

### Introduction

This brief presents the outcomes of the stakeholder engagement activities, known as “The Dialogue,” in the AgWater Solutions Project. A schematic of all the meetings and events is given on page 2 and the key findings are presented.

### Project overview

The **AgWater Solutions Project** aims to improve the livelihoods of poor and marginalized smallholder farmers in sub-Saharan Africa and South Asia through **agricultural water management (AWM) solutions**. The project is assessing where and how agricultural water management (AWM) can improve rural livelihoods and reduce poverty. Work focuses on five African countries (Ghana, Burkina Faso, Zambia, Tanzania and Ethiopia) and two states in India (West Bengal and Madhya Pradesh).

In each country the AgWater Solutions Project has followed a consistent methodology: initial research to understand the status of AWM (*situation analysis*) followed by a *national consultation* to discuss findings and distil priorities for field-level research and piloting. In parallel, FAO and IFPRI have been *mapping* the potential for AWM to contribute to poverty alleviation at national and subcontinental levels. A series of workshops (the *AWM Dialogue* led by FAO with National Dialogue Facilitators) have been held at national and subnational levels, to ground truth research findings and identify gaps and priorities for influencing AWM through policy, and links with private sector and farmer groups. The project is now finalized (September 2012) and project findings are packaged into investment recommendations for target stakeholder groups.

### AWM Dialogue process

This Dialogue aim to consult, discuss, and validate possible AWM solution options and suggest priorities for investment at the national level on the basis of scientific references and a good understanding of local knowledge, actors’ needs and preferences. Discussions on the events aimed to understand the causes of adoption or abandonment of some of the AWM interventions, and enlarge the range of the “possible.” They help the project team explore practical means to forge links between water, poverty and livelihoods in rural areas, in particular by showing how access to agricultural water determines livelihoods and survival in rural areas.

**In Zambia**, Currently 155 912 ha of land are irrigated, which is about 30 percent of the economical irrigation potential; about 100 000 ha are water managed in dambos by smallholders. Large irrigation schemes are mainly in commercial farms (FAO, Aquastat). For smallholders, the main constraints identified in the AWM Situation Analysis and discussed in the national consultation were related to making use of the available water and marketing. The two main areas of research were facilitating access to low-cost water lifting technologies (WLTs); and options to improve fresh produce markets to make irrigated agriculture profitable. The research found that the main obstacles to accessing low-cost pumps are lack of information on the types of pumps available in the market, on where to buy them with the import duty and VAT exemption that they are entitled to, and on how to use them for different crops. Another key constraints is the access to relevant financing mechanisms for smallholders.

Considering that only 2-3% of the rural population has access to electricity and supply points for petrol are equally centralized, the future will depend on fuel and solar pumps. Both pump supply and micro-finance to enable purchase are available mainly along the North-South (railway line); decentralization is therefore critical for the rest of the country to benefit. Efforts to scale up improved AWM must be driven by the private sector and markets: import, manufacturing and distribution must be done by the private sector. That sector can make use of the duty waiver on irrigation equipments, including small pumps and this should be conveyed to the buyers. Farmers’ organizations should also be made aware of how to identify the right type of equipment and ensure that there is a critical mass for the equipment to be imported/supplied; that the benefit of the duty waiver goes to the farmer; and that the farmers are trained in the proper use of the equipment required for their crops, and the additional equipments required to optimize water use.

These efforts will increase demand from farmers as they will be aware of the potential for profit. In turn, this will stimulate private investment.

The main goal will be to begin developing a strategy to organize and regulate dealers of equipments and brokers for marketing produces and the fees they charge from farmers. Part of these fees should be reinvested in improving the conditions and services provided in the markets, especially refrigerated storage to reduce the pressure exerted by the brokers in selling the produce entrusted to them.

