

Overview: Millets are Smart Food

Malnutrition is one of the greatest health and development challenges in the present time, and one of the targets under the second sustainable development goal is to end all forms of malnutrition by 2030^[1]. Malnourishment affects at least one in three people, which include the 815 million people who are chronically undernourished and the 1.9 billion people who are obese^[2]. The high incidence of malnutrition reflects that the world has miserably failed to make much progress in chronic food insecurity, especially, in developing countries. In this regard, during the last decade, most of the national and international organisations have implemented different strategies to eradicate malnutrition^[3-5]. Among the various actions or interventions, millets play a vital role to address malnutrition^[5-6]. The world has neglected millets (as inferior grain) and emphasized on rice, wheat & corn food crops narrowing the food security basket. As a result, it restricted the opportunity of farmers in difficult regions from utilizing their land resources, environment & traditional knowledge and prevented in minimizing the chances of local food shortage^[7]. Conventionally, it is often referred to as coarse cereals, but realizing the nutrient richness of the grains, it is now considered as nutri-cereals^[8] or smart food^[9]. Among many strategies, the problem of malnutrition in India can be addressed by making millets available through the public distribution system (PDS)^[10].

Procurement and Public Distribution of Millets in Odisha – Lessons and Challenges

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Abstract: Millets are considered as smart crops that are resilient to climate stress and have nutritional advantages. Odisha's initiative in millets, from farm to plates, has been intervening through four verticals in production (with new agronomic practices), processing, marketing and consumption (includes awareness campaigns and also through inclusion in nutritional programmes). Odisha also started procurement of *mandia/ragi* (finger millet) since 2018-19. These have important lessons for other states in India as also elsewhere. But, more importantly, the next logical step for Odisha, in line with the larger thinking behind its millets mission for conserving biodiversity, for greater climate resilience, and for better nutritional outcomes, is to include other millets like *suani/gurji* (little millet), *kangu* (foxtail millet), *kodo/kodua* (kodo millet), *khira* (barnyard millet), *bajra* (pearl millet) and *janha/jowar* (sorghum) in procurement and public distribution. Besides, their inclusion in supplementary nutritional interventions should be tied to carefully designed studies to evaluate outcomes.

MILLETS INITIATIVE OF ODISHA

In Odisha, the area under millets has been declining since 1980s with the ushering in of the green-revolution with an emphasis on paddy^[11]. In recent years, keeping in perspective the nutritional potential of millets and its adaptability to harsh climatic conditions, the Government of Odisha launched a "Special Programme for Promotion of Millets in Tribal Areas of Odisha," also referred to as Odisha Millets Mission (OMM), which has been operating since 2017-18 through four verticals – production, processing, marketing and consumption through a unique institutional architecture where

the Government, civil society and the Academic worked together by complementing and supplementing each other^[5]. The motivation behind the programme has been that these crops will help conserve bio-diversity, bring about greater climate resilience and lead to better nutritional outcome^[12]. The millets grown in Odisha are *mandia*, *janha*, *bajra* and small millets (is a crop group within millets comprising *suani*, *kangu*, *kodo*, and *khira* among others. From among these, *mandia* is the predominant crop in Odisha constituting 76 per cent of the area under millets in 2017-18^[11].

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The special programme for promotion of millets in Odisha shows promising results in the first year of intervention in 2017-18, compared to the baseline in 2016-17, as yield has more than doubled (from 5.79 quintals per hectare to 12.72 quintals per hectare) and the value of produce has more than trebled (from ₹ 3,957 per farmer to ₹ 12,486)^[13]. Further in the first year of intervention 8,596 farmers spread across 29 blocks and seven districts cultivated millets in 5,182 hectares and most of it was *mandia*, with two other millet crops, *suan* and *kodo* being cultivated in 212 hectares and 10 hectares, respectively. By the fourth year, in 2020-21, the programme had spread across 76 blocks in 14 districts wherein the target (as of 31 August 2020) was to reach one lakh farmers to cultivate millets in 50,000 hectares, of which 5,000 hectares was to be six other millet crops, *suan*, *kangu*, *kodo*, *khira*, *bajra* and *janha*.

MANDIA PROCUREMENT IN ODISHA



This is Odisha Millets Mission's mascot 'Mandia', also the local term for *Ragi* (Finger Millet)

To ensure market support with a minimum support price for fair average quality of *mandia*, Odisha started its procurement in *kharif* 2018-19 through the Tribal Development Cooperative Corporation of Odisha Limited (TDCCOL) in eight districts. The procured *mandia* was also distributed under PDS in seven tribal districts. Further, in 2019-20, *mandia* procurement was extended to 14 districts under the programme^[14-15]. To make it successful, widespread awareness programmes and campaigns were conducted by civil society partners, required machines were installed at *mandis* (collection centres) to ensure fair average quality of *mandia* grain to be procured. In *Swabhimani Anchal* of Malkangiri district, a cut-off area, the inauguration of a *mandi* by Agriculture Minister of Odisha on December 23rd 2019 on the occasion of National Farmers Day was the first ever procurement for any grain in this region. Similarly, a *mandi* to procure *mandia* was also set-up in the Simlipal Forest Reserve

of Mayurbhanj district^[16]. In December 2020, farmer producer organizations (FPOs) have been roped in to be in charge of the collection centres in 16 blocks to facilitate procurement of *mandia*^[17]. The *mandia* procured in 2018-19 was distributed as a one-time additional amount under existing PDS and there have been plans to streamline this or to introduce millet-based recipes under supplementary nutritional programmes like the integrated child development and mid-day meal schemes as also in school hostels for Scheduled Caste and Scheduled Tribes^[15-17].

