



Government of Bihar
Dept. of Agriculture



Fourth
Agriculture
Road Map
2023-28





3 अक्टूबर, 2012 को भारत के माननीय राष्ट्रपति को द्वितीय कृषि रोड मैप की पहली प्रति भेंट करते हुए माननीय मुख्यमंत्री, बिहार



09 नवम्बर, 2017 को भारत के माननीय राष्ट्रपति को तृतीय कृषि रोड मैप की पहली प्रति भेंट करते हुए माननीय मुख्यमंत्री, बिहार



विहार सरकार
कृषि विभाग

Fourth Agriculture Roadmap (2023-28)



Fourth Agriculture Roadmap (2023-28)





बिहार सरकार



नीतीश कुमार
मुख्य मंत्री, बिहार

संदेश

कृषि एवं संबद्ध प्रक्षेत्रों के विकास हेतु पहली बार वर्ष 2008 से 2012 तक के लिए कृषि रोड मैप बनाकर कृषि विकास कार्यक्रम चलाये गये। पहले कृषि रोड मैप की उपलब्धियों से प्रभावित होकर वर्ष 2012 से 2017 तक दूसरे कृषि रोड मैप तथा वर्ष 2017 से 2022 तक तीसरा कृषि रोड मैप के तहत कार्यक्रम चलाये जिसे मार्च, 2023 तक विस्तारित किया गया। इन तीनों कृषि रोड मैप के क्रियान्वयन से फसलों, फलों एवं सब्जियों के उत्पादन और उत्पादकता में वृद्धि हुई। राज्य में धान, गेहूँ एवं मकई की उत्पादकता पहले के मुकाबले लगभग दोगुनी हो गयी है। साथ ही दूध, अंडा, मांस एवं मछली के उत्पादन में काफी वृद्धि हुयी है। मछली का उत्पादन ढाई गुना से अधिक हो गया है जिससे मछली के उत्पादन में बिहार लगभग आत्मनिर्भर हो गया है। बिहार को चावल, गेहूँ, मोटे अनाज (मक्का) के उत्पादन एवं उत्पादकता में उल्लेखनीय उपलब्धि के लिए केन्द्र सरकार से 5 कृषि कर्मण पुरस्कार मिले हैं। कृषि विकास के लिए आधारभूत संरचनाओं जैसे बिजली, ग्रामीण पथ, खाद्य प्रसंस्करण की नई इकाईयों में वृद्धि हुई है।

इन तीनों कृषि रोड मैप के क्रियान्वयन से कृषि के हर क्षेत्र में उल्लेखनीय प्रगति हुई है। इसके बावजूद कृषि के विकास एवं किसानों के आय बढ़ाने के लिए नई आवश्यकताओं एवं चुनौतियों का विश्लेषण किया गया। इससे पता चला कि दलहन एवं तिलहन का उत्पादन लगभग स्थिर रह रहा है जो एक गम्भीर चुनौती है। किसानों के समक्ष जलवायु परिवर्तन के कारण बाढ़ एवं सुखाड़ जैसी समस्यायें खड़ी हो रही हैं। राज्य का बड़ा चौर क्षेत्र कृषि के विकास के लिए अहम है। किसानों को जैविक खेती के उत्पादों एवं शहद का सही दाम नहीं मिलने से किसान हतोत्साहित हो रहे हैं। इन आवश्यकताओं एवं चुनौतियों को ध्यान में रखते हुये चतुर्थ कृषि रोड मैप में तीनों कृषि रोड मैप से छूटे हुये कार्यों को समाहित किया गया है।

चतुर्थ कृषि रोड मैप में फसल विविधिकरण के तहत दलहन एवं तिलहन फसलों सहित मोटे एवं पोषक अनाज की खेती को बढ़ावा देने के कार्यक्रम बनाये गये हैं। मौसम परिवर्तन को देखते हुये सभी जिलों में जलवायु अनुकूल कृषि के कार्यक्रम चलाये गये हैं जिसमें किसानों को नयी तकनीकों, फसल चक्र, जीरो टिलेज के बारे में कृषि विज्ञान केन्द्रों पर प्रशिक्षण दिया गया है जो आगे भी जारी रहेगा। जैविक खेती के उत्पादों एवं शहद के विक्रय से किसानों को अच्छा मूल्य मिले इसके लिए विशेष पहल की गयी है। राज्य में सभी बाजार प्रांगणों का

