

Integrated Micro-irrigation Policy 2017

Ministry of Agriculture

Government of The People's Republic of Bangladesh

CONTENTS

SERIAL NO	SUBJECT	PAGE NO
1	Introduction	3
2	Integrated Micro- irrigation	4
3	Objectives of Integrated Micro-irrigation Policy	4
4	Aims of Integrated Micro-irrigation Policy	4
5	Irrigation water management	5
5.1	Surface water irrigation management	5
5.2	Development of infrastructure for surface water use in irrigation	6
5.3	Groundwater Management	6
5.4	Rainwater Management	7
5.5	Probable programs for expanding irrigated areas by utilization of rainwater, surface water and groundwater	7
5.6	Irrigation Management in Haor areas	8
5.7	Irrigation Management in coastal areas	9
5.8	Irrigation management at hilly areas	10
5.9	Irrigation management in char regions	11
5.10	Irrigation Management in Barendra and other similar areas	12
5.11	Supplementary irrigation	13
5.12	Irrigation Management Control and Benefit distribution	13
5.13	Economic use of water	14
5.14	Formation of irrigation committee	15
5.14.1	Upazila Irrigation Committee	16
5.14.2	Functions of Upazila Irrigation Committees	17
5.14.3	District Irrigation Committee	18
5.14.4	Functions of District Irrigation Committees	19
5.15	Providing registration of irrigation machineries	19
5.16	Monitoring Standards of Irrigation Equipment	20
5.17	Expansion of technological support in irrigation work and reducing irrigation cost	21
5.18	Determining uniformity in irrigation charges	22
5.19	Research and Training	22
5.20	Evaluation and Monitoring of irrigation management	23
5.21	Integration of NGOs, government and private institutions in irrigation management	24
5.22	Modern Database	25
5.23	Participation of associates	26
6	Responsibilities and jurisdiction of the Ministry of Agriculture	26
7	Conclusion	27

Integrated Micro-Irrigation Policy 2017

1.0 Introduction

1.1 Bangladesh is primarily an agricultural-dependent country. The farmers in this country are mainly dependent on rainwater and traditional modes of irrigation for their agricultural work. A strategically planned irrigation management system is required to be obtained and implemented for the purpose of efficient use of irrigation water towards a consistent growth in crop production as well as agricultural produce. The Government has placed special importance in formulating a modern irrigation policy that is in tandem with the changes in climate, weather and rainfall and their subsequent differences over time. In order to achieve such an objective, micro-irrigation has been included in the 2013 farmer's policy. The initiative therefore has been taken to formulate a micro-irrigation policy that is integrated with the present policies related water and agriculture. The main objectives of the integrated micro-irrigation policies include-obtaining and implementing planned and integrated programs for the achievement of excellence in agricultural work, adoption of environment-friendly policies, ensuring the efficient use of water and reducing its misuse, reduction in cost of irrigation and achieving food self-sufficiency along with alleviation of poverty with increased agricultural production using high yielding variety of seeds and modernization of irrigation systems.

1.2 Keeping in mind about the limited water resources which are restricted by the dry weather monsoon and have different demands and uses, it is important to include within the integrated micro-irrigation policy, the different aspects related to the proper management of irrigation programs and highlight its necessity in terms of the overall management of water resources in the country. The Government has placed special importance in the matter of research and training for the growth and development of irrigation management, along with keeping in mind the necessary steps required for integrated water management in light of increasing nature of the population and the subsequent rise in its demand for various purposes. The integrated micro-irrigation policy has been aimed mainly towards-use of equipment like tube-well, electric pumps, floating pumps; irrigation infrastructure and water control structure; usage of long lasting and sustainable technology for irrigation management; rise in the quantity of surface and underground water along with

implementation of irrigation programs and expediting the production process, proper use of irrigation water and stoppage of its misuse, reducing the cost of irrigation etc.

2.0 Integrated Micro-Irrigation

The irrigation programs that are undertaken in limited areas for the purpose of -integration of irrigation programs, efficient use of water, prevention of water misuse , reduction of irrigation cost and participatory water management with the objectives of agricultural modernization, increasing production and achieving food security, will thus be known as integrated micro-irrigation. In the Integrated Micro-irrigation Policy, the canals, wetlands, rivers and streams, Haor, Baors, waterbodies like Baropit, rainwater, mountainous springs, surface and groundwater shall be treated as sources for water in micro-irrigation.

3.0 Objectives of Integrated Micro-Irrigation Policy

Ensuring food security and poverty alleviation by increasing crop production through reduction of irrigation cost by way of modernizing and enhancing the efficiency of irrigation programmes.

