and RDIs. Specific calls for proposals shall target HEIs/RDIs in accordance to their RRL.
c. *Researcher absorptive capacity*. This is a measure to determine the ability of a researcher to handle projects. Per DOST AO 009, series of 2017, a Project Leader shall be allowed to handle two (2) programs or three (3) projects at a time, while a Project Staff shall be involved in only two (2) projects at a time.

2. Call for Proposals

There are three (3) types of call for proposals: 1) *Directed research calls* wherein the R&D topic/field and the proponent have been identified; 2) *Solicited calls* wherein a group of HEIs/RDIs is first identified and subsequently the specific R&D topic/field is further refined; and, 3) *Open calls* wherein a set of R&D topics/fields is listed and proposal submission is open to all eligible institutions.

An online system shall be established where proposals will be submitted through a content management system (CMS).

Activities:

a. *Formulation of Calls.* Based on the types of calls, concerned DOST Offices shall disseminate their call for proposals with information on proponent eligibility, line-item budget, expected outputs/outcomes/impacts and other requirements.
b. *Posting of Calls.* All calls shall be disseminated (*e.g.*, online, through a website, email, social media, and through direct communications) to all stakeholders. The schedule of call for proposals are as follows:

    April - posting of main call
    June - deadline of proposal submission
    October - posting of second call (if needed)
    November - deadline of proposal submission for the second call

Note that the call each year is for projects for funding in January two years after (*e.g.*, the April 2019 call will be for projects to start in January 2021). However, for urgent projects and whenever there are still available funds, DOST may opt to start the project in January of the succeeding year (*e.g.*, January 2020).

For the call for proposals during the period April to June, concerned DOST Offices may opt to have staggered calls and consequently varying dates of end of calls. This is intended to spread out the evaluation work that will follow the compilation of submitted proposals.

Indicators:

a. *Number of proposals.* The number of proposals received per open call and cumulative per year.
b. *Number of unique institutions.* The number of institutions that submitted proposals during the Call per year.
c. *Number of new institutions.* The number of institutions participating in the call for proposals for the first time. These new institutions shall be validated with the existing list of institutions maintained by concerned DOST Offices.
d. *Number of new proponents.* The number of first-time project leaders.

3. Proposal Evaluation

Concerned DOST Offices shall follow their respective systems of proposal evaluation. However, pursuant to Republic Act 11032 or the Ease of Doing Business Act, the DOST Offices shall complete its evaluation within the prescribed duration as reflected in the

Citizen's Charter, which shall be within 40 working days. The following prescribed procedure for proposal evaluation may be adopted:

a. Project Managers check for completion of proposal submission and eligibility of proponent/s. Proponents with deficiencies (technical and financial) from previous projects are not eligible to apply.
b. Project Managers endorse projects for the experts' evaluation, as needed. All proposals with deficiencies and/or have major revisions are returned to the proponent.
c. Experts' Evaluation. For projects below Five Million Pesos, one (1) expert is the minimum requirement. For projects above this amount, a minimum of three (3) experts are required for evaluation.
d. Proposals recommended by the experts shall be deliberated by the Directors' Council/Management Team/Executive Director/R&D Committee, and endorsed for subsequent approval by the Governing Council/Governing Board and Executive Committee in the case of DOST-GIA funded projects.
e. The status of proposals that originated from DOST and evaluated by the Councils shall be regularly reported to DOST-SPD.

