

Republic of the Philippines
HOUSE OF REPRESENTATIVES
Quezon City

SIXTEENTH CONGRESS
First Regular Session

House Bill No. 205



INTRODUCED BY REPRESENTATIVE ARTHUR C. YAP

EXPLANATORY NOTE

This proposed measure, in very modest ways, seeks to address three imperative issues. These are the issues of water conservation, irrigation for small farms and adaptation to climate change.

This bill seeks to promote rainwater harvesting technology and small scale irrigation systems. Under this measure, a program is to be adopted for the imposition of catchments or rainwater-sensitive designs for the roofs of all buildings. All medium to large scale commercial and industrial establishments such as but not limited to shopping malls, supermarkets, and hotels, shall have rainwater storage facilities commensurate with the size of roof area. Residential areas, which exceed an area of 300 square meters, shall create rainwater harvesting facility and compulsorily adopt good rainwater harvesting practices. The rainwater collected shall be utilized for their daily water needs, such as flushing toilets, cleaning their surroundings and watering plants.

In rural areas, all barangays shall construct rainwater harvesting facilities. The collected waters shall be used for small-scale irrigation projects.

The use of this technology promotes water conservation. As written in the article entitled "The Rainwater Harvesting System", by Amado De Jesus for the Philippine Daily Inquirer, *"The main idea behind the use of rainwater collection is the reduction of dependence on commercially available water. Water conservation is actually the main goal of such a system. Since rainwater is free while water utilities come at a price, it definitely wouldn't hurt to use rainwater as much as possible."*

In the article, "Rainwater Harvesting and Utilisation, *An Environmentally Sound Approach for Sustainable Urban Water Management: An Introductory Guide for Decision-Makers*", the United Nations Environment Programme (UNEP), which likewise promotes this technology, has cited several examples of rainwater harvesting and utilization around the world, for purposes of water conservation.

In Singapore for instance, which has limited land resources and a rising demand for water, as an alternative source and innovative method of harvesting water, rainwater technology is being adopted. At its Changi Airport, rainfall from the runways and the surrounding green areas is diverted to two impounding reservoirs. One of the reservoirs is designed to balance the flows during the coincident high runoffs and incoming tides, and the other reservoir is used to collect the runoff. The water is used primarily for non-

potable functions such fire-fighting drills and toilet flushing. Such collected and treated water accounts for 28% to 33% of the total water used, resulting in savings of approximately S\$ 390,000 per annum.

In Tokyo, Japan, rainwater harvesting and utilization is likewise being promoted to mitigate water shortages, control floods, and secure water for emergencies. The article cites the Ryogoku Kokugikan Sumo-wrestling Arena. Built in 1985 in Sumida City, it is a well-known facility that utilizes rainwater on a large scale. The 8,400 square meter rooftop of this arena is the catchment surface of the rainwater, which is drained into an underground storage tank and used for toilet flushing and air conditioning.

In the same article, the use of the same technology for purposes of irrigation and agri-business was likewise cited.

It mentioned that rainwater harvesting has become an important option for Gansu Province, China to supply drinking water, develop rain-fed agriculture and improve the ecosystem in dry areas. Seventeen provinces in China have since adopted the rainwater utilization technique, building 5.6 million tanks with a total capacity of 1.8 billion cubic meters, supplying drinking water for approximately 15 million people and supplemental irrigation for 1.2 million hectares of land.

In 1989, in our very own Capiz Province, with the assistance of the Canadian International Development Research Centre, has undertaken a project for rainwater harvesting technology. About 500 rainwater storage tanks were constructed made of wire-framed ferro-cement. The rainwater harvested was for the use of pigpens.

The said project was implemented as part of an income generating initiative. Loans were provided to fund the capital cost of the tanks and related agricultural operations. The loans were paid from the sales proceeds of maturing pigs. The project was cited as an "innovative mechanism for financing rural water supplies [which] can help avoid the requirement for water resources development subsidies".

Lastly, rainwater harvesting technology is likewise a means of adaptation to climate change. As it is widely known, the advent of climate change, whether brought about by natural variability in weather patterns, or as a result of human environmental degradation, has resulted to the formation of extreme weather conditions. Two such extreme conditions are what are referred to as the La Nina and El Nino phenomena. While the former results to flooding and inundation, the latter produces severe drought.

Lately, the occurrence of these two weather patterns has been very frequent. There is now a growing and urgent need for community adaptation and preparation for these calamitous events. And recently, most people have referred to a very old, simple and practical system. This is the rainwater harvesting technology.