4.0 Aims of Integrated Micro Irrigation Policy

The following are the aims of the Integrated Micro-irrigation Policy:

- a) Increasing the efficacy and productivity of irrigation techniques by economic use of the existing water resources.
- b) Development of surface and groundwater resources for ensuring the availability of water in irrigation activities.
- c) Extending suitable and sustainable technology for ensuring efficient use of water in irrigation.
- d) Dissuading the installation of deep tube-wells in order to prevent decrease in the groundwater level.
- e) Encouraging participation of youth, women, poor and backward people in local communities in irrigation activities.
- f) Encouraging irrigation management through groups and cooperatives at both private and government levels in order to increase productivity of irrigation water.

g) Formulation of region-specific (saline coastal, drought-prone, Barendra, char, Haor etc.) and crop-friendly irrigation management systems

h) Ensuring balanced use of groundwater and surface water.

i) Use of sprinkler irrigation method, drip irrigation method, dug wells, irrigation regulator pipes and other water-saving methods to increase the efficiency of irrigation.

k) Encouraging use of renewable energy in irrigation work.

5.0 Irrigation water management

5.1 Surface water irrigation management

Use of surface water for irrigation purposes is an important aspect of the Government's agricultural policy. Surface water is very useful for irrigation. Irrigation can be provided in far more areas in Bangladesh by using surface water reserves in rivers, streams, canals, lakes, Haors and Baors. In order to achieve this objective, the government has recommended adoption of appropriate programmes for extension well-coordinated use of suitable technology by prioritizing usage of surface water in irrigation works in the National Agricultural Policy. Moreover, the government will take the following steps so as to preserve and extensive use of surface water:

a) Preservation, renovation and excavation of small rivers, Haors, Baors, lakes, canals, silted ponds etc. to increase water-holding capacity of the water bodies and construction of adequate infrastructure for increasing availability of irrigation water. Moreover, implementation of various programs like fish cultivation in the waterbodies and tree plantation on their banks for maintaining ecological balance.

b) Installation of powerful pumps for proper use of water in flowing rivers and construction of infrastructure to extend irrigation facilities to far-away lands through surface and underground irrigation channels.

c) Taking steps for construction of underground irrigational channels, apart from surface channels to prevent wastage of land and water.

d) Area-wise adoption of specifically designed irrigation programs by measuring the availability of surface water in such areas for the development of irrigation management.

e) Increasing preservation and use of rainwater.

5.2 Development of infrastructure for surface water use in irrigation

The government will undertake the following measures through infrastructural development of irrigation with the view to increase availability of surface water for using in irrigation:

a) Planned re-excavation of tanks, canals, lakes, Haors, Baors and all other kinds of waterbodies; construction of dams and irrigation infrastructure; encouraging practice of pisciculture and breeding in suitable places and construction of infrastructure for control and discharge of excess water keeping in view of preserving environment and bio-diversity and maintaining balance in the ecosystem.

b) Using pumps for extracting water and distributing the same for irrigation;

c) Repairing and maintenance of all kinds of irrigation equipment and infrastructure; and

d) Development of polder-wise infrastructure in a planned manner and creation of new waterbodies to ensure availability of water needed for irrigation for increase in crop production.

5.3 Groundwater Management

By following the Groundwater Management Ordinance 1987, the Groundwater Management Rules were promulgated in 1985. Although the rules clearly specified the conditions of distance to be maintained separating two tube wells, the same was put on hold in 1992. This has caused widespread and unplanned installation of tube wells for irrigation and has subsequently led to reduction in tube well command area and critical downfall of the groundwater level. These circumstances are responsible for the malfunctioning of dug wells, hand pumps, shallow tube wells and in some cases deep tube wells in different areas of the country. As a result, the cost of irrigation in crop production has been increasing, along with mounting social tensions and disturbing ecological balance. To counter these adverse impacts, the government policy would be as follows:

a) Locating tube-well boring sites in a manner that would facilitate the distribution of irrigation water at least in two directions;

b) Placing more importance on the use of surface-water substituting groundwater irrigation.

- c) Establishing recharge wells to prevent the continuous decline of groundwater level and replenishing the same.
- d) Pursuing the latest Notification, issued by the Ministry of Agriculture, regarding maintaining minimum distance between two tube-wells during installation.
- e) Gradual modernization of water distribution system in the irrigation schemes, thereby creating an efficient water management system.

5.4 Rainwater Management

Like every other nation in the world, Bangladesh too has been witnessing changes in the pattern and amount of rainfall due to changing climatic conditions. This has sometimes led to either excessive or shortage of rainfall, both adversely affecting crop production. A planned and appropriate rainwater management system will not only ensure crop protection against the ill-effects of climatic changes, but also play an important role in increasing crop cultivation. The government policy for planned rainwater management would be as follows:

- a) Taking steps for re-excavation and dredging of rivers, canals, wetlands, haors, lakes and silted ponds with the objective to creating necessary waterbodies for preserving rainwater.
- b) Constructing necessary infrastructures to preserve excess water available during the rainy season for utilization of the same during dry seasons.
- c) Undertaking programs to facilitate group-based and family-based rainwater harvesting and utilization system.