## Zambia Country Dialogue Brief 2009 -2012



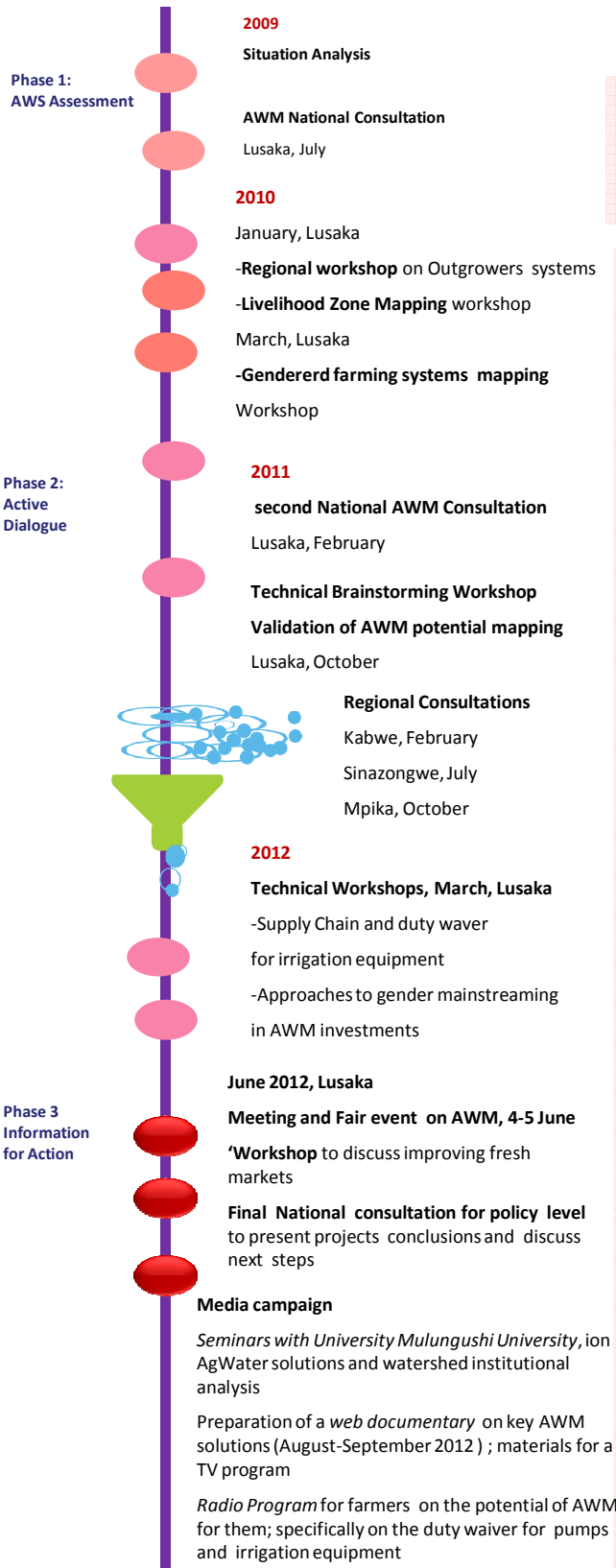
The project is implemented by IWMI, FAO, IFPRI, SEI and IDE, with a number of partners in each country - see <http://awm-solutions.iwmi.org/partners.aspx> for more

FAO coordinates a multi-stakeholder dialogue process on AWM in close collaboration with national partners. Each country has a National Dialogue Facilitator who supports the appointed National Focal Point within the relevant government agency. Together, they ensure the events are prepared in line with country needs and preferences, receive the relevant inputs from country partners, and are effectively followed up.

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The Dialogue update was prepared by Bernardete Neves & Domitille Vallée (FAO) on the basis of all the Dialogue event reports.



13 Meetings

400 Stakeholders +

Many more Interviewed or reached out

### Outreach & Awareness activities

#### INTERNATIONAL: AND NATIONAL

##### 2009

Cross-country launching meeting of the Ag water solution project team, Ethiopia, field visit

##### 2011

###### January

Cross-country review meeting of the Ag water solution project team, Lusaka. Visit of the Kafue Plains and out grower schemes.

###### April

Training, Field visit and Local meetings of the seven national facilitators to Ghana

###### June

Field visit and Local meetings of the AWS project Steering Committee, Ambassadors and National Focal Points to Keita, Ghana

###### Nov

##### 2012

###### January

Learning route of the national facilitators & national focal points (Burkina, Ghana, Ethiopia, Zambia, Tanzania, India-MP, India-WB) to Madhya Pradesh to visit promising agriculture water management solutions.

