Overview of the Ethiopian Rainwater Harvesting Association (ERHA)

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Background

The global concern

Water is a finite and limited resource upon which human well-being and socio-economic development depend. Given its limited availability and importance, efficient and effective use of water resources is necessary for sustainable economic and social development. Access to water of adequate quality and quantity is a fundamental human need and recognised as a basic human right.

Water and water development are irretrievably connected with land use management, rural and urban settlements, and agricultural and industrial development. This calls for the necessity to integrate water management with these sectors in ways which are to the best interests of a nation and its people. Such integrated water management are, in turn, most readily achieved by recognising the need for efficient management at the lowest appropriate level, and that water development decisions are best made in acknowledgement of the real value of the water (UNDP 1990; DANIDA 1991; ICWE 1992).

Freshwater resources have been dwindling over the years, both in terms of quality and quantity, while the demand for high quality water has been steadily increasing. Studies carried out on a global basis indicate that only a small percentage of the available water is of good enough quality for human use. As an element of social and industrial development, water use has increased dramatically in importance. Thus, not only do we have increased water use due to an increase in population size but there is also an increased importance of water as a key determinant of development. In the past fifty years, the world's population has doubled, as did the per capita water consumption rate from about 400 m^3/year to about 800 m^3/year (Engelman and Le Roy 1993).

The countries of Africa, however, have been experiencing an ever-growing pressure on their available water resources, with increasing demand and costs for agricultural, domestic and industrial consumption. Of the 19 countries around the world currently classified as water-stressed, more are in Africa than in any other continent. In the African context, natural occurrences of hazards such as drought, desertification, and climate change and the influences of human activities like agriculture, population growth, industrial development, and land use changes are considered to constitute the major causes of the continuing deterioration of freshwater resources. These pressures have caused both environmental

deterioration (including pollution of freshwater systems) and overexploitation of important water catchments, resulting in lowered groundwater levels.

Falkenmark et al. (1990) have proposed a water scarcity index based on an approximate minimum level of water required per capita to maintain an adequate quality of life in a moderately developed country. One hundred litres per person per day is considered the minimum for basic household needs to maintain good health in this index. The experience of moderately developed and water efficient countries shows that roughly 5 to 20 times this amount is needed to satisfy the requirements of agriculture, industry and energy production. On the basis of these premises, a country whose renewable freshwater resource availability on an annual per capita basis exceeds 1700 m^3 will suffer only occasional or local water shortages. When freshwater availability falls below 1000 m^3/person per year, countries are likely to experience a chronic water scarcity in which lack of water begins to hamper economic development and human health and well-being. When renewable water supplies fall below 500 m^3/person per year, countries will be likely to experience absolute scarcity. Using Falkenmark's definition, the situation in African countries with regard to water scarcity shows that six African countries were already in a position of water scarcity or water stress in 1990. This will increase to 16 by 2025. Of 20 African countries that have faced food emergencies in recent years, half are either stressed by water shortages or are projected to fall into the stress category by 2025 (Engelman and Le Roy 1993).

Water stress has several repercussions. Socially, human health is at risk, and water-related conflicts are imminent. Economically, the cost of production and delivery of a unit quantity of water has escalated, thus diverting investments from other productive areas. Environmentally, sustainability of the ecological systems is threatened by overexploitation or pollution. Some water-related problems are local, but others are regional. Most of the water systems in Africa that are able to endure marked seasonality in climate are international, while local water sources are generally prone to drought. Because nearly two-thirds of the continent is arid to semi-arid, poverty and insufficient agricultural production put pressure on freshwater management almost across the continent. A large proportion of Africa's population is affected by water shortages for domestic use.

Currently, responses to water stress risks range from traditional coping strategies practised by individual families to global initiatives of networking, discussion forums, research and training. International organisations have played a major part in catalysing development in the water-resource sector, creating awareness and focusing sharply on the problems and challenges in the sector by contributing funds; providing technical assistance and training; and facilitating research, networking, and information dissemination. In Africa, enhanced awareness of the problems, challenges, and opportunities in the sector have been accomplished to some extent through international conferences, from which workshop proceedings, protocols and binding statements have been produced to guide efforts of mitigating water scarcity.