5.5 Probable programs for expanding irrigated areas by utilization of rainwater, surface water and groundwater

- a) Undertaking surface-water preservation programmes by re-excavating canals, big tanks, haors, baors and mountain springs along with the adoption of separate programs for rainwater harvesting;
- b) Taking steps for the construction of submerged wire, rubber dam, hydraulic elevated dam and embankments for rainwater preservation for the purpose of using the same for irrigation in dry seasons.

c) Water used in cooling of power plants and sugar mills are discharged into the river through drainage canals. Suitable programs will be undertaken for expansion of irrigation by using the safe water discharged from cooling systems of such industrial plants.

d) Updating of Groundwater Zoning Maps at an interval of every 3-5 years by investigating the groundwater reserves keeping in view of the demand for water in future and accordingly planning the installation of irrigation equipment as per availability of water and by preserving environmental balance.

e) To keep the balance in groundwater in areas where withdrawal of groundwater is more than natural recharge, steps will be taken in such areas to reduce groundwater mining and recharge the same so that in no case groundwater extraction surpass the safe limit of groundwater reserve.

f) Taking steps to increase irrigation areas by integrating the programs of various organizations, engaged in extracting groundwater, at the national level.

g) Undertaking measures for proper use of irrigation equipment and infrastructure as per their capacity, increase the number of irrigation machineries, construction of irrigation infrastructure and improve water distribution mechanism, thereby increasing the irrigation areas along with facilitating participation of the beneficiaries in the development of irrigation infrastructure.

h) Encouraging the expansion of irrigation areas through rainwater harvesting.

i) Using Alternate Wetting and Drying (AWD) method and other similar technologies for saving irrigation water and reducing the cost of crop production.

j) Encouraging everyone to undertake individual or cooperative or group-based excavation and re-excavation of canals, ponds and streams to create water sources and increase preservation and reducing wastage of water.

5.6 Irrigation Management in Haor areas

In comparison to other areas, the cultivation and irrigation management in Haor areas are different and requires a separate set of programs to be implemented. In Haor areas, growing Boro crops and crops of other varieties are often submerged in water and destroyed by early

floods. The government has undertaken the following policy for developing irrigation management with the objective to ensure proper cultivation in Haor regions by protecting Boro crop from early floods and regulating excess water-

- a) Cleaning of canals and streams and constructing reservoirs for increasing opportunity to use surface water in irrigation, pisciculture and boat movement and domestic purposes.
- b) Protecting Boro and other types of crops from early floods through construction of embankments and other irrigation infrastructure.
- c) Constructing submersible dams along with regulators and other control structures to extract the excess water.
- d) Adoption and implementation of programs specifically suitable for Haor regions.
- e) Encouraging in providing of irrigation benefits through renewable energy resources like solar energy, wind energy and biogas.

5.7 Irrigation Management in coastal areas

Coastal areas are not particularly suitable for irrigation and are different from other areas in terms of irrigation and farming techniques. Increasing soil salinity acts is the principal impediment to farming and cultivation in coastal areas. The salinity in both surface and groundwater sources is a major problem in coastal zone. However, more than hundred polders, constructed in the last four decades, along with tidal waves play an important role in the irrigation management of coastal areas. The government policies for expansion of micro-irrigation in coastal areas are as follows: --

- a) Putting more emphasis on use of surface water for irrigation and preventing use of groundwater in case of availability of alternative water sources.
- b) Encouraging the collection and preservation of rainwater for irrigation.
- c) Creating suitable irrigation facilities by cleaning canals, streams, ponds and wetlands.
- d) Using the existing more than hundred polder management system to ensure preservation and use of sweet water for irrigation.

- e) Expanding irrigation areas by using tidal waves by means of Gravitational Flow Irrigation and creating small scale water preservation structures, if needed.
- f) Adopting programs for increasing crop cultivation by preserving sweet water through construction of irrigation infrastructure.
- g) Taking steps to cultivate cash crop and salt-tolerant crop varieties that require minimum irrigation.
- h) Set up appropriate irrigation and drainage system for tidal rivers under the jurisdiction of Tidal River Management (TRM) by involving the local people. Proper utilization of the experience and expertise of local people and experts as well as research-based results in the management of such systems;
- i) Adopting Integrated Micro-Irrigation Development Projects for ensuring use of surface water by identifying areas suitable for irrigation;
- j) Reducing waterlogging by clearing canals and streams and making fallow lands cultivable by creating surface water structures;
- k) Constructing necessary infrastructure for preventing entry of saline water, thereby increasing cultivation through irrigation;
- l) Encouraging in providing irrigation facilities through renewable energy resources like solar energy, wind energy and biogas.

5.8 Irrigation Management in Hilly areas

Some of the perennial springs (waterfalls) in hilly areas are being used for irrigation purposes. Through preserving water by constructing irrigation infrastructure in such springs, wide-spread irrigation activities can be undertaken on hill slopes and hill valleys. The government policies for providing irrigation facilities in hilly areas are as follows: --

- a) Renovating flowing hill springs and gradually constructing control structures (*jhiri* dams, rubber dams, hydraulic elevated dam, submerged wire and other irrigation infrastructure) for creating water reservoirs to be used for irrigation, pisciculture and domestic work.