###### March

World Water Forum, Marseille, France (presentation on small pumps)

###### May

Land and water days @ FAO (presentation on small dams, presentation on individual water lifting devices, presentation on the Zambia Dialogue process)

### Outreach events

#### Showcase AWM options at three trade fairs:

- Golden Valley Agriculture Research Trust field day (April, yearly event)

- Zambia Agriculture Research Institute field day (yearly event)

- Nanga Irrigation Research field day

**Field visits to IDE sites** to promote locally successful AWM options- Copperbelt and Southern

Explore stakeholder platforms for future knowledge sharing and establish a community of practice on AWM in-country.

### **Main findings from the dialogue events**

This section summarizes the feedback received from participants during the various Dialogue events on the suitability and feasibility of the AWM options analyzed, as well as on financing needs and options to explore, together with investments required on information and training needs. (NC, RCs, TBW)

#### **Water access**

Smallholder Farmers are increasingly initiating their own irrigation plans. **Secured water access** is the starting point for this to happen. In Zambia rich in water sources, options include river diversions, small reservoirs, small rainwater-storage ponds, river diversions for irrigation or individual access to shallow groundwater. Some of these options imply community development, management and external financial support, as substantial engineering undertaking is needed. To be suitable, capture and storage solutions must closely fit the contexts and needs.

#### **Pump affordability**

**VAT exemption and import duty waiver** for irrigation equipment: According to the Zambia Revenue Authority (ZRA), pumps alone do not fall under the duty waiver for agricultural equipment and can only be imported duty free if sourced from COMESA or SADC region; otherwise current customs duty is 15% of the value of equipment but zero rated (VAT charged at zero %). However, there is a provision for certain approved non-profit organizations to import equipment duty free using a Public Benefit Scheme. However, participants commented that equipment should not be distributed free of charge because it does not assure adoption but can use this facility as a “smart subsidy” to popularize the equipment. On the other hand, certain approved sets of irrigation systems do not attract duty. The AgWater Solutions project learnt that the Zambia Development Agency recommends issuance of investment licences in priority sector allowing duty free importation of heavy equipment and machinery/capital equipment worth at least US\$500,000. However, this facility is beyond the scope of small companies.

Bottlenecks in the agricultural equipment supply chain, in particular those affecting small-scale farmers, include:

- The nature of the supply chain of the portable motor pumps and its imperfections, with limited offer, financing or after sell services.
- How the imperfections can be addressed to accelerate the mechanization of small-scale irrigation in Zambia.

The team now has greater understanding on the current tax regulatory system and the constraints felt by small scale farmers, who are largely unable to benefit from tax rebates particularly the duty waiver and VAT zero rating on irrigation systems and pump sets. Next steps will focus on how to communicate the current VAT zero rating and duty waiver guidelines and opportunities to extend the potential benefits of these tariff mechanisms to small-scale farmers.

In addition, information on the ways to use and repair such equipment should be disseminated, as well as the need for certain crops to combine with storage facilities and irrigation equipment. Finally, financing should be further explored, for example the possibility of employing smart subsidies such as the voucher system previously implemented by a project by MEDA that initially subsidize up to 40% the value of an irrigation package, which was offered to stimulate demand and the adoption of micro-irrigation.

Mr. George Sikuleka, National Focal Point for the project, is following up with the Ministry of Finance and the expectation is that that this will be incorporated in the 2013 budget preparations. Follow-up is also made with Zambia Revenue Authority (ZRA) on definition of irrigation systems and equipment to increase chances of smallholder systems to qualify for customs duty exemption and zero VAT rating. Leaflets documenting approved sets of well defined irrigation systems and equipment qualifying for customs duty and zero VAT rating will jointly be published for public knowledge. (TBWE)

**Next Steps** : Collaboration is being developed between the Department of Agriculture, Technical Services Branch, of the Ministry of Agriculture and Livestock, social enterprise NGOs (iDE), private commercial suppliers (SARO, FABS Cropserve, MRI), rural finance providers ( Micro-Bankers Trust and CETZAM) and other development programs and commissions (Rural Finance Project and Competition and Consumer Protection Commission).

#### **Pump Availability**

Retail outlets for pumps and credit provision are too centralized. Limited options are available in remote areas. Local mechanics could be trained in the maintenance and repair of pumps and farmers should trained to properly operate and maintain them. Options to increase local supply of spare parts need to be explored via agro-dealer suppliers. Survey and meetings (TBWC; TBW F) clearly highlighted the important role of women among smallholder farmers. Experience from the field show that when pumps are introduced, farmers need to be informed on how to use them with small storages and low flow irrigation systems for vegetable production.

