



**drynet**

www.dry-net.org

No. 5

July 2013

# News from Drynet

A global initiative giving future to drylands

Drynet is a project of 14 organisations from all over the world. They work together to combat land degradation

## GLOBAL NEWS

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#### PUBLISHED BY



LOKHIT PASHU-PALAK SANSTHAN  
(LPPS), INDIA  
www.lpps.org



Schweizerische Eidgenossenschaft  
Confédération suisse  
Confederazione Svizzera  
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Swiss Agency for Development  
and Cooperation SDC

## Khadins: Water harvesting structures for farming

Khadin, a system for runoff farming was developed in the 15<sup>th</sup> century by the Paliwal brahmin community in Jaisalmer, Rajasthan. This has been one of the most successful methods of farming in the desert; prior to which no agriculture took place in the region. The Paliwal brahmins were encouraged by the rulers of Jaisalmer who shared a part of the agricultural produce. These systems are functional even today. In Jaisalmer there are 500 such structures, where crops and even fodder is grown with as low as 40 mm rainfall.

The site for the Khadins is chosen on the basis of subsoil storage characteristics. They are fine in texture with good water holding capacity. The run-off is dependent on the catchment area, which is 12 to 15 times the agricultural area. The Khadins are usually formed on a terrain with a slope gradient.

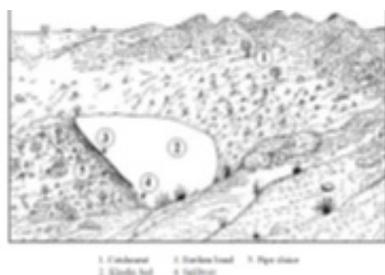
An earthen bund of "U" shape is constructed at the low point to accumulate the run off. A spillway is made in the bund for the passage of the extra

water from the runoff. A sluice is provided for the standing water.

*An excerpt from the article titled "Potential for water conservation and harvesting against drought in Rajasthan demonstrates the importance of Khadins in Jaisalmer"*

The success of the Khadins can be seen from the fact that in 2002, during the drought, they provided water for use, allowed for Sorghum cultivation for fodder and farmers were able to earn approx US\$630/ha. A water balance study of a 10 ha khadin with a 120 ha rocky catchment in the Baorli-Bambore watershed showed that with 250 mm effective rainfall in three spells the water yield from the catchment was 180,000 m<sup>3</sup>. This was harvested and stored in the khadin. In addition, 25,000 m<sup>3</sup> of rain directly falling on the khadin increased the total available water to 205,000 m<sup>3</sup>. Nearly 62 percent of this water contributed to groundwater through recharge, which resulted in a 1.2 m rise in the static water level in the wells in a zone of influence of khadin

of about 10 ha. In recent years, nearly 550 khadin farms have been developed in western Rajasthan for an average water harvest of 54,000 m<sup>3</sup> per khadin benefiting 6,400 farm families. Potential sites for developing 490 new khadin farms of different sizes in western Rajasthan have been identified and delineated on 1:50,000 scale topographical sheets. When these are developed, the total of 1,040 khadin farms would have a runoff harvesting potential of about 42 MCM water for increasing sustainability of crop production, meeting the drinking water requirement of 12,000 farm families, enhancing groundwater availability through recharging and providing a sound drought mitigation strategy.



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- By Kanika Chandel

Improving the quality of life for sheep rearers through watershed development, Darewadi watershed, Sangamner

## Taluka, District Ahmednagar, Maharashtra

*The case study is taken from the report titled - "Watershed Development and Livestock Rearing", K. Bhavana Rao and Mihir Mathur, Watershed Organisation Trust*

The Watershed Organisation Trust (WOTR) is a pioneer in the conceptualization and implementation of watershed development programmes (WDPs) in the country, and notably in the design and implementation of the Indo-German Watershed Development Programme (IGWDP). IGWDP commenced in 1992 in Maharashtra following a bilateral agreement between the governments of India and Germany. IGWDP had a robust institutional, technical and social framework, and focused on the overall development of the village rather than on just water recharge and increased agricultural productivity. A number of innovative strategies were implemented such as the ridge-to-valley approach; facilitating collaboration and convergence between key government departments through a state government resolution that enabled the treatment of forest land in the upper reaches of designated watershed areas; the design and implementation of a distinct capacity building phase to enable community participation and resolution of inter-village and intra-village conflicts; clear processes to ensure the participation of all households (HHs) in a village; voluntary labour contribution (shramdan) and the creation of a fund to facilitate post-project maintenance of watershed structures.

