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THE RURAL

TRACKING THE CHANGING INDIA IN ITS VILLAGES

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RAINFED FARMING

A watershed moment

A Pulses Revolution is possible even in the most backward districts, as a PPP project in Bundelkhand has shown

HARISH DAMODARAN
DAMOH (MADHYA PRADESH), AUGUST 10

ZAHIM KHAN has two major worries, as he surveys the *urad* (black gram) crop on 14 out of the 20-acre land being jointly cultivated by him with 13 other farmers.

The immediate concern is rains. Damoh district in Madhya Pradesh's Bundelkhand region, of which his village Somkhedra is a part, has received 1,111.5 millimetres (mm) of rainfall in the current monsoon season from June 1 to August 10. That is 71 per cent above the normal average for this period.

"We first planted on July 1, but had to re-sow on July 15 as there was water-logging from too much rains. It has rained quite a lot even since then, but thankfully not in the last two days," says Khan, who has pooled his 1.5 acres with others — they include Santosh Patel, Mansingh Thakur and Jeeva Rajak, all from different communities — to create a consolidated 20-acre plot.

The second worry has to do with prices. Khan and his fellow cultivators planted *urad* on 14 acres — the balance six is under paddy — encouraged by the returns from the summer moong or green gram, which they had sowed on their entire 20 acres on April 1 and harvested over the second week of June. With yields at 4-6 quintals an acre and average realisations of Rs 5,000-5,500 per quintal, there was something to smile about.

But *urad* could turn out different. MP has seen 10.02 lakh hectares (lh) planted to *urad* this time, up from 8.31 lh last year, with its total *khari* pulses area, too, rising from 15.10 lh to 18.55 lh. The higher sowing — mainly at the expense of soyabean whose acreage has dropped from 58.07 lh to 53.61 lh — has prompted fears of prices crashing when the crop is harvested towards end-September/early-October.

"It happened with onions, which we grew on six acres in the last rabi season (sowing in early-November and harvesting in mid-December and harvesting in March). Prices had reached Rs 4,000 per quintal in August-September, only to crash to Rs 300-400 levels by April-May. What's the guarantee this won't take place in *urad*?", asks Khan.

The same concern is voiced by farmers about 7 km away in Rageda village, where some 450 hectares have come under *urad* and *arhar* (pigeon-pea), as against 250 hectares last year. "We have stopped growing soyabean, as it can neither survive water-logged nor drought conditions. Also, realisations are just Rs 3,200-3,400 per quintal, compared to Rs 5,000-6,000 for *urad* and Rs 9,000 for *arhar*," notes Govind Singh, who has sown *arhar* on three and *urad* on two out of his five acres. Both were planted on July 15, with *arhar* being a 170-180 day crop and *urad* maturing in 75-80 days. Singh is, however, aware that the high rates for pulses need not be repeated this year. "We know that from onions. In 2015, our village produced 9,000-10,000 quintals and we got around Rs 3,500 per quintal. This rabi season, we produced 18,000 quintals and they fetched Rs 300-400. The same thing cannot be ruled out for *urad* and *arhar*," he admits.

The striking thing about farmers in both Somkhedra and Rageda is their willingness and capacity to experiment with a range of crops. This has primarily come from access to irrigation, courtesy the Integrated Watershed Management Programme (IWMP), making intensive cultivation possible even in regions such as Bundelkhand.

The problem in Bundelkhand — at least the districts falling in MP — is not lack of rains. Damoh's normal annual rainfall of 1,180.6 mm, for instance, is close to the all-India long



Zahim Khan and his fellow farmers at their *urad* field in Somkhedra village of Damoh, Madhya Pradesh. (left) *Chana* being sorted at the Damoh Agriculture Produce Market Committee mandi.



THE ISSUE AT HAND

■ The problem in Bundelkhand — at least the districts falling in MP — is not lack of rains. Damoh's normal annual rainfall of 1,180.6 mm is close to the all-India average of 1,186.2 mm. But out of the 1,180.6 mm, 1,071 mm or 91 per cent is received in just the four monsoon months of June-September

■ The poor depth, texture and permeability of soils means that much of the yearly rainwater, delivered within a short time span, is subject to surface runoff. Rather than recharging the aquifer, the monsoon rains merely end up recharging the rivers and causing soil erosion

period average of 1,186.2 mm. But out of the 1,180.6 mm, 1,071 mm or 91 per cent is received in just the four monsoon months of June-September. This time, the district has already got 1,111.5 mm by August 10!

"The real issue isn't rains as much as the thin soils that cannot hold water for too long. The average soil depth in Damoh is between 60 and 300 cm, below which it is all hard strata comprising sedimentary rocks: shale, limestone, slate and sandstones. So unlike here, Bhopal where soil depths can be 1,000 cm and more, there's little scope for groundwater recharge or digging deep tube-wells here," explains Waman Kulkarni, manager (Watershed Management and Sustainability) at Mahindra & Mahindra Ltd.