**Next Steps** : Develop collaboration between technical department of the University of Zambia testing equipments and dealers and/or manufacturers of particular models of pumps. This could be organized in collaboration with iDE, Kick Start, Technical Services Branch, Extension Department of Ministry of Agriculture and Livestock.

### **Zambia AWM Solutions team in Zambia**

**The National Focal Point** is Mr. George Sikuleka, Deputy Director of the Technical Services Branch, Ministry of Agriculture & Livestock (MAL/DOA). He has been providing advise & information on government’s policy on irrigation, strategic plans and associated programs and projects. He has also brought project findings to national events.

**The National Dialogue Facilitator** is Mr. Kenneth Chelemu, iDE Technical/Programs Director responsible for country program activities. iDE is working in Zambia to increase the annual income of rural households by improving the opportunities available to diversify and intensify agriculture.

**The AgWater Solutions Coordinator for Zambia** is Ms. Barbara Van Koppen (IWMI-South Africa). Her research focused on the implication of gender in the adoption of improved AWM. Research on the irrigation supply chain and comparison analysis of AWM options was done by Mr. Willem Colenbrander (independent consultant), on fresh produce market by Mr. Munguzwe Hichaambwa (Food Security Research Project), on gender dimension of AWM: Vincent Akamandisa; on Outgrowers systems by Mr. M. L. Bangwe , and on Small dams by Mr. Nti Acheampong .Finally field data collection and livelihood zones and AWM potential mapping was led by Mr. Mukelabai Ndiyoi (FASAZ) with FAO.

**The AG Water Solutions Ambassadors** are Prof. Nuhu Hatibu, Chief Executive Officer of The Kilimo Trust (Uganda) and Dr. Bancy Mati, independent consultant, Kenya.



#### **National Consultations on AWM (NC)**

- NC1 Lusaka (July 2009)
- NC 2 Lusaka (15-16 Feb. 2011)
- NC 3 Lusaka (27-28 June 2012)

#### **Regional Consultations on AWM (RC)**

- (RC 1) Kabwe (17 Feb. 2011)
- (RC 2) Sinazongwe (21-22 July 2011)
- (RC 3) Mpika (11-12 Oct.2011)

#### **Technical Brainstorming workshops(TBW)**

- (TBW A) Potential of Outgrower systems, 23 Jan 2010, Lusaka
- (TBW B) Livelihood Zone Mapping - expert consultation, 25 Jan 2010, Lusaka
- (TBW C) Gendered farming systems mapping Workshop, March 2010, Lusaka
- (TBW D) AWM Potential and AWM Technology Suitability Domains - validation meeting, 3 Oct 2011, Lusaka
- (TBW E) Supply Chain and duty waiver for irrigation equipment, March 2012
- (TBW F) Approaches to gender mainstreaming in AWM investments, 03/ 12

### Fresh produce market

The AgWater Solutions project research found that fresh produce markets are disorganized and lack basic conditions for storage and hygiene. Sales are done via unlicensed brokers who charge commissions (10-20%). Improving these conditions would mean that farmers would get a better price and would be encouraged to invest in irrigation to produce vegetables for the market; the result would be higher incomes and greater food security.

Dialogue participants (NC1, RC1 to 3) consider that the future is in developing new wholesale fresh markets (with appropriate infrastructure) with a proper brokerage system needed to finance appropriate provision of services (e.g., refrigerated storage facilities). They cite the example of neighbouring South Africa where the market is organized: 5% goes to the market, 7.5% goes to brokers and a lot of services are provided.

Solutions identified to move forward:

- Ministry of Local Government and Housing could take on the role of regulating fresh produce markets and broker groups.
- Full application of Public Private Partnership (PPP) through the PPP Act which already exists.
- Identify interested groups, e.g., Zambia National Farmers' Union (ZNFU), smallholder farmer groups and the Horticulture Association of Zambia.
- Explore possible synergies with similar activities (e.g., iDE/SANGONet- mobile phone-based marketing project, AfDB financing, JICA for peri-urban agriculture)
- Introduce grades and standards.
- Invest in market strategies.
- Improve transport network to reduce costs.

