

**The inclusion of domestic roofwater harvesting (drwh)  
in a national water legislation framework**  
esp. looking at Botswana, Ethiopia, Kenya, Lesotho, Namibia, South Africa,  
Tanzania, Uganda and Zambia  
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The major objective of water law is to establish a framework for the protection and control of water resources in a country. A Water Law defines the legal entitlement to water and identifies the rights and obligations tied to water use and thus provides the prescriptive parameters for its development.

Until now, water laws don't deal with **domestic roofwater harvesting (drwh)** as the direct collection of roof runoff and storage for later use. So far, drwh is working outside the legal framework on project-level. Practitioners are often rather glad to not wake up sleeping dogs, instead of working on appropriate legislation, and follow a strategy to first create facts without too much government involvement.

This practice implies a lot of limits to drwh. While individual village-level drwh projects may succeed in the short term, their long terms sustainability may be severely tested in the absence of an appropriate institutional and legal framework at all levels. It is also unlikely that widespread replication of appropriate technologies and community-based implementation strategies will be achievable in the absence of supportive institutions at higher levels, even if isolated project success may be possible. Moreover, we will show that the organisation of the water sector has severe direct and indirect implications for the promotion of drwh and thus can't be ignored.

**WATER LEGISLATION AND ITS INDIRECT IMPACT ON DRWH**

Water legislation of 10 countries in Sub-Saharan Africa was reviewed, looking specifically at how it relates to domestic roofwater harvesting. The national water laws of *Botswana, Ethiopia, Kenya, Lesotho, Namibia, South Africa, Tanzania, Uganda, and Zambia* reveal that drwh is nowhere part of a national water management strategy. SA is the only country, where drwh is mentioned as a possible supply for private households. Thus, drwh plays no role in water legislation, but as we will see, the legislation has lots of indirect impacts on drwh.

- **the legal status of (rain-)water**

Except in SA, where everyone has a right to water supply, all water resources including rainwater are treated as a property.

	<b>Water Resources owned by</b>	<b>Controlled by</b>	<b>Quote national water law</b>
Botswana	Public	Government	<i>There shall be no right of property in public water (II.4)</i>
Ethiopia	People		<i>All water resources are the collective property of the Ethiopian people</i>

Kenya	Government	Minister	<i>The water of every body of water or upon any land is vested in the government. The control of every body of water shall be exercised by the minister in accordance with this Act. The right to the use of every body of water is hereby declared to be vested in the Ministry. (II.3, II.4)</i>
Lesotho	Nation	Minister	<i>The ownership of all water within Lesotho is vested in the Basotho Nation. The Power to control and regulate the use of water shall be exercised by the Minister. (5.1., 5.2.)</i>
South Africa	No property, but a public right	Government	<i>Everyone has a right to basic water supply and basic sanitation (Water Services Act 97, 3.1.) The national Government, acting through the Minister, has the power to regulate the use, flow and control of all water in the Republic. (3.3.) The Minister is ultimately responsible to ensure that water is allocated equitably and used beneficially in the public interest, while promoting environmental values (3.2., National Water Act 98).</i>
Uganda		Government	<i>All right to investigate, control, protect and manage water in Uganda for any use, is vested in the government and shall be exercised by the Minister and the Director in accordance with the provisions of the part of the schedule. (II.1.5)</i>

• **extra government-permits/ land ownership required**

No matter whether someone is supplied with public water or not, extra permits are required in some countries for the private installation of drwh-tanks on household-level. Public allocation of water resources dominates in these countries through the granting of permits on water use. The state holds water resources as an aspect of sovereignty and cannot alienate such ownership of the basic resource and concomitant responsibility. In some countries you also need to own the land, which probably makes drwh impossible in peri-urban areas

	<b>Permit/ Ownership required</b>	<i>Quote</i>
<b>Botswana</b>	No, if you own the land	<i>The owner or occupier of any land may, without a water right construct any works thereon for the conservation of public water, and abstract and use public water so conserved, for domestic purposes. (II,6,b)</i>
Ethiopia	<b>No</b>	<i>No person may construct waterworks or withdraw water from a water resource, either for its own use or for the supply to others (5.1./1998) No permit shall be required for domestic use (21.1)</i>
<b>Kenya</b>	Yes, for the waterworks, you have to own the land	<i>A permit is not required for the abstraction or use of water from any body of water for domestic purposes by any person having lawful access thereto, if such abstraction is made without the employment of works (VIII, 38.)</i>

<b>Lesotho</b>	Yes, for the waterworks , you have to own the land	<i>Any person having lawful access to water may abstract and use such water for domestic purposes (3.2.) Whenever a water use requires the construction of water works the water officer shall grant the water use permit subject to the construction of such waterworks within the specified time under specified conditions. (4.6)</i>
<b>Namibia</b>	(forbidden)	-
<b>South Africa</b>	<b>No</b>	<i>A person may, subject to this Act take water for a reasonable domestic use in that person's household, directly from any water resource to which that person has lawful access (c) store and use run-off water from a roof</i>
<b>Uganda</b>	Yes, for the waterworks , no matter if you own the land	<i>No person shall acquire or have a right to (a) use water, (b) construct or operate any works. (II.1.6) A person may while temporarily at any place, or being the occupier of or resident to any land, where there is a natural source of water, use that water for domestic use. (II.1.7,1) No person shall construct or operate any works unless authorised to do so under this Part of the Statute. A person wishing to construct any works or to take and use water may apply to the Director in the prescribed form for a permit to so.</i>

In Europe, **Germany** is leading the way in encouraging widespread utilisation of rainwater catchment systems both for domestic supply and other purposes. Interest in household rainwater catchment focuses mainly on non-potable uses such as garden watering, toilet flushing and use of washing machines (Gould, S. 219).

There is no comprehensive and/or systematic legislation across Germany. Rainwater harvesting in German legislation is hindered through a general obligation to connect to and use mains water supplied by the local service provider (based on local government regulations which originated from health precautions). Service providers can make it difficult to use rainwater on the basis of these regulations. Clients of the service providers have however a right to be granted a partial lifting of the obligation to be connected and use the mains water with arguments of appropriateness and economic reasoning (Koenig, S. 76/77).

Many court cases favour these arguments. There is also a DIN (German standard) being at approval stage at the moment (mid-2001) to standardise rainwater utilisation technically.

The city of **Bangalore, South India** will be the first city in the country to have a rainwater harvesting policy. With an average rainfall of 900 till 970 mm over 7 months, Bangalore is at an elevation of 900 MSL and water has to be pumped in from 400 MSL. Thus, the pumping costs are enormous and so are power charges. Water rates are the highest in the country.