- b) Lifting of water from reservoirs using electrical pumps in hill valleys, providing irrigation facilities in the form of hose pipes, drip and sprinkler irrigation and mulching for cultivation of fruits and vegetables and providing the farmers necessary help in this regard.
- c) Adopting projects for lifting of river water in hilly areas for irrigation.
- d) Supplying the farmers in hill regions small electrical pumps either by subsidies or through nominal rents for using lake water in irrigation.
- e) Adopting programs for construction of rubber dams, hydraulic elevated dams and other control structures to preserve ecological balance, after evaluating its probable detrimental effects during ebbs and tides.
- f) Encouraging the use of indigenous knowledge of local people in hilly areas and the indigenous ways of water conservation.
- g) Encouraging in providing irrigation facilities through renewable energy resources like solar energy, wind energy and biogas.

5.9 Irrigation Management in Char areas

About 10% of the farmlands in Bangladesh fall under the internal char areas, where, despite available water, cultivation takes place in traditional methods due to absence of irrigation equipment and infrastructure for exact and appropriate use. Ensuring irrigation facilities in such areas would lead to increase in production through crop intensification, which in turn would play a special role in achieving food security for the growing population. The government has formulated the following policy for the char areas:

- a) Providing irrigation facilities through power-driven tube-wells, shallow tube-wells and force-mode pumps for producing more crops.
- b) Providing irrigation benefits through irrigation equipment and conservation of water by excavating/re-excavating canals and ducts, tanks and water bodies.
- c) Protecting crops from early floods by constructing crop protection dams and other small infrastructures.

d) Adopting initiatives for expanding irrigation in char areas using drip and sprinkler irrigation, ribbon pipes and other suitable technologies.

e) Using indigenous knowledge of local population for conserving water in indigenous ways and providing irrigation facilities; and

f) Encouraging in providing of irrigation facilities by using renewable energy resources, like solar energy, wind energy and biogas.

5.10 Irrigation Management in Barendra and other similar areas

For developing irrigation management in geologically recognized Barendra areas and areas having similar natural characteristics, the government policies are as follows: --

a) Identifying, re-excavating and clearing all probable water structures, like silted tanks, canals, ducts and lakes etc. for increasing storage of surface water and expansion of irrigation areas;

b) Safe lifting and use of groundwater for irrigation in areas having low availability of surface water.

c) While installing irrigation equipment, strict adherence to the Groundwater Management Policy as laid down in paragraph 5.3;

d) Expansion of irrigation by double lifting of surface water;

e) Using dug wells for storing rainwater and using the same for irrigation;

f) Preventing wastage of irrigation water using suitable methods like drip and sprinkler irrigation and maintaining soil moisture by using mulching process;

g) Constructing rubber dams, hydraulic elevated dams, submerged weirs and other similar control structures and increasing availability of surface water through proper use of river water.

h) Encouraging in providing irrigation facilities by using renewable energy resources like solar energy, wind energy and biogas.

i) Encouraging the cultivation of water-saving crops.

5.11 Supplementary irrigation

Because of climate change, crop production is often hampered during the kharif-1 and kharif-2 seasons in Bangladesh due to absence of rainfall. Providing supplementary irrigation during this time is essential. The Government has formulated the following policy in this regard-

- a) Arranging supplementary irrigation in drought-affected areas.
- b) Strengthening early warning mechanisms regarding drought and rainfall and providing early information to farmers in order to take precautionary measures.

5.12 Irrigation Management Control and Benefit distribution

For proper use of surface and groundwater, decreasing irrigation cost, safe lifting of groundwater, using irrigation equipment as per their capacities, crop-specific demand-based supply of water, bringing a more areas under irrigation, increasing cultivation of high yielding variety of crops, diversification of crops, increasing efficiency of irrigation and expanding irrigation, the government policy with the view to strengthen irrigation management is as follows: --

- a) Determining season-specific demand of electricity for irrigation equipment.
- b) Giving priority in case of electrical connections to irrigation equipment and ensuring uninterrupted supply of electricity to irrigation equipment to meet irrigation requirements.
- c) Providing support in constructing of irrigation infrastructure on priority basis in areas, where irrigation water is not easily available.
- d) Taking steps to provide irrigation facilities in agricultural lands under Flood Control, Drainage and Irrigation (FCDI) Project(s), as required by Bangladesh Agricultural Development Corporation/Barendra Multi-purpose Development Authority (in its jurisdiction), through discussion with the Upazila Irrigation Committee;
- e) Cultivable lands are turning into non-cultivable lands due to water logging from construction of irrigation infrastructure. Programs for draining water out of such lands for crop production and irrigation development are to be adopted.
- f) In areas located in the plains and mountain foothills, irrigation facilities are distributed through Gravity Flow in most cases where rubber dams are constructed/installed by various

organizations. In such projects, although farmers located upstream are getting irrigation benefits, those located downstream are being deprived of the same. Thus, from the point of view of technology, a Section by Section development initiative is to be taken for such projects where irrigation benefits are to be provided through submerged weir/submerged rubber dam;

g) Creating a National Standards Regulation Authority for regulating irrigation equipment standards. The works of the National Standards Regulation Authority will be to examine the qualities of engines, motors and pumps and recommend irrigation machineries/pumps for marketing;

h) Adopting technological benefits to increase productivity of water and decrease irrigation cost;

i) Collecting irrigation charges at government fixed rates from the beneficiary farmers for the sake of proper irrigation management;

j) Taking steps for constructing irrigation infrastructures, including irrigation channels, and preventing any kind of obstruction on the water flow for better distribution of irrigation water.