Lack of roads, storage and cooling facilities in remote rural areas are key bottlenecks for smallholders to intensify their production and invest in small agriculture water management.

**Next Steps:** Application of Public Private Partnerships through the newly registered Horticultural Association of Zambia facilitated by the Focal Point Person on fresh produce markets with the Indaba Policy Research Institute.

### Supporting agricultural supply contracts between companies and small-scale farmers

For high value crop commodities, such as sugar, Outgrower schemes seem to offer a promising opportunity. These schemes offer improved supply chains through contractual relationships between smallholders and commercial enterprises. Many function well. Example: *interview kaleya Smallholder Company KASCOL, Zambian sugar PLC has now 2156 ha of sugar cane that is contracted to out-growers.*

Smallholder Farmers can benefit because they get support such as financing, irrigation equipment, while the company receives the product it needs. But arrangements differ between companies and in many cases it is wealthier farmers, rather than smallholders who benefit.

External support could encourage companies to contract with poorer smallholders. Regulation is also required to protect all parties.

### Remaining questions

During the dialogue events, some knowledge gaps were noted. These include: (1) The cost of different types of pumps, and operation and maintenance cost are still not well known. The role played by the VAT and import duty exemption is also not well understood.; (2) How should access to loans for pumps and rental markets be developed?; (3) How do gender balance issues in Zambian rural households affect adoption of improved AWM? Do women face greater obstacles in getting financial assistance to invest in irrigation and market access? What coping strategies should be tailored specifically for them? (e. g. loans that do not require land titles, if via producer associations?)

### Information for action & Strengthening partnerships

- A series of seminars with the universities are organised to present findings on AWM solutions.
- Regional exhibitions of range of AWM solutions for smallholders (1st in June 2012)
- Local awareness campaigns to mitigate local misconceptions of gender and negative attitudes towards notions of 'gender equality' and 'empowerment of women' resulting in 'resistance' to gender mainstreaming particularly in AWM based solutions.
- A **3rd Final National AWM Consultative workshop** was organised the 27-28 of June. The meeting was attended by those Members of Parliament who make up the Committee on Agriculture, chaired by Hon Request Mutanga. Policy implications of the project conclusions were discussed. and commitment to small scale irrigation was confirmed. The basis of an AWM platform led by the Ministry of Agriculture and Livestock with interested partners is set.
- Partnerships to be developed with agro-dealers; import agents and clearing agents .
- Zambia Revenue Authority (ZRA); packaging outreach information on the VAT and import duty exemption on irrigation equipment for smallholder farmers. National Information campaign on irrigation equipment duty waiver using radio and TV.
- Synergy with Food Security Research Projects related work in other government departments related to fresh market development.
- link with CAADP especially in the first two pillars addressing issues related to; (1) sustainable land and water management and (2) improved rural infrastructure and market integration as they relate to AWM including supporting the effort on pump value chain and output market development through National consultancy at policy level and donor meetings.

### For AWM Solution research

briefs visit:

<http://awm-solutions.iwmi.org/publications-and-outputs.aspx>

- AWM Situation Analysis in Zambia,
- AWM National Consultation 31 July Lusaka



- Fresh Produce Market Analysis
- Smallholder Out growers in Irrigated Agriculture
- AWM at watershed scale: scenarios for Mwembeshi Basin
- Small-Scale Irrigation Equipment Supply Chain and Duty Waiver



### Other research

- Gender in Agricultural Water Technologies Adoption and Management in Zambia
- Adoption Characteristics of seven AWM Technologies - a comparative field study in four regions
- Piloting Drip Planning charts for more efficient use of drip systems

### Country Synthesis Report

Visit <http://awm-solutions.iwmi.org/zambia-documents.aspx>

### Mapping AWM potential & livelihood Reports

- Report Livelihood zones analysis, 2012. [http://www.fao.org/nr/water/docs/ZM\\_LZ\\_analysis.pdf](http://www.fao.org/nr/water/docs/ZM_LZ_analysis.pdf)
- Country Investment Brief. 2012.