Without back-up by any legal provisions, 500 to 600 houses have drwh systems in place now and the number is growing. The Rainwater Club, a local NGO, developed not only very innovative approaches like the rendering of roofs for rainwater harvesting, but handed in now a draft policy mapping all possible sources for

harvesting rainwater. Cities like Chennai and Hyderabad already have rainwater harvesting regulations incorporated in the city municipal bye-laws, but only for multi-storeyed buildings. The Bangalore approach proposes to incorporate this into bye-laws for all new constructions and has taken into consideration all land uses – residential, institutional and commercial. Some of the government buildings will be used for demonstration. ( For more information: [www.inika.com/rainwaterclub](http://www.inika.com/rainwaterclub) )

## WATER SECTOR ORGANISATION AND ITS DIRECT IMPACT ON DRWH

Each of the reviewed countries experienced a **water sector reform** during the 90s and thus, modernised the water law. The new laws reflect the global trend to decentralisation and commercialisation/privatisation of management, operation and maintenance of water services. The new laws will have an impact on the attitude (and the fact) that water is no longer supplied by the central government, but it will not necessarily get down to influence the traditional practice of multiple sourcing. There is a tendency that the newly established regulators will push for 100% metering and billing of water according to consumption without leaving customers the choice to select their water source (according to purpose or availability) and develop their own initiatives. The decentralised and privatised water sector doesn't solve the problem of access to water in rural areas.

- None of these reforms includes rwh as element of a multi sourcing-strategy. As legal schemes remain only pipelines, wells and tankers. One element of each reform is the push for 100% metering and billing without choice.
- Decentralisation took place only as far as Operation + Maintenance is concerned. The service functions became local while decision and regulatory functions - i.e. the power to implement a drwh-policy - remain central.
- Still communities are not allowed to develop their own drwh-policy.

In **Ethiopia**, the water sector was reorganised in 1992 with the establishment of federal regional water bureaus nominated by the Minister as one major renewal. The ownership as well as operation of maintenance of water services were thus decentralised on regional level, and the introduction and implementation of rwh-policies are legally up to the concerned regional bureaus since “no municipality or town shall engage in the planning and development of water supplies from any water resource or in the construction of water works without the permit issued by the implementing organ.” (22.1a) Hence, there still are no self-reliant community-water-politics in Ethiopia possible that would allow users to be supported (at least with a legal framework) in having multiple sources to have a secure household water supply.

In 1999 **Bolivia** privatised Cochambamba's water system under instruction from the World bank. The British-based company that took over increased water prices by up to 200 %. Even collecting rainwater in rooftop tanks became illegal without a special permit. The crippling price rise sparked mass protests, in which tens of thousands of people took to the streets. In the end the government took back control of the water supply and re-legalised rwh. ( For more information see [www.peopleandplanet.org/tradejustice/briefing.asp](http://www.peopleandplanet.org/tradejustice/briefing.asp) )

	<b>Water Sector Reform</b>	<b>Implementation of rwh-politics by</b>
<b>Ethiopia</b>	Reorganisation of the water sector in 1992 establishment of regional water bureaus, nominated by the Minister, which own and operate supply systems	the implementing organ is the ministry as regards transboundary rivers and water bodies that flow across more than one regional government a, and the concerned regional water bureau as regards regional water resources (Art.2 def.) No municipality or town shall engage in the planning and development of water supplies from any water resource or in the construction of water works without the permit issued by the implementing organ. (22.1a)
<b>Kenya</b>	Decentralisation currently in progress: The role of the government will be redefined with emphasis on the regulatory and enabling functions as opposed to direct service provision. The government will ensure private sector participation (psp) and community management of services backed by measures to strengthen local institutions and sustaining water and sanitation programmes. Development of an institutional capacity building policy for the entire water sector, Legislation will be reviewed and updated, Of major concern will be the legislation as regards transfer of water facilities from one institution to another.	Defined by the government Community participation in O+M: the Government will endeavour to hand over Urban Water Supplies and Sanitation facilities to autonomous departments within the Local Authorities and Rural Water Supplies to the communities.
<b>South Africa</b>	Before 1994 no national institution was responsible for ensuring equitable and sustainable access to water supply or sanitation services and no structured national legislation existed regulations the provision of these services. Now, the South African constitution guarantees everyone the right to access to sufficient water and states that one of the objectives of local government is to ensure the provision of services to communities in a sustainable manner. The act says that everyone has a right to basic water supply and places a duty on all water services institutions to take reasonable measures to realise this right.	Water services are a local government function, (ownership and O+M) The minister of water affairs and forestry sets national standards to ensure enough continuous, affordable, and equitable water services Schedule 4B identifies water and sanitation services limited to potable water supply systems and domestic waste water and sewerage disposal systems

	<b>Water Sector Reform</b>	<b>Implementation of rwh-politics by</b>
<b>Tanzania</b>	In 1999 the responsibility for O+M was being moved to local communities realized through water committees or water user associations (wuas). The policy requires that all villages with or without facilities should establish a water fund. For urban centres the government envisages facilitation of PSP Major parameters of national water policy are community participation, community-based management, cost sharing for rural, full cost recovery for urban, full ownership , involvement of the private sector	Water supply systems are owned by the central government, while O+M is run by local communities Communities are encouraged to organize themselves in managing their own water supplies in order to reduce the dependency on the government. The government is to promote the private sector and individuals to participate in the planning, construction, supply of materials and equipment as well as in the management of water supply schemes
<b>Uganda</b>	Decentralization program started in 1999. The 1999 national water policy's key directives are an integrated, sustainable management with full participation of all stakeholders based on management responsibility and ownership by all users within a decentralized. Water resources in rural areas belong to the users, while urban and sewerage systems remain with the central government	In contrast to the 1995 Water Statute all water sources in rural areas now belong to the users. For urban and sewerage systems, the system ownership remains entrusted to the Central Government.
<b>Zambia</b>	Since 1994 Local Councils are operating water schemes or in most of the cases now own the infrastructure by holding shares. PSP und inter-community cooperation is possible, local authorities may resolve to establish a utility (PPP, together with other communities, joint ventures with other local authority or several local authorities)	A local authority shall provide water supply and sanitation services to the area falling under its jurisdiction, except in any area where a person provides such services solely for that person's own benefit or a utility or a service provider is providing such services. (IV.10.1) A utility or service provider may construct any facility within or outside its area (24.1)Everyone can apply to be a service provider, a service provider may construct any facility within or outside its area.

## SUMMARY OF SURVEY RESULTS

A survey was conducted among water professionals and activists in all 10 countries. For the complete answers see Annex II.

- Small-scale traditional practices of drwh as a precondition for the technology's acceptance exist in nearly each of the reviewed countries.
- There is little tradition of community level initiatives taking up its own water affairs.
- Awareness creation is generally weak, activists are mainly non-governmental organisations and depend on donor-funds.
- Water professionals pay little attention to drwh.
- Training: there is often too little capacity in training or implementing drwh installations: in Uganda there were funds available but not enough expertise.
- Drwh has a project image, it seems to survive mostly in donor sponsored projects.
- The perception that the water sector organisation has an impact on the spread of drwh is very weak
- There is very little experience in legal matters; conscious battling through legal conflicts would depend on donor funds
- The potential of drwh is perceived as nearly unlimited both in urban and rural areas.

## EMAIL-CONFERENCE

A summary of contributions to the GARNET email conference on Policy and Professional Attitudes on rainwater harvesting, held between 10 and 24.11.2000 reveals that a comprehensive framework for legal and policy issues regarding drwh is still missing. Meanwhile there are lots of - often isolated - experiences in the regulation of drwh. Their benefits need to be highlighted now with regard to mainstreaming drwh in other countries and regions.

## CONCLUSIONS

There is still no professionalisation of drwh within the scope of national water management strategies. Drwh does not play a role here since it is simply not considered. Traditions in drwh remain informal and the best way of promoting drwh at the moment is still the neighbour's tank.