### Implementation of IGWDP in Darewadi

Darewadi is a remote village located in

the Sangamner block of Ahmednagar district. It falls in the rainshadow region of Maharashtra. The watershed area comprises 1,535.24 ha, of which 1,063.43 ha is private land, 306.53 ha is forest land, 147.59 ha is revenue land and 17.69 ha is community grazing land (gyran). The village has 131 HHs largely comprising the Maratha and Vanjiri castes. Forty per cent of the HHs belong to the Dhangar community (the traditional shepherd community of Maharashtra). Prior to the commencement of IGWDP, water was scarce and the land was so unproductive that even during years of good rainfall, only 3–4 months of agriculture wage labour was possible. Darewadi was on the verge of desertification when IGWDP was initiated in 1996. Drinking water was supplied by tankers from February till July every year. Migration in search of work was high and livestock rearing was the next viable source of income for many HHs. Pre-watershed, Darewadi had the highest percentage of HHs dependent on livestock, particularly small ruminants.

### Impact of IGWDP on Darewadi Watershed

IGWDP substantially increased the water table in Darewadi. This, along with social fencing of treated common lands, increased fodder availability both on common lands as well as on private agricultural lands. Sheep rearers also claim that there has been considerable increase in palatable species in the Commons three crops from their lands. Following the IGWDP, the watershed witnessed a sudden shift to cross-bred cows; however due to lack of knowledge on rearing and management practices, a drastic fall in cross-bred cows was subsequently seen.

## IN NEWS

### 'Amrit Mahal Kaval: Traditional grazing lands'

"Amrit Mahal Kaval" (Kaval=grassland) are, since the 1600s, reserved large grasslands available in different parts of Mysore (now Karnataka) State, for grazing by the herds of cattle comprising the local varieties and those brought from Vijayanagar Empire. Amrit Mahal Kavals are located in places like hillocks, slopes of hills and catchment area of various tanks and in areas of limited rainfall so that ecology and biodiversity are maintained.

At Present, Department of Animal Husbandry and Veterinary services claims possession of 65,925.36 acres (27,468.9 ha) of Amrit Mahal Kaval lands in 62 locations in 6 districts - Chikkamagaluru, Chitradurga, Hassan, Tumkur, Mandya and Davanagere and the land area varies from Kaval to Kaval. The cattle were divided into 30 herds each containing from 200 to 700 head of cattle, which were allowed to graze in every Kaval. In 1982, the Kaval area was reduced to 54,000 acre and in 1996 it further came down to 30,000 acres.

Nearly 45.58% of the landmass has disappeared due to different pressures. With the help of Amrit Mahal Kaval, Challakere Department of Forest, around 15.60% of the land is protected through afforestation, leaving only 23.92% of land for grazing and fodder development.

During the years 2009-2010, at least 10,000 acres of precious, biodiversity-rich, grassland ecosystems, protected

for centuries as Amrit Mahal Kavals - grazing pastures in Challakere Taluk of Chitradurga District, were diverted for various defence, industrial, infrastructure, institutional and commercial purposes. (See <http://esgindia.org/campaigns/press/esg-report-challakere-amrit-mahal-kaval-.html>). As a consequence of the secretive and unilateral decision-making that was engaged with in diverting the said Kavals, the true nature of the environmental and social impacts of the project has been hidden from directly and indirectly impacted communities, relevant regulatory authorities, and the public at large. The proposed investments are all highly sensitive, hazardous and will destroy the grasslands, its rare biodiversity and livelihoods of thousands in over 70 villages.

*Article By Environment Support Group (ESG)*

## EVENTS

### Developing Biocultural Protocols - Saving indigenous livestock breeds, livestock keepers and ecosystems

A Training Programme was organised by LPPS in collaboration with WOTR from 4<sup>th</sup> to 6<sup>th</sup> July 2013 at WOTR's Darewadi learning centre in Maharashtra. Its purpose was to provide a background on the legal context, purpose and process of developing BCPs, introduce participatory livestock breed documentation according to the LIFE method, teach how to distinguish whether animals belong to a breed or not.