According to UNEP-IETC (1998), some of the key water resource management issues on which contemporary research and development endeavours to address the prevailing problems have been focused are:

- identifying models for alternative technical and management systems to address the need for integrating the various socio-economic activities with sustainable water use

- promoting different adaptation options at grassroots level including water-harvesting technologies and more efficient water use systems
- establishing and strengthening local, regional and global alliances among individual professionals and practitioners, interest groups and civil societies through networking and information exchange on issues that address water scarcity
- identifying and revitalising indigenous technologies and practices of traditional communities to augment their water supplies and agricultural production
- advocating and facilitating a decentralised and inter-sectoral approach to water resources management at the appropriate lower levels in line with local interests and by mobilising local resources and
- facilitating people's attitudinal and behavioural changes towards creating a greater opportunity to ensure sustainable development of resources, increase awareness, involvement and responsibility among users.

Status of water resource potentials and constraints in Ethiopia—Should we bother?

The natural resource bases of Ethiopia seem to have a potential for supporting a far greater number of the population. Ethiopia's geographic location and its natural endowment of favourable climate have provided it with a relatively higher rainfall in the region. The country's annual surface runoff is estimated at about 122 billion m^3 forming 12 major river basins, much of which are, however, carried away across the borders by trans-boundary rivers. By virtue of its mountainous topography and higher altitudes relative to the surrounding areas, Ethiopia is usually referred to as the 'water tower' of North and Eastern Africa. Only a little part of its ground water potential, estimated at 2.9 billion m^3, is exploited. Ethiopia also has an irrigation potential of about 3.5 million hectares, while its hydropower potential stands second in Africa. All these imply the availability of adequate level of water resource base which, with optimum development, is capable of providing well beyond the food, water supply, energy and export requirements of Ethiopia.

Nevertheless, the use of these water resources to meet the socio-economic needs of the Ethiopian people is very limited due to various constraints. The major limitation lies in the uneven distributions and mismatch of the available water resources with the agro-ecological and settlement patterns of the country. Moreover, despite Ethiopia's high aggregate annual rainfall, it falls either too early or too late with a characteristic high intra- and inter-annual variation in quantity and in terms of the spatial and temporal distributions of the seasonal rainfall.

Annual rainfall in the country ranges between 2700 mms in the south-western highlands and less than 200 mms in some parts of the northern and south-eastern lowlands with a further decrease to 100 mm in the north-eastern lowlands. The southern, central, eastern and southern highlands of the country have a bi-modal rainfall pattern while the south-western and eastern areas are characterised by a mono-modal rainfall. Ethiopia has five major agro-climatic zones, which are broadly defined on the basis of altitude ranges, viz.

Bereha, Kolla, Weyna-dega, Dega and *Wurch*. Because of the favourable climate and absence of many tropical diseases, the highlands of Ethiopia are favoured for settlement. The Ethiopian highlands (areas above 1500 metres above sea level) harbour about 88% of the human and 65% of the livestock population.

As the population density in the highland areas continued to increase more and more marginal lands were put under cultivation which eventually resulted in the severe degradation of the agro-ecological resource base and declining agricultural production. Consequently, population expansion increased towards the extensive lowland (arid and semi-arid) areas. Unfortunately, these areas are usually constrained by, among other things, shortage of rainfall for optimum agricultural production. This calls for the use of suitable technologies for improved and sustainable agricultural production (MOA 2001). Available information indicates that nearly 70% of the total arable land in Ethiopia receives an annual rainfall of less than 750 mm. The areas with an annual rainfall of 500–750 mm are believed to support optimum levels of agricultural activities, if the annual rainfall distribution is undisturbed and proper land management is applied. As of late, however, the annual rainfall distribution of most parts of Ethiopia, including the highlands, is not only lacking in uniformity but also highly unpredictable in terms of inter-annual variations. Therefore, overcoming the limitations of these arid and semi-arid areas and making good use of the vast agricultural potential under the Ethiopian context is a necessity rather than a choice, which requires appropriate intervention to address the prevailing constraints.

Research findings and practices in many other countries and traditional farming practices suggest possibilities for making good use of areas with an annual rainfall as low as 200 mm. This is achieved through the application of different technologies that can improve the efficiency of moisture use which, if used at the right setting, can improve situations. These include, among other things, improved water control and rainwater harvesting. For the risk-prone areas such as those affected by recurrent drought, the main opportunities for improving water use include small-scale irrigation, rainwater harvesting and, above all, better use of available moisture in the rainfed farming systems on which the bulk of farmers continue to depend.

Rainwater harvesting, in a broad sense, is the collection of the raindrops/runoff for domestic consumption and/or food production purposes, which will otherwise cause soil erosion. It could also be described as an act of maximising the use of the available rainfall by applying different techniques. In fact, rainwater harvesting practices and their recognition as alternative options to supplement other water sources is not new in Ethiopia.