While water laws are surely not the key to promoting drwh, they can certainly hinder it. Although there is a growing demand for domestic roofwater harvesting on local level, the laws remain silent on this subject.

- **All water laws except the one in South Africa totally ignore rainwater harvesting.** Neither is it part of a national water management strategy, nor it is mentioned as a way in which unconnected and/or connected households could be provided/supplemented with water for their domestic use. In Namibia drwh even seems to be forbidden (according to our correspondence with Namwater, the countries bulk supplier).
- All water laws except in Ethiopia and South Africa treat **(rain-)water as a national property**, not as a major human need or even as a right.
- The private installation of "rainwater-works" (rainwater catchment systems) for domestic uses legally requires the **ownership of the land** plus an **extra permit** in those countries where rainwater (just like all other water resources) legally belong to the state: Kenya, Lesotho, Tanzania (and Ethiopia). Independent from the land-ownership a permit is required in Uganda. No permit is required in Ethiopia and South Africa.
- Major policy functions like the power to define **legal public water schemes** - as a major precondition for the inclusion of drwh in the national water supply strategy - remain vested in the central Ministry of Uganda and Tanzania and in regional authorities of Ethiopia. In South Africa public water services are limited to potable water.
- An **independent communal drwh-policy** would legally be possible only in Kenya.



## RECOMMENDATIONS

A structural change of the water sector and its process of decision-making is necessary in order to achieve long term effects. If drwh shall be more than a vague option for the left-offs in water supply, there's a need for both bottom-up and top-down approaches

- National governments should consider the role of drwh and its contribution to the overall supply.
- For the **mainstreaming of drwh**, projects and activities should concentrate more on **institution-building processes** to gain sustainability.
- A designated water services provider should not be granted the right of having to use "his water" only for all possible uses.
- More flexible approaches in water legislation. The idea of one water source for all uses was devised in water rich countries and doesn't make sense in many water scarce countries. It doesn't follow present practices. Water professionals need to take this into account.
- The principle of reasonable and equitable utilisation of water as a customary rule that governs the legitimacy of uses proved to be successful at international level. This principle can also be used at local level. The flexibility is its real strength, because the principle requires that all factors be considered in the assessment of a reasonable and equitable use when contesting for water and thus deterring the legitimacy of new or increased uses.
- In a time of increasing private sector participation (rain-)water is to be considered not as a property but as a basic human right. An example of best practice regarding the legal status of water is SA.
- Private drwh should be made possible without extra permits and
- Independent from land-ownership. Best practice here is the roof-rendering in Bangalore.
- On community-level there is a need for building a strong force to manage local resources through networking with NGOs, donors, banks and water user associations (wuas).
- Local empowerment-activities are important to push the government to allow an independent community rwh-policy (implicits a chance in laws).

A Watershed-management-project was established in Maharashtra/ India aiming at qualifying local self-help-groups through an Indian NGO. The next step was the establishment of a network between sector specific institutions: NGOs, banks and donors with the target to enforce independent local watershed-management-institutions. The result was not only the sustainable development of the *watershed* but a fundamental change in water law: Since March 2000 there is a "common guideline for watershed development" regulating. Kochendoerfer-Lucius, G. & van de Sand, K, 2000.

## Literature/ Water Laws

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Kochendoerfer-Lucius, G. & van de Sand, K., Entwicklungshilfe auf den Kopf stellen. Institutionenfoerderung statt Projektfoerderung. In: Entwicklung + Zusammenarbeit 4, 2000. S. 96 – 99.

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Botswana: The Water Act, Ch. 34:01, 1968.

Ethiopia: Proclamation No. 92/ 1994 – A Proclamation to provide for the utilization of water resources; Federal Water Resource Code of Ethiopia, 1998.

Kenya: The Water Act, Ch. 372, 1972; Sessional Paper No.1 of 1999 on National Policy on Water Resources Management and Development.

Lesotho: Water Resources Act No. 28 of 1978.

Namibia: Water Act, 1956.

South Africa: National Water Bill (B34B – 1998), water services Act No. 18522, Dec 1997.

Tanzania: Water Act Bill (1999), Water Utilization Act No. 42 of 1974.

Uganda: Water Statute No. 9 (Dec. 1995), Ministry of Water, Land and Environment: A national water policy (1999).

Zambia: Ministry of Energy and Water Development: National Water Policy, Nov. 1994; The Water Supply and Sanitation Act No. 28 of 1997.

**ANNEX I:**

**The Water Laws  
and their Indirect Impact on Domestic Rainwater Harvesting**

**BOTSWANA: The Water Act, Ch. 34:01, 1968.**

1) Is rainwater utilisation mentioned at all in the legislation ?	No
2) If yes, in which context? (Give §§ and cite)	-
3) Is the legislation - helpful for rainwater h.? - restricting the use of rainwater ? - indifferent ?	<p>Legislation is rather unhelpful as far as rwh is concerned</p> <p>Because it is unclear whether rainwater legally belongs to public water. "water works" is defined as works constructed for or in connexion with the (..) storage(..) of public water, (..) or the conservation of rain water (I.2)</p> <p>As far as public water is concerned, Part II describes the ownership of and inherent right to the use of the water as follows: "there shall be no right of property in public water" (4). "any person may, without a water right, while he is at any place where he has lawful access to a public stream or to a natural lake, pan or swamp, take and use public water therein for the immediate purpose of (a) watering stock (b) drinking, washing, and cooking; or (c) use in a vehicle, but nothing in this section shall be construed as authorizing the construction of any works (II.5.)</p> <p><b>So, the owner or occupier of any land may, without a water right (b) construct any works thereon for the conservation of public water, and abstract and use public water so conserved, for domestic purposes (II.6.)</b></p>
4) Are there any §§ which make rainwater utilisation impossible ? In which context ? Why ?	-
5) Are there any direct or indirect prohibitions of rainwater utilisation ? How do they argue ?	-

***ETHIOPIA: Proclamation No. 92/ 1994 – A Proclamation to provide for the utilization of water resources; Federal Water Resource Code of Ethiopia, 1998.***

Ownership	All water resources are the collective property of the Ethiopian people
1) Is rainwater utilisation mentioned at all in the legislation ?	No
2) If yes, in which context? (Give §§ and cite)	-
3) Is the legislation - helpful for rainwater h.? - restricting the use of rainwater ? - indifferent ?	<p>No permit shall be required for domestic use (21.1) In order to minimize and misuse of water for domestic uses the implementing organ may, as necessary, issue appropriate directives and restrictions. (21.2.) ("Implementing organ " means ministry as regards transboundary rivers and water bodies that flow across more than one regional government, and the concerned regional water bureau as regards regional water resources. (Art.2. definitions))</p> <p>(21.2.) No municipality or town shall engage in the planning and development of water supplies from any water sources or in the construction of water works without a permit issued by the implementing organ (22.1.a)</p>
4) Are there any §§ which make rainwater utilisation impossible ? In which context ? Why ?	<p>(5.1.) 1998: subject to the exceptions stated in 21.1 and 27 of this code no person may (a) construct waterworks, or (b) withdraw water from a water resources, either for its own use or for supply to others, or may supply water, whether withdrawn by him from a water resource or received by him from another supplier</p> <p>3.1. ( 1994) A permit issued by the appropriate authority shall be required to use water resources for the following purposes: f) municipal and urban water supply, j) any use requiring construction of water works (1998) No person may engage, for profit or otherwise, in the business of (a) the construction of waterworks ( as defined as “ ..) or consultancy services related thereto without holding a license duly by the implementing organ in the consultation with the concerned professional organisation, if there are any.</p>
5) Are there any direct or indirect prohibitions of rainwater utilisation ? How do they argue ?	