NUTRITIONAL INTERVENTION THROUGH MILLETS IN ODISHA

A study led by researchers from International Crop Research Institute for the Semi-Arid Tropics (ICRISAT) assessed the use of millet-based mid-day meals to adolescents compared to fortified rice based meals indicated impact on nutritional status and acceptance among participants^[18]. At the same time, to create a perception on millets, Odisha, in collaboration with its academic partners such as Nabakrushna Choudhury Centre for Development Studies (NCDS), Indian Institute of Millets Research - Indian Council of Agricultural Research (IIMR-ICAR) and Central Food Technological Research Institute-Council of Scientific and Industrial Research (CFTRI-CSIR) has promoted millet consumption among pre-school children by introducing *mandia ladoos* as part of morning snacks in Keonjhar and Sundargarh districts with financial support from their respective district mineral foundations. The laddoo add-on to existing supplementary nutrition programmes of Integrated Child Development Scheme (ICDS) of Women & Child Development Department with women self-help groups under Mission Shakti being involved to prepare the ladoos is also an exercise in convergence across schemes and departments as part of the larger millets initiative of Odisha^[19-20].

CHALLENGES AND SUGGESTIONS

The area, as also production of millets in Odisha has declined since 1980s^[12] and there might be some revival in recent years^[13]. However, high incidence of under nutrition, including among pregnant and lactating mothers, is a matter of concern^[21]. This calls for a balanced diet with inclusion of millets, which are considered as nutri-cereals or smart food, in supplementary nutrition programmes for mothers, for pre-schoolers, and for school going children (both for mid-day meals for all and also for all meals for boarders residing in hostels under welfare schemes), which should go beyond *mandia* ladoos as an add on. The collaboration and consultation envisaged by the state government with IIMR-ICAR and CFTRI-CSIR should be put to effective use in this direction. In fact, for substantive nutritional interventions, Odisha should consider introducing alternative recipes by substituting existing menu and also tie it up to carefully designed studies to evaluate their outcomes. In keeping with



Millet recipe preparation in
Nuapada district, Odisha
[FAO NRAA Project]
Photo Credit: Ardra Venugopal

the spirit of the programme and in line with convergence for production and consumption interventions^[5], a challenge that comes up is the daunting task of preserving of all varieties of each millet crop that is being grown in the state as that would be relevant for conserving biodiversity, for their resilience under different agro-ecological conditions, and for their independent strengths to address food and nutritional security. Some developments in plant sciences

have largely focused on the major millets like *bajra* and *janha* as also *mandia*^[22]. The minor millets such as *suan*, *kangu*, *kodo*, and *khira* among others have smaller grains with much lower yield and also need greater caution at the processing stage, but have the potential to address food and nutritional security^[23]. If one is to include all these into supplementary nutrition programmes then Odisha, should consider procuring other millets also. The system put in place for *mandia*, may be extended to other millet crops. It may be easier for *bajra* and *janha* because, like *mandia*, Government of India declares minimum support prices for these crops also. For other millet crops, calculation of cost of cultivation, as is done for crops for which minimum support prices are declared, will be useful.

CONCLUSION

To sum up, the millets initiative of Odisha from farm to plates is laudable. In the process, it has lessons on convergence within and between the line departments and also on the institutional architecture wherein the Government, the civil society and the Academia have worked together. The procurement of *mandia* millets and its inclusion into public distribution and other welfare schemes is a good step. All these may have some lessons for other states in India as also for regions with agro-ecological conditions suitable for millets like in some African countries and elsewhere. A logical extension for Odisha, in line with the larger thinking behind its millets mission for conserving biodiversity, for greater climate resilience, and better for nutritional outcomes would be to take this procurement forward to other millets and also tie up the nutritional interventions with carefully designed studies to evaluate the outcomes.