k) Considering the provision of subsidizing electric bills of electricity-driven irrigation equipment owned by small farmers.

l) Pursuing the Groundwater Irrigation Policy strictly and adopting necessary measures to install recharge wells for preventing the decline of groundwater level.

5.13 Economic Use of Water

Water is a valuable and extremely important natural resource. Even though Bangladesh has plenty of water during the monsoon, it faces crisis of both surface and ground water during irrigation in dry season. Boro paddy is the main crops cultivated during dry season. Cultivation of one kilogram of Boro paddy requires around three thousand liters (3 cubic meter) of water. Going by this calculation, every year only Boro cultivation requires 55 billion cubic meters of water to be lifted from the underground aquifers, the economic cost of which is very high. Therefore, economic implication of lifting water becomes extremely significant. For this, economic use of water for crop cultivation is important. Considering the economic

importance of water, the government policy in water management for crop production is as follows: --

- a) Increasing cultivation of such crops that requires comparatively amount of water;
- b) To prevent wastage of water, encouraging the use of all kinds of pumps, other than solar pumps, for irrigation at night to and dissuading the use of the same in the morning to ensure less evaporation of water;
- c) Increasing the use of underground water channels, concrete channels and ribbon pipes for distribution of irrigation water;
- d) Developing levee management for increasing recharge of groundwater.
- e) Expanding the use of water-saving technologies (AWD, SENIPA etc.);
- f) Expanding irrigation program using modern and suitable technologies, including drip and sprinkler irrigation.
- g) Using pumps which operate on renewable energy.

5.14 Formation of Irrigation Committees

The Integrated Micro-Irrigation Policy will be followed in case of decision-making by the concerned stakeholders regarding local-level policies, adopting programs, preparing plans, investment and management in project implementation for the sake of agricultural development by expanding irrigation. This policy will provide in detail the structure of activities for the participation of the stakeholders and therefore all complications regarding the policy in real life application will be resolved through its application. The formation of District and Upazila Irrigation Committees is being proposed for approving installation of irrigation machineries considering location and distance of the same, providing licenses for irrigation machineries, resolving irrigation-related conflicts at the Upazila level, approving micro-irrigation projects, giving necessary advise to the farmers on aspects of micro-irrigation and providing training facilities at District and Upazila levels.

5.14.1 Upazila Irrigation Committee

The Upazila Irrigation Committee shall be constituted with the following office-bearers -

1. Upazila Parishad Chairman- Advisor
2. Upazila Executive Officer – Chairman
3. Upazila Agriculture Officer- Member
4. Upazila Fishery Officer – Member
5. Upazila Livestock Officer- Member
6. Upazila Engineer, LGED- Member
7. Representative of Water Development Board – Member
8. Upazila Palli Development Officer-Member
9. Representative of PDB/REB - Member
10. Representative of Public Health Engineering Department- Member
11. Assistant Engineer, BMDA (if applicable) - Member
12. Representative of Environment and Forest Ministry (if applicable) – Member
13. Upazila Cooperative Officer- Member
14. Officer in Charge of Police Station – Member
15. Farmers’ representative-1 person (Nominated by the Upazila Executive Officer) – Member
16. Assistant Engineer, BADC/BMDA- Member-Secretary

Note-

1) In all Upazilas of the country (except Rajshahi, Naogan and Chapainababganj districts) BADC assistant engineer or his representative shall fulfill the duties of member-secretary of the upazila committee.

2) For all upazilas under Rajshahi, Naogan and Chapainababganj districts, BMDA assistant engineer or his representative shall fulfill the duties of member-secretary of the upazila committee.

3) The committee can co-opt not more than two other members if required.