*KENYA: The Water Act, Ch. 372, 1972; Sessional Paper No.1 of 1999 on National Policy on Water Resources Management and Development*

1) Is rainwater utilisation mentioned at all in the legislation ?	No.
2) If yes, in which context? (Give §§ and cite)	-
3) Is the legislation - helpful for rainwater h.? - restricting the use of rainwater ? - indifferent ?	<p>The 1972 Water Act states the following: The water of every body of water under or upon any land is vested in the government, subject to any rights of users in respect thereof which, by or under this Act or any other written law, have been or are granted, or recognized as being vested, in any other person. (II.3.) The control of every body of water shall be exercised by the minister in accordance with this Act (4.II) The purposes for which a permit may be acquired are as follows – (a) domestic purpose, which expression means the provision of water for household and sanitary purposes and the watering and dipping of stock; (35, VIII) In all cases of proposed diversion, abstraction, obstruction, storage of water from a body of water other than those referred to in section 38 of this Act, application must be made in the manner prescribed by this Act for a permit for such diversion, abstraction, obstruction or storage of water from or in such body of water (36.1.VIII) ( a permit is not required – (a) for the abstraction or use of water from any body of water for domestic purposes by any person having lawful access thereto, if such abstraction is made without the employment of works; (38.VIII) works means any structure, apparatus, contrivance, device or thing for carrying, conducting, providing or utilizing water, excepting hand utensils or such contrivances as may be specified by the Water Apportionment Board))</p> <p><b>Thus</b>, according to the Water Act all water is vested in the government, and for rwh for domestic purposes a permit is required.</p>
4) Are there any §§ which make rainwater utilisation impossible ? In which context ? Why ?	
5) Are there any direct or indirect	

prohibitions of rainwater utilisation ? How do they argue ?	
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**LESOTHO: Water Resources Act No. 28 of 1978.**

Ownership	5.1. the ownership of all water within Lesotho is vested in the Basotho Nation 5.2. the power to control and regulate the use of water shall be exercised by the Minister.
1) Is rainwater utilisation mentioned at all in the legislation ?	no
2) If yes, in which context? (Give §§ and cite)	-
3) Is the legislation - helpful for rainwater h.? - restricting the use of rainwater ? - indifferent ?	3.2. any person having lawful access to water may abstract and use such water for domestic purposes 4.6. whenever a water use requires the construction of water works that water officer shall grant the water use permit subject to the construction of such waterworks within the specified time under specified conditions
4) Are there any §§ which make rainwater utilisation impossible ? In which context ? Why ?	
5) Are there any direct or indirect prohibitions of rainwater utilisation ? How do they argue ?	

**SOUTH AFRICA: Water Services Act No. 18522, Dec 1997.**

1) Is rainwater utilisation mentioned at all in the legislation ?	No.
2) If yes, in which context? (Give §§ and cite)	-
3) Is the legislation	(3.1.) Everyone has a right to basic water supply and basic

<p>- helpful for rainwater h.? - restricting the use of rainwater ? - indifferent ?</p>	<p>sanitation. (11.1) Every water services authority has a duty to all consumers or potential consumers in its area of jurisdiction to progressively ensure efficient, affordable, economical and sustainable access to water services. (11.2) This duty is subject to – (a) the availability of resources; (...) (e) the duty to conserve water resources. (11.3) In ensuring access to water services, a water services authority must take into account, among other factor – (a) alternative ways of providing access to water services.</p> <p>One of the limitations that applies to the right to basis water supply is that access to water services must be gained through the water services authority and that nobody may utilise water services from another source without the authorities approval. Exactly what basic water supply is will be prescribed by the Minister.</p>
<p>4) Are there any §§ which make rainwater utilisation impossible ? In which context ? Why ?</p>	
<p>5) Are there any direct or indirect prohibitions of rainwater utilisation ? How do they argue ?</p>	<p>(6.1.) no person may use water services from a source other than a water services provider nominated by the water services authority having jurisdiction in the area in question, without approval of that water services authority. (6.2.) A person who, at the commencement of this act, was using water services from a source other than one nominated by the relevant water services authority, may continue to do so – (a) for a period of 60 days after the relevant water services authority has requested the person to apply for approval; and (b) if the person complies with a request in terms of paragraph (a) within the 60 days period, until – (i) the application for approval is granted, after which the conditions of the approval will apply; or (ii) the expiry of a reasonable period determined by the water services authority, if the application for approval is refused.</p> <p>(8.1.) a water services authority whose approval is required in terms of sections 6 or 7 – (a) may not unreasonably withhold the approval; and (b) may give the approval subject to reasonable conditions.</p>

**SOUTH AFRICA: National Water Bill (B34B – 1998).**

<p>1) Is rainwater utilisation mentioned at all in the legislation ?</p>	<p>Yes</p>
<p>2) If yes, in which</p>	<p>Schedule 1.1.: A person may, subject to this Act – (a) take water</p>

context? (Give §§ and cite)	for a reasonable domestic use in that person's household, directly from any water resource to which that person has lawful access (c) store and use run-off water from a roof
3) Is the legislation - helpful for rainwater h.? - restricting the use of rainwater ? - indifferent ?	(4.1.) A Person may use water in or from a water resource for purposes such as reasonable domestic use, domestic gardening, animal watering, fire fighting and recreational use, as set out in Schedule 1.  (12.1.) As soon as is reasonably practicable, the Minister must prescribe a system for classifying water resources. (2) The system for classifying water resources may – (a) establish guidelines and procedures for determining different classes of water resources; (3.2.) the Minister is ultimately responsible to ensure that water is allocated equitably and used beneficially in the public interest, while promoting environmental values. (3.3.) The National Government, acting through the Minister, has the power to regulate the use, flow and control of all water in the Republic.
4) Are there any §§ which make rainwater utilisation impossible ? In which context ? Why ?	
5) Are there any direct or indirect prohibitions of rainwater utilisation ? How do they argue ?	