The history of rainwater harvesting practices in Ethiopia dates back as early as 560 BC, during the Axumite Kingdom. In those days, rainwater was harvested and stored in ponds for agriculture and water supply purposes, which are evidenced with documented literature and visual observations on the remains of ponds that were once used for irrigation during that period. Even these days, there are several traditional rainwater-harvesting technologies in Ethiopia, which have been used by communities in areas of water shortage. For many traditional communities in rural areas where natural sources of water are lacking, collection of rainwater from pits on rock outcrops and excavated ponds are common practices. In many semi-arid lowland areas of Ethiopia, where rainfall is not adequate for crop growth, farmers use runoff irrigation as a source of life-saving irrigation supplies.

The promotion and application of rainwater-harvesting techniques as alternative interventions to address water scarcity in Ethiopia was started through government-initiated soil and water conservation programmes. It was started as a response to the 1971–74 drought with the introduction of food-for-work (FFW) programmes, which were intended to generate employment opportunities to the people affected by the drought. The earlier rainwater harvesting activities included, among others, construction of ponds, micro-dams, bunds, and terraces in most drought-affected areas in Tigray, Wello and Hararghe regions (Kebede 1995). Non-governmental organisations (NGOs) involved in Integrated Rural Development Projects (IRDPs) and the water sector in many parts of the country also undertake rainwater-harvesting interventions. These interventions include conservation of rainwater by making use of physical structures and rainwater harvesting for domestic and irrigation purposes through pond and micro-dam construction and roof catchment schemes.

Despite the enormous potential of its natural resource bases and the development efforts being made by the various actors in the country, Ethiopia's chronic food shortages and drought-induced famines have continued to be common phenomena during the past few decades (Asmare 1998). In the last two decades in particular, Ethiopia has been a regular recipient of food aid from international aid sources. One of the latest estimates shows that about 52% of the country's population are food insecure, facing chronic and recurring disaster-induced food shortages (Dagnew 2000). According to the estimation made in 1995/96, on the whole, 45.5% of the Ethiopian population are living in absolute poverty, with a relative coverage of 47 and 33% of the rural and urban populations, respectively, (FDRE 2000). Since about 85% of the country's population dwell in the rural areas, poverty is primarily a rural phenomenon. In Ethiopia, an average of only 25% of the population is supplied with potable water which is only 19% in rural areas; while the sanitation is in much worse condition where 92% of the population do not have access to adequate sanitation facilities (NGOs on PRSP 2002).

For Ethiopia, much of whose river waters are carried away across the borders by trans-boundary rivers, the issue of augmenting the available water resources to meet the socio-economic needs of its people becomes a necessity and timely in light of two major reasons. Firstly, attainment of food security through enhancing the productivity of the agriculture sector, with a primary emphasis on building the productive capacity of the smallholder farmers, has been an overriding objective of the Government's Poverty Reduction and Food Security Strategies (FDRE 2000, 2002). In line with this, the Ministry of Agriculture (MOA) has been making some efforts towards the development and promotion of rainwater-harvesting technologies as part of its extension programme. Secondly, based on the current trend of population growth, by the year 2025, Ethiopia will have nearly 120 million people and the per capita water availability will drop to about 947 m^3/person per year (Falkenmark et al. 1990; UNEP/IETC 1998). This situation, according to Falkenmark's (1990) definition of water scarcity, will make Ethiopia among the eight African countries facing water scarcity by 2025 (UNEP/IETC 1998).

The above facts strongly support the need to focus on development and promotion of rainwater-harvesting technologies as one of the alternatives to enhance water availability for different uses including domestic water supply, sanitation and food production.

The need for intervention

Currently, Ethiopia's population is facing serious challenges of resource depletion and the need to survive under stress. Ethiopia has to strive to improve its health and sanitation by improving the existing low level of clean water supply coverage, whilst its natural water resources have been either deteriorated beyond repair or subjected to extreme pressure due to the ever-increasing population. Ethiopia has to feed itself by enhancing its agricultural production, yet its predominantly rainfed agriculture has been constrained by the unpredictable variability of the rainfall pattern. Obviously, this situation brings about the need to maximise the use of existing or unexploited sources of freshwater. There are many modern and traditional alternative technologies for improving the utility and augmenting the supply of water being employed in various countries, but with limited application elsewhere due to lack of information transfer among water resources managers, planners and end-users.