5.14.2 Functions of Upazila Irrigation Committee

- a) Approving irrigation equipment installation and irrigation channel construction schemes;
- b) Determining the locations of installation of irrigation equipment according to the required distance of separation;
- c) Arrangements to issue and renew licenses for all types of irrigation equipment by approval of Upazila Irrigation Committee through BADC;
- d) Recommending selection of type of irrigation equipment as per the availability of groundwater;
- e) Integrating inter-departmental irrigation programs by avoiding duality and encroachment in implementing Upazila Irrigation Program;
- f) Providing necessary suggestions/recommendations for irrigation area expansion and proper use of irrigation water through installation of irrigation equipment at proper places;
- g) Collection and supply of necessary information as per the directions/suggestions of District Irrigation Committee;
- h) Collection and preservation of necessary statistical information related to irrigation;
- i) Properly following and implementation of the government approved Integrated Micro-Irrigation Policy along with other related policies;
- j) Resolving problems related to construction of irrigation infrastructure for distribution of irrigation water by Upazila Irrigation Committee and suggesting legal action if required.
- k) Forwarding with suggestion any problem, not resolved by the Upazila Irrigation Committee, to the District Irrigation Committee;

l) Taking adequate action against the owner of an irrigation equipment in case of installation of tube-wells without the permission of the Upazila Irrigation Committee.

5.14.3 District Irrigation Committee

The District Irrigation Committee shall be constituted with the following office-bearers –

1. District Administrator- Chairman
2. Superintendent of Police- Member
3. Deputy Director, DAE- Member
4. District Fisheries Officer- Member
5. District Livestock Officer- Member
6. Executive Engineer, LGED- Member
7. Deputy Director, BRDB- Member
8. Executive Engineer, Water Development Board- Engineer
9. Executive Engineer, PDB- Member
10. Executive Engineer, REB/ Managing Director, POBIS- Member
11. Representative of the Public Health Engineering Department- Member
12. Representative of Environment and Forest Ministry (if applicable) – Member
13. Executive Engineer, BMDA (if applicable) – Member
14. District Cooperative Officer- Member
15. Farmers' Representative-1 person (Nominated by the District Administrator) – Member
16. Executive Engineer, BADC/BMDA- Member-Secretary

Note

- 1) In all districts of the country (except Rajshahi, Naogan and Chapainababganj districts), BADC assistant engineer or his representative shall fulfill the duties of member-secretary of the upazila committee.
- 2) For all districts of Rajshahi, Naogan and Chapainababganj, BMDA executive engineer or his representative shall fulfill the duties of member-secretary of the district committee.
- 3) The committee can co-opt not more than two other members on a requirement-basis.

5.14.4 Functions of the District Irrigation Committee

- a) Resolving such irrigation-related problems that cannot be solved by the Upazila Irrigation Committee;
- b) Imparting necessary advices to the Government in irrigation related matters;
- c) Apprise the Government of irrigation-related data and information of the district;
- d) Providing opinions on approving irrigation programs of various departments; and
- e) Taking effective role in implementing Irrigation Development Policy at different times.

5.15 Providing registration of irrigation machineries

Presently, due to the absence of any regulatory framework for installation and registration of irrigation machineries, farmers tend to install such equipment in an arbitrary manner. This leads to improper use of irrigation machineries, nonconforming with their lifting capacity, resulting in unnecessary pressure on the groundwater table and causing unavailability of water in deep and shallow tube wells during irrigation seasons. It also leads to social friction among individuals while using water. The unavailability of exact data regarding irrigation machineries has often leads to difficulties in matters of government aid for irrigation and in formulating irrigation related policies and programs. Thus, for the purpose of proper use of irrigation machineries, ensuring availability of water, estimating data of irrigation machineries and proper use of irrigation water, the following process shall be followed for registration of irrigation equipment after collection of fees as per rates fixed by the Government in accordance with rules 4 to 14 of the Groundwater Management Regulation of 1987: --

- a) The member-secretary of the Upazila Irrigation Committee will provide registration of irrigation equipment to the managers/owners of the irrigation equipment as per their applications, basing on recommendation made by the Upazila Irrigation Committee, in accordance with the prevailing laws and renew registration every year after receiving specific fees (which is amendable);
- b) Ensuring delivery of government aid directly to the farmers on the basis of registration;
- c) Taking legal action against the owner of any irrigation equipment, which is installed/supplied/planted without registration, by the member-secretary on the approval of the Upazila Irrigation Committee.

5.16 Monitoring Standards of Irrigation Equipment

Before the privatization of irrigation equipment, the monitoring of the standards of irrigation equipment was done by a National Standard Monitoring Committee, which used to regulate the standards of imported pumps, motors and domestic and foreign made pumps. The committee was constituted with the representatives from Bangladesh Engineering University, Bangladesh Agricultural University, Bangladesh Agricultural Development Corporation, Bangladesh Seed Research Institute, Bangladesh Standardization and Testing Institute and Agriculture Extension Department. The committee used to examine the imported as well as indigenously made irrigation equipment, agricultural instrument and sprayer machines and recommend the use of standardized equipment. However, due to the objective of encouraging privatization of irrigation machineries, the functioning of the committee was suspended.

Since privatization of irrigation equipment, no data is available on the kinds of machineries being imported and used by farmers. The engines that are being imported are malfunctioning after a point of time since they are not up to the standards. This automatically increases the cost of irrigation. Under such circumstances, the committee for monitoring standards of irrigation machineries should be reinstated. The committee shall monitor the maximum lifting of water with the use of appropriate pumps as per engine capacity and shall make recommendations about marketing of irrigation equipment, by analyzing qualities of engines and pumps. The task is to reorganize the previous committee to make National Standard

Monitoring Committee functioning and hand over the committee necessary responsibility to monitor standards.