**TANZANIA: Water Act Bill (1999), Water Utilization Act No. 42 of 1974.**

1) Is rainwater utilisation mentioned at all in the legislation ?	No.
2) If yes, in which context? (Give §§ and cite)	-
3) Is the legislation - helpful for rainwater h.? - restricting the use of rainwater ? - indifferent ?	In Tanzania water is regulated through two broad legal frameworks namely: I) water resources management, governed by the <b>water utilization act No. 42 of 1974</b> , which relates to the granting of rights to the user of water and ii) water supply governed by the <b>Urban water act No. 7 of 1981</b> . the acts provides for the regulation of the water utilization in urban areas



	<p>through the National Urban Water Authority. Other relevant legislation exist including international river basin treaties (?)</p> <p>The <b>National Water Policy</b> is based on the following development objectives: to identify and preserve water sources and catchment areas and to increase the population's health through the provision of safe and adequate water supply. Major parameters addressed in this policy are: community participation, community-based management, cost sharing for rural and full cost recovery for urban, full ownership of the projects, involvement of the Private sector, water resources. The policy aims at ensuring that all sources are protected and optimally utilized.</p> <p>In the past, the responsibilities of operation, maintenance, and administration of water schemes was vested in local councils. This is being moved to local communities. <b>Community-based management of schemes is either realized through water committees or wuas.</b> The policy requires that all villages with or without facilities should establish a water fund to demonstrate their willingness to sustain water facilities.</p> <p>Communities are encouraged to organize themselves in managing their own water supplies in order to reduce the dependency on the government, and subsequently consumer will take full control of their water supplies and ensure sustainability.</p> <p>The government is to promote the private sector and individuals (!) to participate in the planning, construction, supply of materials and equipment as well as in the management of water supply schemes.</p>
<p>4) Are there any §§ which make rainwater utilisation impossible ? In which context ? Why ?</p>	
<p>5) Are there any direct or indirect prohibitions of rainwater utilisation ? How do they argue ?</p>	

UGANDA: Water Statute No. 9 (Dec. 1995), Ministry of Water, Land and Environment: A national water policy (1999).

<p>1) Is rainwater utilisation</p>	<p>No</p>
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<p>mentioned at all in the legislation ?</p>	
<p>2) If yes, in which context? (Give §§ and cite)</p>	<p>-</p>
<p>3) Is the legislation                  - helpful for rainwater h.?                  - restricting the use of rainwater ?                  - indifferent ?</p>	<p>The 1995 Water statute restricts the use of rainwater as follows:                  All right to investigate, control, protect and manage water in Uganda for any use, is vested in the Government and shall be exercised by the Minister and the Director in accordance with the provisions of this Part of the Schedule (II, I, 5).                  Notwithstanding any other law to the contrary, no person shall acquire or have a right to – (a) use water, (b) construct or operate any works. (II, I, 6)                  Subject to Section 8 a person may – (a) while temporarily at any place, or (b) being the occupier of or a resident to any land, where there is a natural source of water, use that water for domestic use, fighting fire or irrigating a subsistence garden. (II, I, 7; 1) In addition to that right to use water the occupier of land or resident on land may, with the approval of the authority responsible for the area, use any water under the land occupied by him or is resident on any land adjacent to that land. (II, I, 7, 2)                  The rights under subsections 1 and 2 do not per se authorise a person to construct any works. 8. The Minister may, in relation to any water source where the situation so requires, by notice published in a manner appropriate for the area as the Minister may see fit – (a) prescribe places from which water may be extracted for use, (b) prescribe the time and manner in which water may be used, (c) at times of shortage or anticipated shortage – (i) regulate water to be used for particular purposes, or (ii) regulate, restrict or prohibit the application of a water permit (..), (iii) on the advice of the water Policy Committee, declare any part of Uganda to be a controlled area and establish a comprehensive and integrated plan for managing land, water and other natural resources within the area, (d) temporarily or permanently prohibit the use of water from a given source on health grounds. (8, 2)                  No person shall extract water unless authorised under this Part of the Statute.</p>
<p>4) Are there any §§ which make rainwater utilisation impossible ? In which context ? Why ?</p>	
<p>5) Are there any direct or indirect prohibitions of rainwater utilisation ? How</p>	<p>3, 18,1: No person shall construct or operate any works unless authorised to do so under this Part of the Statute. (2) A person wishing to construct any works or to take and use water may apply to the Director in the prescribed form for a permit to do so. (5) the director may grant the permit under sub-section (4) on</p>

do they argue ?	conditions that he may think fit and such conditions may – (a) require the payment of fees or charges that may be prescribed under this Statute – (6.32.1) The Minister may .. fix fees and charges for (b) the taking or use of water under a water permit granted under this Part of the Statute
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**ZAMBIA: Ministry of Energy and Water Development: National Water Policy, Nov. 1994; The water Supply and sanitation Act No. 28 of 1997.**

1) Is rainwater utilisation mentioned at all in the legislation ?	No.
2) If yes, in which context? (Give §§ and cite)	-
3) Is the legislation - helpful for rainwater h.? - restricting the use of rainwater ? - indifferent ?	IV.10.1. notwithstanding any other law to the contrary and subject to the other provisions of this act, a local authority shall provide water supply and sanitation services to the area falling under its jurisdiction, except in any area where a person provides such services solely for that person's own benefit or a utility or a service provider is providing such services. IV. 12.1. Everyone Can apply to be a service provider.
4) Are there any §§ which make rainwater utilisation impossible ? In which context ? Why ?	
5) Are there any direct or indirect prohibitions of rainwater utilisation ? How do they argue ?	

**ANNEX II:****The Survey – questions and answers**

	<p><b><i>1. People often know little about the possibilities of a decentral harvesting of rainwater (rwh), at least in countries without a tradition in rwh like India or a lot of smaller islands.</i></b></p> <p><b><i>- If there is some traditional rwh practises in your country, could you describe them in a few words?</i></b></p>
ETHIOPIA	<p>Yes, in Botswana the practise that has been commonly adopted and used is the roof catchment and the threshold (ground catchment). The roof became common in use when other people begun construction using tin roofs. Otherwise from the thatched roofs, people are often have been discouraged by the quality (brownish colour etc) of the water harvested from the thatched roofs. Some have even preferred to just put their buckets or drum in the open space than along a thatched roof. The other method that has been commonly used in some areas of Botswana is the one in which the threshold is used as the catchment. In all of these methods, the storage facilities range from the use of buckets, drums and some ferrocement tanks. But in most cases people have found considered the tanks expensive and are therefore not willing to invest in them. Therefore their supply is usually of a very short term.</p>
KENYA	<p>Yes, there are many types of traditional RWH technologies in Kenya, difficult to describe without diagrams, but they include using clay pots and using natural depressions such as rock crevices.</p>
LESOTHO	<p>Well, a great deal of work has been done to equip school buildings and others with rwh systems. From my experience, however, the water is poorly managed and usually wasted. The episodic tendency of the weather leads to a condition where: you do not have water when you need it; you do not need water when you have it. There must be a much broader strategy implemented with respect to water, and rwh (→ Roof water harvesting, GN) is only one component. On our campus we have a well, 2 spring supplies, a stream supply, lots of tanks, 3 rwh systems, plus an elaborately designed landscape of earthworks, terraces, diversions, and stone retaining walls, and swales. Earlier this week we had very heavy rains, and the earthworks were working wonders. They are cheap, efficient, and should be installed prior to rwh. Roofs are only a small part of the potential catchment. (IY)</p> <p>Generally spoken, rwh is unknown and not practised. The only exceptions are the dams' structures, manly for irrigation purposes. (GN)</p>

