In the last couple of decades, climate change – extreme weather events, loss of biodiversity, diminishing natural resources, land degradation and desertification – has impacted the agriculture sector profoundly. Add to that the burden of malnutrition. These challenges have now been exacerbated by the uncertainties around how the COVID-19 pandemic will finally play out. Tweaking policy and investments To transform the food systems in India following the COVID-19 pandemic, the government will urgently need to repurpose existing agricultural policies. India's policy regimes like the Minimum Support Price (MSP) and the Public Distribution Systems (PDS), coupled with subsidies on irrigation, power, and farm inputs, are skewed in favour of staple crops like rice and wheat. Even though some climate-resilient and nutritious cereals like sorghum and millets get some support pricing, this seems ineffective as the policy is biased in favour of the "big two" staples. In the past, policy watchers have suggested crop diversification to correct such legacy incentives. But how do you convince farmers to switch to a new production system without the promise of a stable income, however environmentally sustainable or nutrition-laden the proposed new regime may be? Farmers will make the transition only with suitable financial incentives, a strong value chain and new consumer behaviour. COVID-19 may have opened up an opportunity to effect these changes as the country emerges out history's biggest lockdown. In fact, before the pandemic, India had a solid case for increasing investments in the animal husbandry sector, given the rising domestic demand for meat, dairy products and eggs. In these uncertain times, it makes double the sense for smallholder farmers, landless poor and jobless agricultural labourers who have found their way back home to rear small ruminants, backyard poultry, and aquaculture for additional income. The reverse migration of labourers from states like Haryana and Punjab during the current COVID pandemic offers a unique opportunity for these states to undo the historical wrong of supporting unsustainable, water- and labourintensive cropping patterns. The good news amidst the crisis is that these states have started promoting non-paddy crops with lesser water footprints like maize and cotton for the forthcoming rainy season. This should also help bypass experienced labour-intensive farm operations such as transplanting paddy. From field to plate — what should change Farmers in Odisha readying paddy yields for the market. © A K Rout Traditionally dominated by smallholders, Indian agriculture would now benefit if millions of scattered small farms across the country are systematically aggregated. This would help reduce transaction costs of the

farms for accessing the value chains and make it

easier for small farmers to access inputs,

Post-pandemic, the demand for high-value

agricultural products such as fruits, vegetables,

and dairy, is expected to increase. The focus of

production, therefore, should ideally cater to

population. It is a good time to bring primary

processing facilities closer to the farm gates and

help producers gather market intelligence and

Government policies to incentivise technology

startups and the private sector will also prove

rewarding. Development of agri-logistics to

strengthen value chains should be accorded

agricultural commodities, particularly that of

inefficiencies such as poor access to marketing

channels, inadequate transportation, improper

storage, handling and processing, post-harvest

One way to overcome these barriers could be

the use of smart technologies - artificial

intelligence and block chain - alongside

Smallholder farmers with a good market

appetite will need some hand holding. India

should now begin procuring cereals, pulses,

commerce and delivery companies.

incentivising the logistical role played by e-

During the lockdown, supply chains of

perishables, were plagued by some

losses and information asymmetry.

priority in the policy agenda.

manage the value chain better with digital

agriculture tools.

this growing need of a health-conscious

technology, and the market.

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nature india

Lessons from a

repurpose India's

large scale exodus of migrant

diversified beyond labour and

59 SHARES

Pingali**.

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agricultural workers from India's

food basket, it's time the country

doi:10.1038/nindia.2020.83 Published online 12 May 2020

Women winnowing wheat in a Punjab village.

Television footages of hundreds of migrant

labourers walking for thousands of kilometres

amidst India's country-wide lockdown shook

In the absence of livelihoods, shelters and

square meals, these labourers desperately

wanting to get back to their home states

unorganised agricultural workforce.

portrayed the vulnerability of India's massive

Agriculture, food and nutrition have come into

sharp focus as a fallout of the COVID-19 crisis

in India. Though the pandemic may not have

caused serious disruption to the food system,

thanks to good harvests in the previous crop

this is as good a time as any to reboot the

and malnutrition.

many folds.

seasons and sufficient buffers of rice and wheat,

country's agricultural policy, already facing the

traditional twin challenges of climate change

India's nine-week-long lockdown has raised

serious concerns about the reduced access to

nutritious food by those living in the fringes.

Agricultural operations have remained out of

the purview of the lockdown restrictions, which

started on 25 March 2020. A couple of days into

the lockdown, India declared a slew of welfare

measures to protect vulnerable people,

including smallholder farmers, agricultural

labourers and migrant workers. However, to

the government will need to step up its game

make food accessible and affordable to the poor,

the collective conscience of a nation this April.

agricultural policy

As the coronavirus crisis triggers a

pandemic to

millets, and other nutritious foods for state-run distribution programmes like the Integrated Child Development Services (ICDS) and the Mid Day Meal (MDM) to meet national nutritional outcomes and simultaneously enhance livelihood opportunities for the rural people involved in the agriculture sector. **Modifying consumer** behaviour If the pandemic is teaching the world one important lesson in nutrition, it is to boost one's immunity and maintain good health to better fight the viral attack. Extrapolating that to inform consumer behaviour will be an important policy offshoot. Following the novel coronavirus pandemic, consumers across the spectrum are expected to adopt diets that come from healthier and nutritious food chains to boost their immune systems. This would be an opportunity for India to push for consumption of locally available nutritious foods, consumer education and nutrition literacy. There is increasing urban demand for products low in salt, sugar, sodium, or saturated fat. To create consumer interest in a food system with low health risks, India must undertake massive awareness campaigns in rural and underserved populations. While such campaigns are

necessary, several factors, like taste,

outcomes.

affordability, and convenience my influence the

Government programs like PDS, MDM, and

ICDS are the best possible delivery channels to

leverage healthier and nutritious food products

in India. Fortification of food materials has also

been advocated in the past, though significant

Consumer behaviour and nutrition choices are

take as mothers, cooks, caretakers and farmers

in Indian households, as has been evident even

during the pandemic. Women's ownership of

decisions they get to make within households.

Education of women is positively correlated

with reduced prevalence of anaemia and

malnutrition, and so must be included in

policy-level strategies. Therefore, besides

empowering women involved in agriculture

with appropriate policy interventions, state

dimensions for better nutritional outcomes.

land policies must address these sensitive

The COVID-19 pandemic's health fallout

and related resources. The second biggest

and nutrition for a country of 1.3 billion,

prioritising allocations to research on

especially the poor and underprivileged. Not

nutrition-sensitive agriculture in these times

invested agriculture research and innovation

ecosystem, as that may irreversibly damage the

Expanding localised production of diverse and

bio-fortified crops should also be a priority or

would be an error. The dwindling resource

envelope should not miss out the under-

sector.

investments towards the health infrastructure

challenge would be addressing issues of hunger

would expectedly drive major public

Funding for nutrition-

sensitive agriculture

agricultural lands or houses is also critical in the

intrinsically linked to decisions that women

nutritional outcomes are yet to be seen.

the agricultural extension system. Moreover, investigations must continue to assess the impact of climate change on the nutritional content of food crops.

In the post-COVID scenario, a key governance approach should be to remove the silos in public delivery system by bringing relevant government bodies together.

India's future food system needs to be rewired

to make room for sustainable agricultural

the triple whammy of climate change,

malnutrition and a pandemic.

coronavirus and COVID-19

USA.)

crisis here. 1

policies that are resilient to the 'new normal' -

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