5.17 Expansion of technological support in irrigation work and reducing irrigation cost

The government has formulated the following policy for providing support in irrigation work to reduce irrigation cost-

- a) Gradual electrification of all irrigation equipment and adopting the use of renewable energy resources like biogas, wind energy and solar energy.
- b) Continuing locally suitable irrigation mechanism along with modern irrigation management.
- c) Making diesel and electricity easily available for reducing irrigation cost and providing subsidies on fuel ingredients for agricultural production.
- d) Introducing smartcard prepaid meters for all kinds of electrical irrigation machineries for ensuring the collection of irrigation charges and judicious use of irrigation water.
- e) Use of concrete irrigation channels, buried pipe, ribbon pipes and smartcard based prepaid meter;
- f) Adopting irrigation programs arranged by the government for areas deprived of irrigation facilities and providing required assistance to farmers;
- g) Using AWD technology for reducing production cost and saving irrigation water;
- h) Providing support for more crop production through conservation of water and expansion of irrigation by constructing infrastructure like rubber dam, elevated dam, cross dam, submerged wire etc.
- i) Reducing water logging through proper drainage of water in waterlogged areas;
- j) Arranging the expansion of irrigation area according to capacity of irrigation instruments;
- k) Preparing efficient irrigation management at the field level;
- l) Providing training to farmers for proper use and prevention of wastage of irrigation water;

- m) Providing support in construction of infrastructure for micro and macro irrigation programs and arranging supply of irrigation equipment at nominal rents or subsidized rates;
- n) Ensuring proper and efficient use of irrigation water by following a region-specific cropping pattern; and
- o) Arranging training facilities for irrigation related officers and technical staff in order to increase their efficiency.

5.18 Determining uniformity in irrigation charges

The following policy has been formulated for determining uniformity in irrigation charges-

- a) An integrated and realistic irrigation charge will be determined by the Upazila Irrigation Committee for all kinds of irrigation equipment including deep/shallow tube-wells/energy-operated pumps. Irrigation charges will be determined in all cases by considering the type of irrigation equipment, discharge capacity, fuel use, labor wages, construction and repairing of irrigation canal, nature of soil and weather.
- b) In case of irrigation machineries operated by cooperatives formed to implement projects initiated by various government organizations and departments, irrigation charges shall be determined realistically and on basis of the policies of the corresponding departments/organizations.
- c) For irrigation machineries operated basing on private organizations/scheme/individual ownership, the Upazila Irrigation Committee will determine irrigation charges by including capital expenditure, instruments costs, operating expenditure, cost of manpower, maintenance and other related expenditures including profit.

5.19 Research and Training

The government has formulated the following policy for strengthening the management of research and training programs-

- a) Considering the level of surface water and ground water, recharge and future expansion of irrigation, introduction of eco-friendly Water Balanced Study through suitable models for determining the demand for water in agriculture and other sectors.

- b) Formulating an Irrigation Management Zoning Plan step by step for the whole country, considering the available quantity of surface and groundwater, the geological and geographical characteristics and future demand for water in various sectors.
- c) Innovating and expanding water management technology basing on cropping pattern.
- d) Strengthening research for seasonal assessment of salinity content in the surface and groundwater in coastal areas and, based on research findings, adopting necessary programs and selecting crops.
- e) Conducting trainings for officers and technical workers related to irrigation for preventing wastage of irrigation water, development of irrigation area and crop-specific judicious use of water.
- f) Developing through research such varieties of crops that require lesser irrigation for a good yield and are economically profitable and recommending such crops for designated areas.
- g) Producing low cost motors and pumps to lift water by indigenous irrigation methods and strengthening research regarding the use of alternative fuels.
- h) Creating a model for availability, use and management of irrigation water with the view to formulate irrigation projects in future to encourage the conjunctive use of surface and groundwater and strengthening research towards fulfilling such an objective.
- i) Developing region-specific irrigation management and emphasizing research.

5.20 Evaluation and Monitoring of irrigation management

The government has formulated the following policy for evaluation and monitoring of irrigation management: --

- a) Providing necessary instructions for developing irrigation management by way of collecting and analyzing information and data related to irrigation;
- b) Regular monitoring of the effects of fluctuations of groundwater level on irrigation and providing advices to the farmers accordingly;
- c) Taking steps to inform the farmers on a regular basis about the area-specific suitability of water for irrigation through data analysis of irrigation water collected from various areas;

d) Creating a reliable database of statistical information on irrigation machineries, irrigation areas and beneficiary farmers by field survey and adopting expansion programs on based on this database; and

e) Monitoring area-specific availability of irrigation water and examining its features to give directions regarding its usage.