Given the good potential of Ethiopia's agroclimatic resources, the prevailing limitations in terms of rainfall distribution and amount could be effectively addressed if rainwater harvesting is seriously taken. Applications of rainwater-harvesting techniques, however, are constrained by the limited availability of information on the technologies and relevant traditional practices, lack of resources to conduct local specific research on the performance of available techniques and inadequate attention to avail and promote suitable extension packages to the end users. In Ethiopia, only little has emerged from research that is suitable for marginal and drought-prone areas, as few resources have been devoted to this topic, perhaps reflecting the ill perceived profitability of such investments (Ephraim 2001).

For effective and efficient use of rainwater harvesting to address domestic supply and food production, all concerned should give timely and adequate attention. Among other things, such responses include:

- facilitation of wider public involvement in dialogues and discussion forums to address the water scarcity issue which will eventually inculcate a mass transformation demonstrated through conscious actions of efficient and effective water use habits of community members
- focusing research and training initiatives as a basis for knowledge building on the different aspects of rainwater-harvesting technologies at all levels
- emphasising on information availability, accessibility and dissemination to strengthen the awareness and skills of professionals, practitioners and end-users
- integration of water resource management to the different sectoral initiatives as a cross-cutting issue and
- facilitation of an enabling environment for collaborative initiatives and partnership with the different development actors and interest groups.

The Ethiopian Rainwater Harvesting Association (ERHA)

Increased global concern about the ever-dwindling availability of freshwater resources has recognised, among other things, the need for improved management of this most precious of commodities and identification and promotion of freshwater augmentation technologies. To mitigate the threat from water scarcity, there have been extensive efforts and attention given towards rainwater-harvesting technologies because of its potential as a viable option to address the problem. Accordingly, rainwater harvesting for both domestic and food production purposes has been increasingly picking up as an alternative source of water in sub-Saharan Africa where past efforts to get water at closer locations to the needy people have been largely unsuccessful.

In connection with this, a number of associations, forums, networks and partnerships have been evolved at global, regional and country levels for the sole objective of advancing the rainwater-harvesting alternative. As of late, rainwater-harvesting associations have emerged in most southern and eastern African countries to spearhead rainwater-harvesting activities in their respective countries. The Ethiopian Rainwater Harvesting Association (ERHA) is one of such organisations established by concerned Ethiopians as an expression of their genuine interest to take part in the efforts to tackle the ever-worsening threats of water scarcity.

Establishment of ERHA

The beginning of establishing rainwater-harvesting associations in many countries of the southern and eastern Africa traces back to the efforts of the Regional Land Management Unit (RELMA) of SIDA. RELMA's different activities aimed at improved food security included rainwater harvesting as one of the opportunities to enhance food security in the region. By the emergence of the Kenyan Rainwater Association (KRA), being the first of its kind in the region, RELMA began to encourage and support expansion of the same trend in the other countries through organising experience sharing workshops, study tours and networking. A number of training workshops were conducted on issues of rainwater harvesting including those held in Arusha (Tanzania), Machakos (Kenya), Mbarara (Uganda) and Nazareth (Ethiopia). Some Ethiopian participants who had the chance to attend the Arusha workshop had helped in organising a similar workshop at Nazareth in Ethiopia.

ERHA was founded on 17 December 1999 in Addis Ababa. The founding members of ERHA, totalling about 60 in number, consisted of individuals with diverse professional backgrounds including water and related fields of engineering, agriculture, health, education, environment and other fields of natural and social sciences. Members are also employees of educational and research institutions, governmental organisations, NGOs industrial organisations and private engineering/consultancy firms. The Secretariat Office began its operation with a single staff member in a temporary office obtained from Water

Action, a local NGO working on water development, sanitation and environmental activities.

ERHA is a non-governmental, non-political and non-profit-oriented national organisation consisting of individuals with genuine interest in promotion of rainwater-harvesting technologies to address shortage of water for domestic supply and food production.

ERHA's overall objective is to contribute towards enhanced and sustainable food security status in Ethiopia through promoting feasible rainwater-harvesting technologies for sustainable development and conservation of natural resources.

References

Asmare Y. 1998. *Economic evaluation of improved production practices to small farmers in Ethiopia using micro-economic theories and models: The case with bread wheat production*. MSc thesis. Wageningen Agricultural University, Wageningen, The Netherlands.

DANIDA (Danish International Development Agency). 1991. *Copenhagen report: Implementation mechanisms for integrated water resources development and management*. DANIDA, Copenhagen. Denmark. 60 pp.