With this technology, rainwater is harvested, which is rather voluminous during La Nina times, and utilized, most especially during the dry El Nino season. With it, the utilization of excess water during the rainy season for future needs is optimized. Environmental benefits such as flood control, soil conservation and groundwater recharge are reaped.

In view of the foregoing, the immediate passage of the bill is earnestly sought.



ARTHUR C. YAP
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AN ACT
PROMOTING RAINWATER HARVESTING AND SMALL-SCALE
IRRIGATION TECHNOLOGIES AND PRACTICES IN THE
PHILIPPINES, APPROPRIATING FUNDS THEREFOR, AND FOR
OTHER PURPOSES

Be it enacted by the Senate and House of Representatives of the Philippines in Congress assembled.

1 **SECTION 1. *Short Title.*** - This Act shall be known as the “Rainwater
2 Harvesting and Small-Scale Irrigation Act of 2013”.

3 **SECTION 2. *Declaration of Policy.*** - It is hereby declared the policy of the
4 State to promote and support the technologies and practices in the establishment of
5 rainwater harvesting and small-scale irrigation systems and structures in the country.
6 These would include, but not limited to, small water impounding projects, shallow tube
7 wells, small diversion dams and small farm reservoirs to optimize the utilization of
8 excess water during the rainy season for future needs, provide environmental benefits
9 such as flood control, soil conservation and groundwater recharge, reduce dependence on
10 water supplied by commercial service providers and serve as a good measure to adapt to
11 the adverse effects of climate change. Moreover, in cases of drought, cloud seeding
12 operations would be carried out to mitigate further damage to crops and other sources of
13 livelihood in affected areas.

14 Recognizing the increasing frequency of El Niño, drought, and other extreme
15 climatic events associated with climate change that resulted to billions of pesos worth of

1 agricultural production losses, and water shortage affecting household and industrial
2 users, the State shall enjoin the participation of various stakeholders such as local
3 communities, national and local government units, private sector and civil society
4 organizations to collect and utilize rainwater as a crucial strategy to contribute to
5 sustainable development and environmental protection.

6 **Section 3. Definition of Terms.** - For purposes of this Act, the following terms
7 shall be defined as follows.

8 a. **Adaptation**- adjustment in natural or human systems in response to actual or
9 expected climatic stimuli or their effects, which moderates harm or exploits beneficial
10 opportunities.

11 b. **Climate change** - a change in climate that can be identified by changes in the
12 mean and/or variability of its properties and that persists for an extended period typically
13 decades or longer, whether due to natural variability or as a result of human activity.

14 c. **Cloud seeding** – a technology that dispense chemicals in the clouds to hasten
15 the coalescence/collision of cloud particles and undertaken with the use of an aircraft
16 equipped with special chemical dispensing facility or other similar technology.

17 d. **Drought**- The naturally occurring phenomenon that exists when precipitation
18 has been significantly below normal recorded levels, causing serious hydrological
19 imbalances that adversely affect land resource production systems.

20 e. **El Niño**- a large scale oceanographic/meteorological phenomenon, manifested
21 through a local warming of surface waters in the entire equatorial zone of the central and
22 eastern Pacific Ocean.

23 f. **Pump irrigation System from Open Sources (PISOS)** - a pump used to lift
24 water from river, stream or marsh to the main canal for the distribution of service area.

25 g. **Rainwater harvesting system** - composed of three subsystems: collection,
26 storage and distribution which aim to store water in containers above or below ground
27 and for groundwater recharge.

1 h. **Small Diversion Dam (SDD)** – a concrete or rock fill structure constructed
2 across a channel or river with continuous flow to raise the water level allows diversion of
3 water by gravity from the source to the point of use.

4 i. **Shallow Tube Well** – is a tube or pipe vertically set into the ground, usually at
5 depths of between twenty (20) to sixty (60) feet, for the purpose of suction lifting of
6 water from shallow aquifers. It consists of one or more fully developed shallow tube well
7 equipped with appropriate pumping units that can serve a contiguous area owned by an
8 individual.

9 j. **Small Water Impounding Projects (SWIPs)** - a structure constructed across a
10 narrow diversion or valley to hold back water and develop a reservoir that will store
11 rainfall and runoff during the rainy season for immediate or future use.

12 k. **Small Farm Reservoir (SFR)** – a small water impounding dam structure to
13 collect rainfall and run-off designed for use in a single farm and typically has an area of
14 about three hundred (300) to two thousand square meters (2,000 sq. m.), with an
15 embankment height above ground level of less than four meters (4.0m). It can easily be
16 constructed manual digging or through a bulldozer. Irrigation is done with the use of a
17 PVC siphon pipes or pumps.