[http://www.fao.org/nr/water/docs/Country\\_Investment\\_Brief\\_Zambia.pdf](http://www.fao.org/nr/water/docs/Country_Investment_Brief_Zambia.pdf)

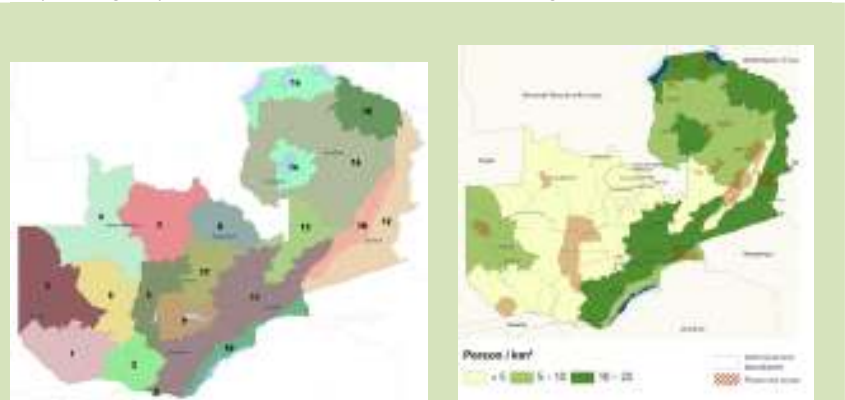
**Mapping for dialogue and decision-making**

The basis for the mapping is the livelihood context (biophysical and socioeconomic determinants), captured in the Livelihood Zones (Map 1) through an iterative consultation and desktop analysis process. The livelihoods context allows them to identify the “AWM Potential”: areas where water constraints are a major factor affecting smallholder livelihoods and where AWM can be the entry point to boost the livelihoods of farmers (Map 2).

The following step is identifying AWM practices which are most suitable in each livelihood zone. First, considering their biophysical suitability, like rainfall, hydrological network, soil type (Map 3 to 6) and then linking them with the demand for a given practice by livelihood zone (based on farmers’ typology and their ability to invest in improved AWM practices).

The mapping process has gathered stakeholders feedback through three major workshops: 1) January 2010: Livelihoods Mapping Workshop ; 2) February 2011 to October 2011 – national level and regional level multi stakeholder consultations; 3) November 2011: Technical Brainstorming Workshop on AWM Potential and Suitability Mapping.

Maps, being very effective communication tools in soliciting feedback, have, on the other hand, supported the dialogue process in various events.



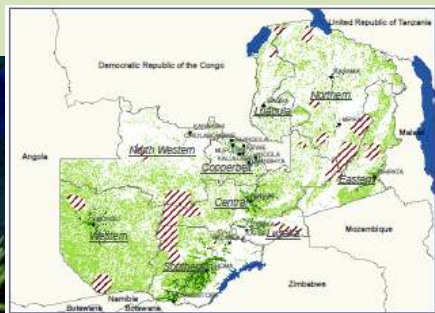
Map 1

Map 2

**AWM Potential and Suitability Mapping**

- Livelihoods Zones in Zambia (Map 1)
- Potential for Poverty Alleviation through AgWater Management – persons / km2 (Map 2)
- Suitability of AWM Technologies:
  - Low cost pumps (Map 3)
  - Small dams (Map 4)
  - Soil moisture conservation (Map 5)

For more information: Zambia Mapping Brief on the Project’s Website



Physical suitability for 3) low cost motor pumps has been assessed on the basis of: travel time to market (defined as centers of 20,000 inhabitants or more), with areas at 4 hours or less considered highly suitable and areas at more than 8 hours excluded, proximity to surface water, and occurrence of soils with shallow groundwater potential. Livelihoods context is assumed to be more favorable in zones with relatively higher prevalence of market-oriented smallholder farmers and high population density.

Map 3- Low cost motor pumps



Suitable area for small dams is here defined as agricultural area where Aridity Index (yearly precipitation divided by yearly reference evapotranspiration) is between 0.2 and 0.65, semi-arid to dry-subhumid; in addition, a higher livestock density is assumed to favor the multiple uses of small dams.

Map 4- small reservoirs



Physical suitability for soil and water conservation practices has been assessed on the basis of climate conditions. In-situ water harvesting (increased soil moisture retention) is assumed to be suitable in semi-arid (higher suitability) to dry-subhumid (medium suitability) cultivated areas.

Map 5- soil & water conservation (moisture conservation)