The poor soil depth, texture and permeability means that much of the yearly rainwater, delivered within a short time span, is subject to surface runoff. Rather than recharging the aquifer, the monsoon rains merely end up recharging the rivers — the Beama and Sonar, which further feed into the Ken, a tributary of the Yamuna. The only alternative, then, is to focus on surface water management with a view to control runoff and associated soil erosion.

M&M, in partnership with the MP government, has implemented a project under the IWMP aimed at harvesting of surface water on 9,560 hectares covering 32 villages of Damoh. It has basically involved digging continuous contour trenches and building gully plugs along the hill slopes (to slow down water flow); construction of earthen percolation tanks, rock-filled wire mesh gabions and farm bunds in the middle catchments; and stop dams in low-lying areas.

The effects have been palpable. Between 2011-12 (before the project started) and

2015-16, the cropped area under paddy in the 32 villages went up from 1,936 to 2,214 hectares, while rising from 1,692 to 2,692 hectares for wheat, from 2,855 to 3,093 hectares for *chana* (chickpea), from 583 to 1,948 hectares for *urad*, from 291 to 546 hectares for *khari* moong, and from 52 to 630 hectares for onion and other vegetables. Most significant, though, has been summer moong, which no farmer had grown previously. Last year, the coverage under it touched 281 hectares. "We could never imagine raising a third crop, as there was no water after January and even wheat could be given only 2-3 irrigations. But now, even after 4-5 irrigations for wheat, we can take a summer moong crop in April-June by giving water through sprinklers," points out Govind Singh, a four-acre farmer from Deori jamadar village.

With irrigation, farmers have also been incentivised to plant certified (as opposed to local non-descript) seeds from improved publicly-bred varieties — for instance, 'Megha' and 'Sankat' moongor 'Type-9' *urad* from the Indian Institute of Pulses Research, Kanpur. In Somkhedra, which is in the edge of the Nauradehi Wildlife Sanctuary, Khan and his comrades have even put up a common fence to protect their standing crop against wild boars, nilgai, chital deer and stray cattle. The cost of the wire for this, around Rs 1 lakh, has been funded by the project. For a state with an already developed rural roads network and mandi infrastructure to enable farmers bring their produce — visible even in a backward district like Damoh — a Pulses Revolution should not be difficult. Assured government procurement and access to irrigation through watershed management can make this all the more possible.



When fund crunch derails projects

HARISH DAMODARAN
BHOPAL, AUGUST 10

A PROGRAMME that has enabled a state like Madhya Pradesh to create new irrigation potential of over one lakh hectares (lh) in five years is suffering budget cuts, just when these investments are perhaps most required for boosting production of pulses, oilseeds and other largely rainfed crops.

The Centre's budgeted outlay for the Integrated Watershed Management Programme (IWMP) has shrunk from Rs 4,848.80 crore in 2013-14 to a mere Rs 1,550 crore for the current fiscal.

"Since 2009-10, we have spent Rs 1,240.78 crore that has helped generate irrigation potential of 105 lh in the state. The budget cuts from the Centre raises question marks on our ability to sustain this progress," an official from the Department of Panchayat & Rural Development in the MP government told *The Indian Express*.

Apart from its own agencies, MP has also invited NGOs and corporates in the implementation of projects under IWMP. Thus, Mahindra & Mahindra was given watershed development projects in Damoh and Bhopal districts, ITC in Sehore and Mandaus, Gasim in Neemuch, Hindustan Unilever in Tikamgarh, and Ramky Group in Vidisha and Sagor.

"Not only has the overall outlay been slashed, they have even retained the cost norm of Rs 12,000 per hectare that was set in 2009. For a 500-hectare village, it works out to Rs 60 lakh, which has to also take care of administrative and monitoring expenses in addition to capacity building, productivity enhancement and livelihood development. How much of watershed development can you do after all that?" the official pointed out. Harvesting of rainwater and control of surface runoff requires creating at least 20-25 structures: stop and check dams, percolation tanks, farm ponds and field bunds, along with contour trenches and gully plugs. "You need a minimum Rs one crore to do a proper job. For MP alone, it means spending Rs 1,000 crore annually, as against Rs 300-350 crore now," he said.

Under the new government at the Centre, IWMP has been made a component of the Pradhan Mantri Krishi Sinchayee Yojana (PMKSY), which has an overall budget of Rs 5,300 crore for 2016-17. But PMKSY also has other components such as Accelerated Irrigation Benefit Programme, Har Khet Ko Pani and Per Crop More Drop — all under different ministries.

"The earlier focused approach to watershed development has been lost. And unfortunately, it has come when projects that were approved 2-3 years ago are taking off and now face funding crunch," the official added.