<p>NAMIBIA</p>	<p>Yes, traditionally roof water harvesting is known and practised on a small scale throughout the country, where people actually try to conserve every drop of water they can get hold of, but it is illegal. All the water during a rainy season - when occurring - is supposed to recharge the aquifers (Grundwasserleiter) instead of evaporating in drums. Furthermore in the cities rainwater is supposed to reach the drainage of the sewage systems, because water is hold back that might cause damage due to too little water to flush the systems. In Windhoek for example we are the only city world-wide cleaning sewage to drinking water quality, therefore an diluting rain is usually very welcome, but therefore it is also illegal to do roof water harvesting.</p>
<p>SOUTH AFRICA</p>	<p>What would you regard as traditional? All the practices I have seen in South Africa emanate from having access to manufactured products. These products were often developed for other uses but used for RWH by innovative individuals. Most systems in South Africa are straightforward guttering leading to some form of surface mounted tank. In Namaqualand in the older houses the tank has been built underneath the house and is raised out using a simple pump.</p>
<p>ZAMBIA</p>	<p>No, there seems to be no extended tradition of rwh in Zambia, although, drums to collect rainwater are used by individuals in the southern part of the country where the rain season is much shorter then in the rest of Zambia. additionally farmers dig shallow wells (in southern province called "chikala") for domestic water supply. Shallow wells are the main source of domestic water supply between December and June/July. This supply is dependent on the water table fluctuations. The other common method is to collect rainwater directly during a rainstorm using a bucket or a drum.</p>

	<p><b><i>II. Once people are confronted with the idea of dwh, they usually start to show much interest. And if dwh is already realised locally, most of the people are very satisfied. Thus, rwh for domestic uses often seems a question of awareness.</i></b></p> <ul style="list-style-type: none"> <li>- <b><i>Are there any actions taken in Lesotho to increase the use of and awareness for dwh (by government, development cooperation, ngos)? Could you describe their major achievements or bottlenecks ?</i></b></li> </ul>
<p><b>BOTSWANA</b></p>	<p>Yes, recently there has been a lot of activities geared towards the promotion of rainwater harvesting in Botswana. My organisation has been pioneering in most of these activities. There are some government bodies which have</p>

	<p>also been involved in the practise of harvesting rainwater especially the local authorities at household level and the ministry of agriculture at agricultural level (livestock watering and irrigation). Well I will start the bad news first, yes there has been a lot of bottlenecks, obviously. Some of the tanks which were constructed some years back have now become white elephants simply because people have alternative piped water supplies. There is poor maintenance of rwh facilities with gutter falling down or the water left to rot for ages inside the tanks. In some villages which we visited people complained of the bad odour of the water after having stored for long. Some have even cited that tadpoles even develop inside the water tanks. In areas of very severe or less severe water scarcity the tanks that have been provided in schools and clinics are still being utilised fully. It's only that there was no involvement of end-users so most people do not know how to take care of the facilities to ensure that there are no contaminants into the water as result of foreign material going inside the tanks such as bird droppings, dead leaves etc Attempts have been made to formalise a Botswana Rainwater Harvesting Association, which will involve or bring together various practitioners in this field. The good news is that I think there is a possibility of getting government funding to support some of the rwh programs such as pilot projects etc. There needs to be countrywide campaigns to assist in the promotion of this practice.</p>
<p><b>KENYA</b></p>	<p>No. Awareness creation in Kenya is very weak, partly due to the costs involved and the thin number of active professionals in RWH. However, Awareness creation has been made by:                  Demonstration training sessions, usually by NGOs such as KRA, Mass media (mostly radio), Pamphlets and newsletters (mostly by NGOs)</p>
<p><b>LESOTHO</b></p>	<p>I think also the technical problems have not really been addressed. It is not simple to collect water off very large roofs. The guttering and piping has to be very carefully installed. On large roofs, the gutters often sag after a few years and start tearing off, and are not maintained. On a long roof the gutters are carrying a heavy load and have to be carefully set to gradient. In addition, they need reinforcing. For example, just last week we put up gutters and tanks on a new building. I used aluminium strapping to tie back the gutter brackets onto the roof. This adds enormous rigidity and strength to the installation. My office is above a roof water cistern on my own house, and getting the water around a big building is a thorny problem. I used a funnel set-up, buried pipe (40mm) to get the water around the back of the house, and this system works very efficiently. (IY)                  Awareness building will be a starting point, for rwh as any</p>

	<p>other appropriate technology. The technical problems should not be underestimated, neither the institutional requirements involving any innovation. (GN)</p> <p>I don't know of any Governmental initiative on rwh (but this does not mean that nothing is ongoing). In our Helvetas NRM programme (1997-2005), we have defined water management practices as one key component. Rwh is part of it. BBCDC is one partner in that programme and can be considered as a leading competence centre in water management in Lesotho, including rwh. The main achievements: 7 years of experiences on site based water harvesting techniques and training of hundreds of rural students. Establishment of the competence centre, various action-research activities, holistic approach. Bottlenecks: lack of professionals/committed people in action-research, lack of medium or long-term commitment by donors, weak institutions on NGO and Government side. We from Helvetas don't have the means to fully promote the concept as we would like. Our programme will be phased-out in 2005. (GN)</p> <p>Generally open earth dams have been since the fifties/earlier the main approach. But GoL with its water diversions encouraged loss of water rather than its collection. Lately, roof water harvesting has been popularised in drier south of Lesotho through the Soil + Water Conservation Division of government in collaboration with donor supported projects (MDP/GTZ; Swedeforest &amp; PTC II projects now adopted by RSDA in the permaculture intervention). (LM)</p>
<p><b>NAMIBIA</b></p>	<p>.</p>
<p><b>SOUTH AFRICA</b></p>	<p>As far as I am aware only one NGO has tried to raise awareness around RWH. The problem with their approach is that they tried to provide in one go the full requirement. This proved too expensive for the householders. I think one of the manufactures of the galvanised tanks has given some support as in the Eastern Cape a number of small businesses developed assembling the tanks and transporting them to the houses. Most awareness has been created by a household successfully implementing rwh and neighbours copying.</p>
<p><b>ZAMBIA</b></p>	<p>1) We have no information on concrete actions on rwh in Zambia but have been informed that some officials have participated in regional conferences on this subject i.e. a workshop in Tanzania was attended by Zambians from MEWD, National Institute for Scientific and Industrial Research and from World Vision</p> <p>2) A number of RWH activities have been initiated in Zambia through governmental and non-governmental organisations. An assessment of RWH activities in Zambia (Malesu, Phiri and Muzyamba, 1999) conducted in</p>