5.21 Integrating activities of NGOs, government and private organizations in irrigation management

It is not possible for government and private organizations, investment establishments, NGOs and cooperatives to unilaterally resolve the overall crisis in irrigation management or fully develop its potentials. The irrigation management in agricultural sector is very critical in Bangladesh that, as a developing nation, has very limited resources. Hence, the government has formulated the following policies to increase the activities of Government and private organizations, farmers, various NGOs and cooperatives for the overall development of irrigation: --

a) Providing opportunity for participation of private organizations, NGOs and cooperatives in any kind of activities for developing irrigation management in agriculture. However, no program contrary to the Integrated Micro-Irrigation Policy can be adopted;

b) Organizing the activities of organization engaged in the micro-irrigation programs to bring them under the ambit of monitoring and accomplishing integration from the national to ground levels;

c) Encouraging the farmers in irrigation related activities by adopting micro-irrigation programmes to eradicate poverty, and including generation of social awareness, emphasis on self-reliance, environmental awareness etc.

d) Providing necessary support to all stakeholders in conducting training, project management and maintenance activities for proper management of finished irrigation projects in future.

5.22 Modern Database

Successful implementation of development programs is largely dependent on availability of reliable data and information. The government has formulated the following policy for creating a reliable database within the ambit of the Integrated Micro-Irrigation Policy: --

- a) Collecting reliable data and information by conducting joint survey of irrigation activities every year under the supervision of BADC and other similar organizations at the Upazila level and subsequently preserving the same in data bank;
- b) Collecting, compiling and preserving of all information and data by the BADC and other similar organizations at the district level through own designed systems. For this purpose, arranging digitization of related departments at the ground-level and taking steps to create an efficient workforce;
- c) Providing national reports along with creating database/databank based on data and information collected at District and Upazila levels;
- d) Arranging publication of survey reports, based on the information and data collected through the BADC and other similar organizations. Compiling irrigation-related data of all departments/organizations associated with irrigation activities in such reports;
- e) Taking help from and sharing information with the Water Development Board, Water Resources Planning Organization and other similar organizations for creating a database on irrigation;
- f) Arranging mutual information exchanges among and coordination of all NGOs, government and private organizations engaged in irrigation;
- g) Regular collection and publication of information regarding the actual status of stable groundwater level through Groundwater Zoning Map;
- h) Taking steps to develop own GIS-based websites of all organizations related to irrigation by preserving irrigation-related data, and to link the irrigation-related database and websites compatible with the National Water Resources Database (NWRD) existing under Water Resources Planning Organization (WARPO);

i) Arranging training facilities by Bangladesh Statistical Bureau for irrigation-related organizations to acquire modern knowledge regarding collection and preservation of data and information.

5.23 Participation of associates

The government policies for ensuring active and effective participation of associates at all levels of decision-making under irrigation management are as follows: --

a) Distribution of directives manual, prepared for the public participation in irrigation management expansion and water drainage projects, to all organizations associated with water resource management as a part of the planning;

b) Preparing instructions for the formation of water-user groups/farmer's group and similar community-based organizations and distributing the same to the beneficiaries.

c) Creating all possible avenues for the direct inclusion of landless groups in participatory management for accelerating proper use of water resources in irrigation management and taking steps accordingly.

d) Ensuring greater participation of women in irrigation management.

f) Ensuring the participation of beneficiaries/farmers in any new program proposed by a social group or local organization.

6.0 Responsibility and jurisdiction of the Ministry of Agriculture

The Ministry of Agriculture has the following responsibilities for the implementation of this policy: --

a) Framing policies in all matters regarding planning, management and inter-sector integration of micro-irrigation activities according to the need of development, management and expansion of irrigation required in the country;

b) Formulating policy and plans for micro-irrigation management and investment and providing instructions to the irrigation management organizations at the local and area level for implementing the same;

c) Notifying and suggesting to the government, as and when necessary, on various issues related to irrigation management;

d) Taking the responsibility of implementing activities through various organizations, under its jurisdiction, as per the budget of the Ministry of Agriculture.

7.0 Conclusion

The formulation and adequate implementation of the Integrated Micro-Irrigation Policy will help in increasing crop production by modernizing the irrigation system and turning the sector increasingly dynamic. To bring about a positive change in the agricultural condition of the country, the 'Integrated Micro-Irrigation Policy' shall play an important role for factors like modern irrigation management, avoidance of duality in large scale irrigation activities, proper use and prevention of wastage of irrigation water, reducing irrigation cost, etc. With the increasing challenges posed by global warming and climate change across the world, agricultural modernization and propose usage and management of water has become all the more important to tackle these challenges. In this regard the 'Integrated Micro-Irrigation Policy' shall help in making irrigation management more dynamic.

This policy shall act as a directional guide for micro-irrigation management. The prevailing policies of the government for agriculture, irrigation and water like- the development of irrigation water sources, maintenance of irrigation equipment and infrastructure, all kinds of programs associated with irrigation and their respective ministries, organizations and departments along with private users and individual agricultural workers, shall work in an integrated manner with this policy and follow its directions.