REFERENCES

- [1] United Nations, “#Envision2030 goal 2: zero hunger,” United Nations, 2019. [Online]. Available: <https://www.un.org/development/desa/disabilities/envision2030-goal2.html>. [Accessed 19 December 2020].
- [2] Food and Agriculture Organization, International Fund for Agricultural Development, United Nations Children's Fund, World Food Programme and World Health Organization, “The state of food security and nutrition in the world 2018,” FAO, Rome, 2018.
- [3] World Health Organization and Food and Agriculture Organization, “Driving commitment for nutrition within the UN decade of action on nutrition: policy brief,” 2018. [Online]. Available: <https://apps.who.int/iris/handle/10665/274375>. [Accessed 19 December 2020].
- [4] Food and Agriculture Organization and International Fund for Agricultural Development, “United Nations decade of family farming 2019-2028, global action plan,” Food and Agriculture Organization, Rome, 2019.
- [5] Government of Odisha, “Guidelines for implementation of Special Programme for Promotion of Millets in Tribal Areas of Odisha,” National Food Security Mission Cell, Directorate of Agriculture and Food Production, Odisha, 25 November 2016. [Online]. Available: <http://www.milletsofodisha.com/guidelines>. [Accessed 19 December 2020].
- [6] A. Kumar, V. Tomer, A. Kaur, V. Kumar and K. Gupta, “Millets: a solution to agrarian and nutritional challenges,” *Agriculture and Food Security*, vol. 7, no. 1, p. 31, 27 April 2018.
- [7] S. Ravi, “Neglected millets that save the poor from starvation,” *LEISA India*, vol. 6, no. 1, pp. 1-8, 2004.
- [8] Government of India, “Notification on Nutri-Cereals,” *The Gazette of India: Extraordinary*, no. Part 1, Section 1, No. 133, 10 April 2018.
- [9] International Crop Research Institute for Semi-Arid Tropics, “Meet the Smart Food,” 2019. [Online]. Available: <https://www.smartfood.org/smart-foods/>. [Accessed 19 December 2020].
- [10] S. Raju, P. Rampal, R. Bhavani and S. Rajshekar, “Introduction of millets into the public distribution system: lessons from Karnataka,” *Review of Agrarian Studies*, vol. 8, no. 2, pp. 120-136, 2018.
- [11] D. Jena and S. Mishra, “Growth, instability and decomposition of millets in Odisha: 1960-61 to 2017-18,” *Odisha Economy Discussion Series*, no. 7, September 2020.
- [12] Government of Odisha, Comprehensive revival of millets: securing nutrition and surviving droughts in southern Odisha, Concept note for a consultation meeting on 27 January 2016 at NCDS, Planning and Coordination Department, No 635(8)/DCACS, 14 January 2016.

- [13] S. Mishra, "Area, yield, production and value of produce under the special programme for promotion of millets in tribal areas of Odisha (Odisha Millets Mission), 2017-18, phase-1," Nabakrushna Choudhury Centre for Development Studies, Bhubaneswar, February 2020.
- [14] B. K. Nayak, C. R. Das and S. Mishra, "Procurement of ragi in Odisha: ground level issues and recommendations," NCDS Policy Brief, no. 10, 6 November 2019.
- [15] S. Mishra, "Ragi procurement in Odisha: strengthening the farm to plate initiative," NCDS Policy Brief, no. 11, 6 November 2019.
- [16] D. Balam, "Government of Odisha to plan distribution of 93000 quintals of ragi procured under Odisha Millets Mission (OMM)," 30 March 2020. [Online]. Available: <https://rranetwork.wordpress.com/2020/03/30/govt-of-odisha-to-plan-distribution-of-93000-quintals-of-ragi-procured-under-odisha-millets-mission-omm/>. [Accessed 19 December 2020].
- [17] D. Balam and S. Sharma, "Farmer producer organisations to procure millets (ragi) for PDS & ICDS in Odisha," 17 December 2020. [Online]. Available: <https://milletmission.wordpress.com/2020/12/17/farmer-producer-organisations-fpos-to-procure-millets-ragi-for-pds-icds-in-odisha/>. [Accessed 19 December 2020].
- [18] S. Anitha, J. Kane-Potaka, T. W. Tsusaka, D. Tripathi, S. Upadhyay, A. Kavishwar, A. Jalagam, N. Sharma and S. Nedumaran, "Acceptance and impact of millet-based mid-day meal on the nutritional status of adolescent school going children in a peri urban region of Karnataka state in india," *Nutrients*, vol. 11, no. 9, p. 2077, 2019.
- [19] Mission Shakti, "Inclusion of ragi laddu in Keonjhar," Twitter handle of Mission Shakti, 3 July 2019. [Online]. Available: https://twitter.com/mission_shakti/status/1278969633215623169. [Accessed 19 December 2020].
- [20] Mission Shakti Odisha, "Inclusion of ragi laddu in Sundargarh," Facebook page of Mission Shakti, 15 August 2020. [Online]. Available: <https://www.facebook.com/missionshakti.odisha/posts/3354054204652382>. [Accessed 19 12 2020].
- [21] R. R. Samal and S. Mishra, "Nutrient deficiencies in a tribal community," *Odisha Economy Discussion Series*, no. 8, September 2020.
- [22] J. V. Patil (Ed.), "Millets and sorghum: biology and genetic improvement.," John Wiley & Sons, 2016.
- [23] M. Muthamilarasan and M. Prasad, "Small millets for enduring food security amidst pandemics," *Trends in Plant Science*, vol. 26, no. 1, pp. 33-40, 2021.

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Resources



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