Dagnew Eshete. 2000. The role and contributions of NGOs in food security in Ethiopia. In: *Proceedings of the panel discussion on the role and contributions of NGOs in rural development in Ethiopia*. Organised by Agri-Service Ethiopia (ASE) on the occasion of ASE's 30th anniversary, 26th of February 2000. ASE, Addis Ababa, Ethiopia.

Engelman R. and Le Roy P. 1993. *Sustaining water. Population and the future of renewable water supplies*. Population Action International, Washington, DC, USA. 56 pp.

Ephraim A.B. 2001. Overview of rainwater harvesting for crop production in Ethiopia. In: Wanyonyi J., Ngigi S., Mwangi P. and Onyango D. (eds), *Workshop proceedings: GHARP strategic planning and project implementation planning workshops*. GHARP Publication 1. GHARP (Greater Horn of Africa Rainwater Partnership), Nairobi, Kenya.

Falkenmark M., Lundqvist J. and Widstand C. 1990. *Water scarcity–An ultimate constraint in third world development*. Linkoping University, Stockholm, Sweden.

FDRE (Federal Democratic Republic of Ethiopia). 2000. Ethiopia: Interim Poverty Reduction Strategy Paper (PRSP) 2000/01–2002/03. FDRE, Addis Ababa, Ethiopia.

FDRE (Federal Democratic Republic of Ethiopia). 2002. Food Security Strategy. FDRE, Addis Ababa, Ethiopia.

ICWE (International Conference on Water and the Environment). 1992. *International conference on water and the environment: Development issues for the 21st century*. World Meteorological Organization, Geneva, Switzerland. 55 pp.

Kebede Tato. 1995. Experience in soil and water conservation in Ethiopia. Paper presented at Agri-Service Ethiopia's Annual Technical Meeting, Wondo-Genet, Ethiopia.

MOA (Ministry of Agriculture). 2001. The second five-year action plan of soil and water conservation activities. Forest and Wildlife, Soil and Land use Technologies Regulatory Department, MOA, Addis Ababa, Ethiopia.

NGOs on PRSP. 2002. Shaping Ethiopia's future in the 21st century: Non-governmental organisation's perspective on PRSP (Poverty Reduction Strategy Paper) for Ethiopia, Addis Ababa, Ethiopia.

UNDP (United Nations Development Programme). 1990. *Global consultation on safe water and sanitation for the 1990s*. The New Delhi Statement. United Nations, New York, USA. 7 pp.

UNEP/IETC (United Nations Environment Programme/International Environmental Technology Centre). 1998a. *Sourcebook of alternative technologies for freshwater augmentation in Africa*. UNEP, Nairobi, Kenya. 182 pp.

Appendix I

Ethiopian Rainwater Harvesting Association (ERHA)

Background

The problem:

- Increased global concern about the ever-dwindling availability of freshwater resources

The need:

- Improved management of water resources
- Identification and promotion of freshwater augmentation technologies
- Attention towards the potential held in rainwater harvesting technologies as a viable option to address the problem

Actions needed:

Evolvement of collective efforts for existing associations, forums, networks and partnerships at global, regional and country levels for the sole objective of advancing the rainwater-harvesting alternative.

Establishment, governance and statuary functions

ERHA was founded on 17 December 1999 and registered as a national association with the FDRE's Ministry of Justice on 5 December 2001. ERHA's Secretariat Office was established and put to function as of 1 July 2002.

Status

The Ethiopian Rainwater Harvesting Association (ERHA) is a non-governmental, non-political and non-profit-oriented national organisation consisting of individuals with genuine interest in rainwater harvesting activities at all levels.

Membership

- The founding members of ERHA, totalling about 60 in number, (comprised of individuals with diverse professional backgrounds and employed in educational and research institutions, government organisations, NGOs industrial organisations and private engineering/consultancy firms.
- Membership is open to all interested individuals who accept the Memorandum of Association of ERHA.

Governance

- ERHA is governed by its constitution that conforms to the legal requirements of national associations in Ethiopia.

Organisational structure

- The organisational structure of ERHA consists of the General Assembly, Executive Body and the Secretariat
- The General Assembly of all members is the supreme body of ERHA
- The Executive Body, consisting of eight members elected by the General Assembly for three years term of office, provides the overall leadership of the association as per the powers and duties vested in it by the General Assembly.
- The Secretariat, headed by an Executive Officer accountable to the Executive Body, carries out the day-to-day organisational functions to meet the objectives of the association.