18 **Section 4. National Rainwater Harvesting and Small-Scale Irrigation Program.**

19 - The Department of Environment and Natural Resources (DENR) and the Department
20 of Agriculture (DA) - Bureau of Soils and Water Management (BSWM) shall, in
21 consultation with relevant stakeholders, formulate and implement a comprehensive
22 national rainwater harvesting program for research, development and extension of
23 appropriate technologies on rainwater harvesting and small-scale irrigation structures,
24 capacity building of farmers and city and local government engineers on community-
25 based and cost-efficient rainwater harvesting and small-scale irrigation systems and
26 structures, formulate incentives for local stakeholders and monitor and evaluate this
27 program.

28 One of the major features of this program is for a rainwater-sensitive design for
29 the roof of all buildings. All medium to large scale commercial and industrial

establishments such as but not limited to shopping malls, supermarkets, and hotels, shall have rainwater storage facilities commensurate with the size of roof area. Residential areas, which exceed an area of 300 square meters, shall create rainwater harvesting facility and compulsorily adopt good rainwater harvesting practices. In rural areas, all barangays shall construct rainwater harvesting facilities. To optimize productivity in upland areas of the country, small-scale irrigation projects shall be carried out.

In cases of disaster occurrences such as severe drought caused by El Niño phenomenon wherein construction of rainwater harvesting and small-scale irrigation structures could no longer serve their purpose, cloud seeding operations would be done in selected areas to prevent further crops losses and damage to livelihood and income.

Section 5. Implementing Mechanism. - The DENR and the DA-BSWM shall serve as the technical and administrative secretariat of the program and undertake research, development and extension on appropriate and cost-efficient systems for collection, storage and utilization of rainwater. Moreover, the DENR and the DA-BSWM shall spearhead the construction of rainwater harvesting structures as well as complementary small-scale irrigation technologies (SSITs) such as SWIPs, SDDs, SFRs, STWs and PISOS in rural areas of the country. In upland areas where structures would be established, agro-forestry development and soil conservation management initiatives shall be carried out. As a mitigation period during drought, the DENR shall also take the lead in cloud seeding operations.

On the other hand, the following government agencies shall be the following duties and responsibilities:

- a) The DA-Agricultural Training Institute (ATI) shall spearhead the Farmer Water School (FWS) to train farmers on water resources management and adjustment of cropping calendar based on available water;
- b) The Department of Interior and Local Government (DILG), in close coordination with municipal and city government planners and engineers, shall be responsible for inspection and monitoring of on-going and completed

1 construction of rainwater harvesting systems by urban dwellers and
2 businesses;

3 c) The Department of Agrarian Reform (DAR) shall construct rainwater
4 harvesting facilities and appropriate SSITs in all its Agrarian Reform
5 Communities (ARCs); and

6 d) The Philippine Information Agency (PIA) shall conduct intensive
7 Information, Education and Communication Campaign (IEC), in coordination
8 with CSOs and local communities, on collecting and storing rainwater for
9 non-potable uses including domestic usage for flushing of toilets, general
10 cleaning, washing of clothes, urban agriculture, landscape irrigation and
11 supplement water source for industrial, commercial, institutional and
12 agricultural purposes.

13 **Section 6. Incentives.** - A rebate of ten percent (10%) on property tax shall be
14 offered as an incentive for implementing rainwater harvesting systems.

15 **Section 7. Implementing Rules and Regulations.** - The DENR and the DA-
16 BSWM, together with the Department of Agrarian Reform and Department of Interior
17 and Local Government, in consultation with duly recognized organization of farmers,
18 agricultural machinery dealers and manufacturers, and agricultural engineers, shall
19 promulgate and implements rules and regulations within ninety (90) days following the
20 approval of this Act.

21 **Section 8. Appropriations.** - The sum of One Billion Pesos (P 1,000,000,000.00)
22 shall be appropriated for the initial implementation of this Act which shall be
23 incorporated in the Annual Budget of the DENR and the DA-BSWM, and thereafter the
24 amount necessary to carry out the program implementation shall be incorporated in the
25 General Appropriations Act.

26 **Section 9. Separability Clause.** - If any provision of this Act, or any parts
27 thereof, is declared unconstitutional, the same shall not affect the validity and effectivity
28 of the other portions.

29 **Section 10. Repealing Clause.** - All laws, executive orders, presidential decrees,

1 proclamations, rules, regulations, issuances and enactments of parts thereof inconsistent
2 with this Act are hereby repealed or modified accordingly.

3 **Sec. 11. Effectivity.** - This Act shall take effect fifteen (15) days from its
4 complete publication in the Official Gazette or in a newspaper of general circulation in
5 the Philippines, whichever comes earlier.

APPROVED.