Activities:

a. *Referral of Proposals.* Proposals submitted to DOST-SPD shall be referred to concerned DOST Councils for technical evaluation.
b. *Selection of Experts.* Concerned DOST Offices shall select and designate experts to review proposals. These are seasoned researchers with at least five (5) years of research experience, established expertise in their fields, and preferably have been lead proponents of DOST-funded projects. The concerned DOST Offices shall assess the performance of its pool of experts each year which will be the basis for renewed engagement.
c. *Proposal evaluation.*
    i. The selection criteria, provided in the DOST AO 009, s of 2017 and as prescribed by the DOST-EXECOM shall be used. Project Manager of Concerned Offices checks the eligibility of the proponent, completeness of the submission, alignment to the HNRDA, to the Call, and Gender and Development (GAD), duplication, preliminary technical and potential socioeconomic merits.
    ii. The expert reviews technical feasibility and financial viability (commensurate to intended output and impact).
    iii. Council Executive Director/PMT/Directors' Council/R&D Committee ranks the proposal based on available budget, final check on technical and potential socioeconomic merits based on revisions recommended by the Division and the Experts' Panel.
    iv. The Governing Council/Executive Committee decides based on the merit of the proposal and set criteria.
    v. The concerned DOST Offices shall send a formal communication to all proponents on the results of evaluation within the prescribed period in accordance with RA 11032. If disapproved, the reason(s) shall be stated.

Indicators:

a. *Acceptance Rate.* This is the ratio between submitted and approved proposals. This shall determine the quality of proposals based on criteria provided in A.O. 009, series of 2017 and rated as prescribed by the DOST-EXECOM.

b. *Percentage (%) of Timely Completion of Proposal Evaluation.* This is the ratio of the actual number of working days over the prescribed number of working days for proposal evaluation.

4. Project Implementation and Monitoring

The role of the DOST Project Managers is not purely monitoring/compliance checker but as manager integral to the success of the project. Project performance shall form part of the Project Manager's Individual Performance Commitment and Review (IPCR).

The maximum number of new and ongoing projects for each Project Manager is six (6) projects per year.

Activities:

a. *Orientation of project leaders and concerned staff of the Implementing Agency.* At the start of the project, Project Managers and concerned staff of the Funding Agency shall conduct an orientation/inception meeting to level off on the roles and responsibilities, expectations including reportorial duties, time table and pertinent DOST guidelines.
b. *Conduct of Regular Monitoring.* The Project Manager shall conduct regular monitoring through field visits and meetings with concerned project leaders/staff. It shall be done every six (6) months or more depending on the need. Otherwise, all monitoring activities should be done through other means (*i.e.,* calls, emails, shared online files). Field visits to implementing institutions with several DOST-funded projects are preferably done at the same time in order to maximize the resources.
c. *Conduct of Annual and Pre-completion Project Review.* The Project Manager and an expert/s (if needed) shall conduct these reviews three (3) months before the project ends or its renewal to check the progress of the project. This is to ensure that a project will be able to complete or deliver its expected outputs. After the evaluation, the Project Manager shall recommend for continuation, catch up contingencies, suspension, or termination. A catch-up plan is required in cases where annual targets are not met.

Indicators:

a. *Number of projects started and completed on time, extended, or suspended.* The Project Leader shall be evaluated based on the number of projects that started on time, extended, and suspended as basis for his/her track record. Based on the DOST-GIA Guidelines, the project should commence within two (2) months after the release of funds.
b. *Number of Project Outputs and Valuation.* Intended project outputs as measured through the DOST 6Ps. These are recorded throughout the duration of the project and beyond through an online system (*e.g.*, DPMIS).

DOST 6Ps and estimated valuation as guide:

i. *Publication.* ISI or Scopus Indexed Publication (₱2M), Scopus indexed Conference full paper (₱1M), Non-indexed publication (₱0.5M), Scopus-indexed abstract (₱0.1M). Estimated valuation provided is based on 2014-2016 information from PCIEERD. This is used to estimate value for money of the project (*i.e.*, comparison of project budget with output value). Publications are also gauged based on the number and range of citations. Other publications

considered (and separately valuated) are books, manuals, IEC materials, videos, techno guides, etc.

ii. *Intellectual Property.* Patent, Utility Model, Copyright (only for software). Inventions are valuated as similar to an ISI publication. UMs and Copyrights are valuated as a third of inventions simply because its validity is only seven (7) years as opposed to an invention's 20-year validity. Other IPs include discovery of new species, plant variety protection, trademarks, copyrights and industrial designs.