Additional highlights included field visits to local shepherds as well as to the

famous village of Ralegao Siddhi which has been transformed through systematic watershed development. Twenty five people participated in the training and chalked out a plan to achieve the conservation and sustainable use of India's dynamic livestock oriented ecosystems through BCPs.

### Land Matrix: Accessing information on land deals

The International Land Coalition (ILC) conducted a workshop on rangeland observatories in Ahmedabad, India from 4<sup>th</sup> to 6<sup>th</sup> of June 2013. LPPS (Lokhit Pashupalak Sansthan) was a part of this workshop. ILC introduced its land matrix tool, which provides data on the country-wise land deals across the globe. The tool helps to analyse deals which are larger than 200 hectares for the country in which they took place and also provides data on the countries which made the investments in the regions being researched by the tool.

It allows for analysis to be done by overlaying various layers, for e.g., cropland data etc. For e.g., the tool has information about 36 land deals in India. On further drilling it can be seen that many of the deals were for infrastructure and involved the diversion of agriculture land in many cases. The tool also allows its users to upload data with regard to new land deals/ land grabs and also information on the deals that have not been covered. It also has provisions for the users to comment on the land deals uploaded and for an interactive discourse among the users of the tool.

## Folklores from arid lands: "Dhan Dev"



Legend has it, that among the vast sand dunes of Jaisalmer, there lived a brave warrior who on camel back chased down cattle thieves in the region. This valiant man lost his life fighting for the cattle. However, his legend lives on. In small hamlets around Jaisalmer, people still worship him as Dhan Dev, the protector of their livestock.

### FACE TO FACE

## Future of food in Arid regions in India

An interview with Dr. Vandana Shiva  
Dr. Vandana Shiva is the founder of Navdanya, which campaigns on important issues related to biodiversity, seed freedom across the globe

You have done extensive work in agriculture and water management in the arid areas of India. Please let us know about your work in these regions.

Diversity is the only way to go for successful farming in the arid regions. Water is scarce and the farmers don't have the access to tube-wells and other such means. It is important for the farmers to

have climate resilient, drought resistant seeds. Navdanya is trying to prevent the companies from patenting these traditional seed types that have been developed by the communities over the years. They have community seed banks that



have a collection of seeds that serve both as repositories and also help in the distribution of seeds to the farmer. The prime example of these seeds are the traditional millets that have been used in the arid areas for centuries. The use of these seeds is indigenous and specific to the areas where they are grown. Strict quarantine laws ensure that there are no exports from India. The traditional varieties are identified and propagated in different parts of the world as a part of the Global seed freedom campaigns.

*In your opinion, what methods should be followed in for the agriculture in these regions?*

Three important steps in creating resilience in dry lands are drought tolerant seeds, drought tolerant soils (live organic matter with organic farming, "Everything has a food web, if poisoned everyone gets harmed."

Mixed farming is important in the arid and semi-arid regions with the integration of crops, livestock and the trees. For example the Khejri tree in Rajasthan provides fodder even in summers. The fodder is essential for manure.

You mentioned millets are the most resilient and have very less water requirements. However, in the recent times, most people have moved away from

millet consumption.

Forgotten food (millets and other traditional crops) are the future foods. Water is a limiting factor and these foods are the only way to go. Navdanya's efforts for the last 25 years have resulted in the presence of millets in cities like Delhi. The media through the advertising and the concessions on agriculture by the government, have eroded the value of food. The tax-payers money helps in making the fast foods cheaper and the advertising helps in increasing their consumption.

*What is your opinion about "Ecofeminism" in the context of arid regions?*

Ecofeminism is the opposite of Capital Patriarchy. Capital is nothing but distilled wealth in the hands of few. Nature creates and women create, but the capitalists take deny them their creativity and treat them as dead and passive. They shut their minds and appropriate the seeds which were created by nature and were bred with different properties by women. This is true especially in the arid regions where the women have been key in developing the strains that are resilient to climate change and take less amount of water.

*What are the key issues that we are facing in the arid regions?*

There are three main crisis that loom due to the forgotten foods. The climate crisis in the form of droughts, food crisis resulting in the vast spread hunger and the severe malnutrition – both starvation and obesity (one is where there is no food to eat and the other is where there is too much food but the nutritional value is zero). It is essential to get back forgotten foods instead of propagating GMO.