Objective and functions of ERHA

Objective

ERHA's overall objective is to contribute towards enhanced and sustainable food security status in Ethiopia through promoting feasible rainwater-harvesting technologies for sustainable development and conservation of natural resources.

Functions

To realise its objectives, ERHA:

- facilitates/provides professional inputs needed to use rainwater harvesting for different uses
- studies and promotes different rainwater harvesting techniques and
- provides training, advisory and other technical support to governmental organisations, NGOs and end-users towards developing, adapting and disseminating rainwater-harvesting technologies.

Membership

- as per Article 4 of its Memorandum of Association, ERHA is a membership organisation comprising individual members who express a desire to co-operate and take part in the furtherance of its objectives and comply with its Constitution and Bye-laws.
- ERHA believes that its strengths and effectiveness emanates from a wider membership and diversity of backgrounds that are committed to serve the common cause it has been established for.
- new membership is open to all interested individuals who accept the Memorandum of Association of ERHA.
- membership fee for an individual member is Ethiopian Birr (ETB) 100 (about US$ 12) per annum.

Networking and partnership

- ERHA recognises the need and the mutual benefits gained from joining efforts with other organisations working towards similar objectives.
- ERHA has been actively involved in establishing networking and partnership with rainwater harvesting associations in other countries.
- currently, ERHA is a member of Southern and Eastern African Rainwater Network (SEARNet) and Greater Horn of Africa Rainwater Partnership (GHARP).
- ERHA will also continue to take the initiative towards joining existing/emerging networks and forums to strengthen its organisational capacity through mutual collaborations and exchange of information on rainwater harvesting issues.

Achievements

- established networking and partnership with rainwater harvesting associations (RWHAs) in other countries and actively involved in strengthening sub-regional initiatives towards the same
- conducted a case study on evaluation of rainwater harvesting systems in collaboration with GHARP
- completed registration process and secured legal recognition by the Ethiopian Government
- established the ERHA Secretariat Office and recruited an Executive Officer
- launched publicity activities on the establishment of its secretariat (through letters, e-mails, ... etc.)
- project development and fund raising
  - GHARP Project (Case Study and individual budget to support the Secretariat Office).
  - action plan for using its allocated budget of the first year (July 2002–June 2003) of the Programme on Networking for 'Green Water' Harvesting in Eastern and Southern Africa and South Asia
  - project proposal for Sponsored Programs Development (SPD)
- members' registration and support

Constraints and challenges

- limited availability of resources (human, material and finance) to sustain and support ERHA's Secretariat Office and effectively work towards realising its intended objectives
- limited access/linkage with funding agencies
- unfavourable socio-economic conditions (e.g. low income level, small land holding size, low level of access to services, ... etc.) limit the receptiveness of the potential targets/users of rainwater-harvesting technologies (i.e. farmers and urban poor)
- non-conducive policy environment (e.g. land tenure, lack of (inadequate) incentive for development of the private sector, limited governmental organisations–NGOs

collaborations, inconvenient governmental organisations regulations regarding NGO operations, ... etc.)
- underdeveloped status and low investment capacity of the Ethiopian private sector to play its part in the promotion of rainwater-harvesting technologies
- reluctance of existing funding partners to provide support for such basic needs as staff salary and office rent.

Opportunities

- increased global awareness (mainly international development organisations) of the need and the concern for enhanced management of water resources
- emerged associations, forums, networks and partnerships at global, regional and country levels and the prevailing collaborative spirit towards advancing rainwater-harvesting alternative
- latest developments in the governmental organisations and professionals in recognising rainwater harvesting as a viable option to address water shortage problems
- availability of indigenous rainwater-harvesting techniques and practices with promising potentials to address water shortage problems and
- interest of individual professionals and practitioners on issues of rainwater harvesting and to join ERHA.

Immediate plan

Strategic plan development

- developing organisational policies, guidelines and operational manuals
- developing training materials and organising training on rainwater-harvesting technologies for relevant governmental organisations and NGO staff, private companies/individuals (e.g. consultants, contractors, artisans, ... etc.)
- strengthening and expanding networking within and outside the country
- mobilising resource to implement the various intended activities (preparations of project proposals and fund raising)
- organising general assembly meeting of all ERHA members
- expanding membership into the regional states
- conducting studies on traditional rainwater-harvesting technologies in the country
- organising training on rainwater-harvesting technologies
- awareness raising and promotion activities (workshops, seminars, radio/TV programmes, newspapers, exhibitions, ... etc.)
- developing a resource centre for rainwater-harvesting technologies and provision of information services.