	<p>December 1999 revealed that the concept is relatively new and practised by a handful of households and institutions (schools and clinics).</p> <p><b>A training of trainers course in Rainwater Harvesting was conducted between 10<sup>th</sup> April and 28<sup>th</sup> May 2000. The Regional Land Management Unit (RELMA) based in Kenya in conjunction with MAFF/LM&amp;CF sponsored this training. Thirteen (13) participants were drawn from southern, eastern and Lusaka provinces. The training took place in Choma and four demonstrations were set up at farm level. The main focus of this training was on imparting practical skills in designing and construction of RWH structures.</b></p> <p>Follow up on the trainees to this course has revealed that the knowledge gained is used in different ways. Most interesting is one case in Southern province where an officer has used the knowledge gained to construct sinking wells for farmers at a fee. The officer has been motivated to carry on practicing rainwater harvesting to supplement his income. One trainee in the Eastern province mobilised a community interested in constructing a roof catchment structure and asked them to contribute bricks, sand and stones. The community is currently scouting for funds to purchase cement and start construction of the tank. Most trainees have sat down waiting for the Project Support Office to provide funds for them to implement rainwater harvesting.</p> <p>Formation of the Zambia Rainwater Harvesting Association (ZARHA) The LM&amp;CF programme facilitated the formation of ZARHA towards the end of November 2000. In view of the training in RWH conducted by the programme it was important to form an association that would fully facilitate the implementation of RWH activities in Zambia. The second national workshop was sponsored by RELMA and it was at this workshop that an executive committee was put in place. ZARHA will utilise the capacity built to enhance RWH activities in Zambia.</p> <p>Three ZARHA members, namely Mrs. Glenda Mulenga Kasuba, Mr. Bob Muzyamba and Mr. Maimbo Malesu were invited to attend the Southern and Eastern Africa Rainwater harvesting Network (SEARNET) conference held between 10 and 14 December 2000 in Nazareth, Ethiopia. The conference was a forum for exchange of information and experiences as well as planning for country activities. Zambia was proposed as the venue for the next conferences in December 2001.</p> <p><b>Constraints</b></p> <ul style="list-style-type: none"> <li>• <i>Inadequate co-ordination among co-operating institutions,</i></li> <li>• <i>Inadequate training in RWH</i></li> <li>• <i>Inadequate of government policy on RWH</i></li> <li>• <i>Poverty</i></li> </ul>
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	<ul style="list-style-type: none"> <li>• <i>High cost of construction materials</i></li> <li>• <i>Inadequate community organisation</i></li> </ul>
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	<p><b>III. Full rwh often seems too expensive for the poorer half of the population except under the most favourable climatic conditions. So either partial rwh can be used, or it s introduction is part of an aid package, or it is accepted to be the means by which (richer ?) households increase their water security.</b></p> <ul style="list-style-type: none"> <li>- <b>Could you shortly describe the attitudes of water professionals on (multiple sourcing of water and therefore of) partial rwh ?</b></li> </ul>
<b>BOTSWANA</b>	<p>There has been only a few believers in the practice of rainwater harvesting. However, other professionals have seen the need to revisit this practice which was done by our ancestors. It is not a new practice. Therefore, with the move towards being a water conservative society most professionals cannot ignore the fact that rainwater harvesting is a very powerful water conservative tool given the country's finite water resources. This would be useful for both urban and rural Botswana. Most of our rural population rely on borehole water which is a very unreliable resource taking into account that the recharge rates of groundwater are very low in most parts of the Botswana. Some rural areas have very saline water from the boreholes which is even unsuitable for livestock watering too. With the new Water Conservation Policy there has been some aspects of rainwater harvesting included in it. Other professionals need a push or need to seed something tangible out of the benefits of rainwater harvesting. Sometimes it is difficult to promote something unless people see and start getting affected by a problem that is how most of us tend to learn.</p>
<b>KENYA</b>	<p>Traditionally, the attitudes in Kenya have been that water is supplied by the Government. However, due to the failure of the Government to meet these expectations, communities have learnt to either form groups through which they work collectively at RWH projects or seek donor funding (mostly cost-sharing). The latter option has been more successful. But even then, only a very small proportion of the potential households in Kenya that could benefit from RWH has been lucky to benefit.</p>
<b>LESOTHO</b>	<p>The earth dams promoted by the soil/water conservation division (MOA) is hidden under their objective of soil and water conservation. (LM) For example, the Governmental Department dealing with rural water supply (DRWS)- a long- term partner of Helvetas- has not yet started with</p>

	including rwh into the technical packages. Rwh and a more holistic water management concept are important topics to be included in its future business. So generally, I think rwh are more or less unknown and/or not systematically promoted up to now. And that in a country known for its regular water shortages/droughts! (GN)
<b>NAMIBIA</b>	.
<b>SOUTH AFRICA</b>	<p>Most professionals in South Africa totally ignore rwh and concentrate on unsustainable piped schemes, including desalination plants. Very few look at using different sources of water for different purposes as the communities are doing at present. Although only the rich can afford custom installations because of the large manufacturing base in SA and the mobility of the population, it is relatively easy to obtain old containers. For example in the Eastern Cape a 200 l chemical drum costs R80. Before it is used it is cleaned using boiling water to get rid of the chemical residue. Using a number of these containers significant storage can be built up over a period without incurring huge expense.</p> <p><b>- What are in your opinion the strongest arguments for rwh in South Africa ?</b></p> <p>the fact that we have a well developed manufacturing base, good distribution but large numbers of rural people without access to sufficient water supply is a compelling case for promoting rwh. Coupled with water conservation and re-use of water rwh could quickly raise the standard of living of many people without incurring vast O&amp;M costs.</p>
<b>ZAMBIA</b>	Water professional in Zambia seem not to pay much attention to rwh

	<b><i>IV. How do you estimate the influences of good legislation and a decentrally organized water sector on the promotion of rwh?</i></b>
<b>BOTSWANA</b>	This question is not very clear to me. Could you kindly try and explain this one to me
<b>KENYA</b>	<p>1. Good legislation is very important, as until recently, the water Act was silent on RWH. Even now, this needs strengthening.</p> <p>2. Kenya is in the process of decentralising the water sector and letting communities manage their water. This is in the right direction, so long as water resources are looked at from a hydrological point of view. One advantage in using RWH is that there are few conflicts of hydrological nature, as RWH systems are mainly household based. This strength should be highlighted.</p>

<b>LESOTHO</b>	<p>Legislation is absolutely irrelevant. Dissemination of current best practices is what is required. (IY)                  Legislation focussing on rwh is irrelevant at this stage. We need to look at it in the context of water affairs whose legislation is available but rather unhelpful in our case. (LM)                  Legislation is just one element. It should reflect the real intentions and commitments of the stakeholders.                  Legislation alone is irrelevant, if no institutions and people are behind it. (GN)</p>
<b>NAMIBIA</b>	.
<b>SOUTH AFRICA</b>	<p>legislation is not the key to promoting rwh. SA law has no problem with domestic rwh but at the moment there is a huge debate over free water. This will have a bigger effect, especially on poor communities as they will reason why invest in rwh when the government has promised the water for free.</p>
<b>ZAMBIA</b>	<p>1) The new water policy and the activities of the new Regulator NWASCO will have an effect on the operation of the provider of water and sanitation services. One of the main issues is the reduction of unaccounted for water, which means the reduction of wastage by the consumers. The Regulator will push for 100% metering and billing according to consumption implying that consumers will not have the choice to water their vegetable garden or lawn with tap water unless there are prepared to pay a cost covering price, and possibly a subsidies for the consumption of the poor. This might have an impact on the need to harvest rainwater</p> <p>2) The decentralised water sector still favours supply of good quality water to the urban areas and less to the rural areas where clean water is an issue. The private sector is only interested in supplying water to the consumers at a cost (which is more sustainable). Water providers in the rural areas concentrate on drilling boreholes and constructing earth dams for communal use. These options are expensive to implement and maintain.</p> <p>RWH has not been clearly defined in the current water policy as an option for water supply. However, the current policy presents an opportunity for ZARHA to lobby for the strengthening of RWH policy in Zambia.</p>