iii. *Product/Process Value.* Prototype licensing, royalty, potential value of the product or earning projections of a new service or process developed. Official professional engagement of researchers resulting from the projects shall also be recorded.

iv. *People Services.* Number of students who were trained or were directly involved in the project, trained personnel. Currently, PCIEERD uses a valuation of ₱0.5M per MS student and ₱2M per PhD student graduated. Other services include value of public service provided, value of government spending saved, and value of economic activities created or improved.

v. *Places and Partnerships.* Leveraged funds from an external source, revenue from services, facility/equipment *vis-a-vis* its sustainability independent of any DOST funding.

vi. *Policies.* Science-based National Laws (executive and legislative), local government unit ordinances, and development plans.

c. *Percent (%) of Projects Meeting Target Outputs.* This is the ratio of number of projects meeting target outputs and the total number of completed projects. This is a metric to track the success of the implementation of projects.

d. *Other Outputs:*

i. *Gender and Development (GAD)-related* outputs. These include projects and activities that promote equal participation of women in the economic, governance and environmental agenda;

ii. *Number of S&T Promotions Conducted.* These shall be measured in terms of its depth and reach;

iii. *Number of Awards and Recognitions received.* These shall include commendations received resulting from the implementation of the project as well as invited lectures and plenary speeches and other related recognitions;

5. Project Outcome and Impact Evaluation

Impact Science is the conduct of scientific and technological R&D with the main objective of contributing a positive impact to society. The Impact Science Logic Framework is as follows:

Input→Activities→Output→Outcome→Impact

It should be further stressed that project outputs, outcomes, and impacts are to be compared to the resources used to achieve these results - a measure of value-for-money.

Activities:

a. *Outcomes and Impact Assessment.* Outcomes and impacts are results beyond 6Ps, GAD outputs and S&T dissemination but still traceable or attributable to the project. This assessment is conducted three (3) to five (5) years after the project completion. The same

online system with records outputs could capture outcomes and impacts. It is still the main responsibility of the project proponents to update this online system beyond the project duration. Examples of outcomes include:

i. Innovation stimulated;
ii. Technology adoption are accelerated and sustained;
iii. Improved productivity, better institutional services;
iv. Ensured resiliency to disaster risks and climate change, and;
v. More responsive environmental processes.

Impacts are measured in the following areas:

i. Economic Growth/Industry Competitiveness;
ii. Improved Environmental Condition;
iii. Socio-cultural;
iv. Policy, and;
v. Academic.

Impact assessments will be done by an external and independent party. These shall be conducted around three (3) to five (5) years since project completion. Related projects shall be bundled together while for individual projects, impact assessment is at the discretion of the concerned DOST Offices provided that the impact assessment budget does not exceed the total approved project budget.

Indicator:

Outcomes and impacts. Outcome measures the change that has occurred as a result of the project. Impact measures broader changes that occurred within the society, environment and economy. This assessment shall include success stories in the form of narratives and case studies.

VII. OTHER RELATED ACTIVITIES:

1. A feedback/client satisfaction survey shall be conducted as prescribed in the Quality Management System of the concerned DOST Offices.

2. The concerned DOST Communications Offices shall develop and execute communication plans for their R&D outcomes and impacts in coordination with the Project Managers. The communication plan shall include dissemination of outcomes and impacts of the concerned programs/project. This is through, but not limited to, media and public engagement, social media and other avenues of information dissemination.

VIII. OTHER PROVISIONS

This AO may be supplemented with specific provisions of the Funding Agency, if necessary. The nullity/illegality of a portion does not render the entire AO as invalid.

IX. EFFECTIVITY

This AO shall take effect fifteen (15) days after publication in the Official Gazette and upon filing at the UP Law Center.

Approved By:

FORTUNATO T. DE LA PEÑA
Secretary

Department of Science and Technology
Office of the Undersecretary for Research and Development
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