	<p><b><i>V. Is the current national water-legislation helpful for rwh or rather restricting it ? in practice, how relevant is it ?</i></b></p>
<b>BOTSWANA</b>	<p>Besides the Water Act, there is also the Waterworks Area Act which defines areas that have been declared as</p>

	<p>catchment areas for some of the dams here. Therefore if there is any activity going on within this area the government is bound to intervene especially that involving surface water. There is apparently not much restriction in using any borehole water within your own plot, and again I think that there is no borehole water act! One thing that I have observed also is the clashing of water development guidelines especially that of the department of water affairs and the ministry of agriculture. What is happening is that, a syndicate of farmers after having acquired a land right can approach the ministry of agriculture and request to be built a small earth dam which they could either use for livestock watering and/or irrigation. However, before this can be done the department of water affairs would have to be contacted to ensure that this dam is within designated catchment areas for bigger dams. The farmers have to pay 10% of the total cost for this dam. I do know if I am actually answering your question or have gone off tangent. Otherwise water legally belongs to the government, but within you own plot you can sink a borehole depending on whether there are no alternative piped supplies nearby especially in areas that are not serviced or very remote areas where you have been allocated a farm or whatever.</p>
KENYA	<p>There has been a more recent water policy (1990), which mentions RWH. This is better than nothing, but more legislation is necessary to include emerging technologies and modern thinking. I will need to do more research on the legal meaning of the Water Act (1972) -as I'm not a lawyer to understand it fully. However, to answer your questions on the other aspects:</p> <ol style="list-style-type: none"> <li>1. A permit is not required for RWH, so long as no pumping device is used. However, if a pump is used, a permit is required. Very confusing. For instance, if two farmers make RWH systems of similar capacity say 150 cum., one has tanks above the ground and therefore doesn't need a pump, while the other lets the water flow into a dam where he pumps it up. The latter requires a permit.</li> </ol>
LESOTHO	<p>It is overly negative. Lesotho allows water to blow out of it at a massive rate each rain event. The opportunity to reduce this without depriving anyone else of water, is virtually infinite. Witness current flooding in Mozambique. Government does a poor job of innovating or implementing; it should mediate and disseminate, and outside that, interfere as little as possible. (IY) I see no impact (see above). (GN) - In practice, how relevant is this for rwh? Irrelevant. (IY, GN)</p>
NAMIBIA	.
SOUTH AFRICA	None
ZAMBIA	6) The Act 28 gives exclusivity of service provision to the providers and the right for individuals to generate these

	services for themselves, but does not exclude the delegation of these services by the providers to third parties. The Regulator will put this in practice as we can see from his policy.
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	<p><i>VI. On local level, communities have the possibility to raise their own regulations and bylaws.</i></p> <p><i>- Do you know cases where communities took use of their right to develop their own rainwater policy ? what where the results?</i></p>
<b>BOTSWANA</b>	No. unfortunately there has not been something like that here. And like I have indicated most communities are of a very marginal status to be able to afford bigger tanks or facilities for harvesting rainwater at household level. But where there are community structures built for rainwater harvesting especially for livestock watering, The community seems not eager to carry their responsibilities of maintaining the structures. After completion of the structure it is handed over to the community for operation and maintenance. I think that probably this may be due to lack of operation guidelines.
<b>KENYA</b>	Many of the RWH projects in Kenya have been achieved through community efforts, and they have been successful (Govt projects usually involve river developments).
<b>LESOTHO</b>	Our campus has a very elaborate reticulated multiple source water supply system. There has never been any clash between local or national water regulation, and no one has had to concern themselves. Our efforts are making more water available to the general community, and not less. Following recent rains, the level of water in our 5 meter deep well, rose by 3 meters...all due to careful landscape design. (IY) With regard to earth dams, ownership can be of 2 categories (even on public land) – individual or community. I am not sure how one can own a dam privately on public land. (LM)
<b>NAMIBIA</b>	
<b>SOUTH AFRICA</b>	No, don't know of any council which has taken this step. just one clarification only Local government can promulgate bylaws, it is not a national competency.
<b>ZAMBIA</b>	No. We have no knowledge of communities developing a rwh-policy, but as the councils are operating the water schemes or in most of the cases now own the infrastructure by holding shares in a CU, I can see no obstacle for them to develop such a policy if it is of benefit to their community.

	<p><b>VII. Where do you see the best chances for rwh in Lesotho and why: in urban, peri-urban or rural areas ?</b></p>
<p><b>BOTSWANA</b></p>	<p>Both. the urban and peri-urban areas together with the rural areas have an equal chance into rwh. The water tariffs in the urban are quite high because there has been a lot of expenditures towards the development of the water infrastructure involving a more 400km water pipeline from north of the country down south to the capital city Gaborone. This is reason for increased water tariffs. Now, really I think that society can move from using clean piped water for gardening or washing cars or other external uses and instead harvest rainwater and use it for those activities to reduce strain on the already existing water supply resources . As mentioned earlier, there are some rural areas in which there can be an absence of water for more a two days or so. This at times may be due to a breakdown inside the borehole, or that the water level has gone much lower and so on. Now with rainwater as an alternative resource this can reduce the impact of these kind of incidents on the communities affected. Rainwater harvesting also can reduce the impact of drought on especially the most vulnerable communities. The health/socio-economic status of people in rural areas who are very vulnerable because most are unemployed can improve as they eat healthier food which they could have grown out of rainwater or even use the money for income generation.</p>
<p><b>KENYA</b></p>	<p>RWH in urban and peer-urban areas can be successful among the wealthy and middle class. This is because they live in spacious compounds where RWH can be practised. The poor live in slums, where RWH infrastructure is either not practical or there are dangers of pollution.</p>
<p><b>LESOTHO</b></p>	<p>Virtually unlimited potential for exploitation. Earlier this week, small stream beside our campus was estimated to be flowing at a rate of 20 cubic meters / second during rainstorm.....Water scarcity is a myth.... poor management is a fact. (IY) Urban and peri-urban areas are excellent for roofwater harvesting for obvious reasons; while the general rwh as put to us in this questionnaire has unlimited potential in rural communities. (LM) rwh can be multiplied faster in urban and peri-urban areas because of the better conditions for awareness creation and service delivery. But the chances for improved rwh in general are very good anywhere. It's just a question of organisation (commitment, communication, project management, fund raising). Helvetas would be keen to do more, but time and money are running out...(GN)</p>

<b>NAMIBIA</b>	
<b>SOUTH AFRICA</b>	<p>In rural areas where there the possibilities of getting communal water systems to household level remain remote. However in urban areas this might change as water becomes more scarce in SA and the marginal cost rises making it more attractive to recycle grey water for irrigation/flushing of toilets and using rwh to reduce demand from the municipal system</p>
<b>ZAMBIA</b>	<p>1) The best changes to introduce rwh in Zambia a probably in the south of the country in rural areas, in low income areas where a network or Kiosks do not exist and in urban areas where big plots are maintained (gardens and lawns)                  2) The promotion of RWH has the best chance of success in the rural and peri-urban areas of the country. Dwellers in these areas are faced with serious water shortages especially during the dry season. In the rural areas people have to walk long distances to access relatively clean drinking water whereas the peri-urban communities are also faced with problems of contaminated drinking water caused by poor sanitation and high population density.</p>