आधुनिकीकरण किया जा रहा है, छोटे किसानों के समूह/जीविका स्वयं सहायता समूह को कृषि उपज क्रय-विक्रय में शामिल किया गया है।

दूध, मांस, अंडा उत्पादन में बिहार आत्मनिर्भर बने इसके लिए प्रत्येक 8-10 पंचायतों पर एक पशु अस्पताल की व्यवस्था की जा रही है जिसमें पशुओं के लिए चिकित्सा, टीकाकरण, कृत्रिम गर्भाधान जैसी सेवाओं की डोर स्टेप डिलीवरी की ठोस व्यवस्था रहेगी। साथ ही देशी पशुओं के नस्ल सुधार पर भी काम किया जायेगा। बिहार में लगभग 9 लाख हेक्टेयर चौर क्षेत्र है। चौर क्षेत्र के विकास हेतु योजना बनायी गयी है जिससे राज्य मछली एवं मखाना के उत्पादन में नयी ऊँचाइयाँ प्राप्त करेगा। हर खेत तक सिंचाई का पानी पहुँचाने की व्यवस्था की जा रही है जिसमें नहर प्रणाली, आहर-पाईन एवं नलकूपों के जीर्णोद्धार तथा सौर नलकूपों का वितरण आदि कार्य शामिल हैं। पूर्व में शुरू किये गये डेडीकेटेड कृषि फीडर एवं कृषि कनेक्शन के कार्य का और विस्तार किया जा रहा है क्योंकि बिजली से सिंचाई का खर्च काफी सस्ता पड़ता है।

कृषि रोड मैप को तैयार करने से पूर्व कई स्तरों पर बैठकें की गयी है। किसानों से राय एवं सुझाव प्राप्त करने के लिए "किसान समागम" आयोजित किया गया है। देश एवं विदेश के कृषि अनुसंधान संस्थानों से जुड़े कृषि वैज्ञानिकों और कृषि क्षेत्र से जुड़े अधिकारियों की राय भी ली गयी है। डॉ० मंगला राय जी, पूर्व महानिदेशक, भारतीय कृषि अनुसंधान परिषद, नई दिल्ली ने हर कृषि रोड मैप की भाँति चतुर्थ कृषि रोड मैप तैयार करने में पूरा सहयोग दिया है।

चौथे कृषि रोड मैप के क्रियान्वयन हेतु सभी विभागों द्वारा अगले 5 साल के लिए योजनायें तैयार कर ली गयी हैं तथा इस हेतु मंत्रिमंडल द्वारा लगभग 1 लाख 62 हजार करोड़ रुपये की स्वीकृति दी गयी है। हम आशा करते हैं कि पूर्व के तीन कृषि रोड मैप की भाँति चौथे कृषि रोड मैप के क्रियान्वयन से कृषि के समग्र विकास में पूरी सफलता मिलेगी।

चतुर्थ कृषि रोड मैप को तैयार करने में शामिल संबंधित विभागों के माननीय मंत्रीगण, कृषि वैज्ञानिक, कृषि विशेषज्ञ, संबंधित पदाधिकारियों एवं कर्मचारियों तथा किसान भाइयों-बहनों को उनके योगदान के लिए आभार व्यक्त करता हूँ। चतुर्थ कृषि रोड मैप के लक्ष्य चुनौतीपूर्ण हैं, जिन्हें दृढ़ संकल्प एवं परिश्रम से प्राप्त किया जा सकेगा। मुझे विश्वास है कि चतुर्थ कृषि रोड मैप 2023-2028 के क्रियान्वयन से कृषि एवं सम्बद्ध क्षेत्र के विकास में और उल्लेखनीय प्रगति होगी, किसानों की आय में वृद्धि होगी तथा हम "प्रत्येक भारतवासी के थाल में बिहार का एक व्यंजन" के लक्ष्य को प्राप्त करेंगे।



(नीतीश कुमार)



बिहार सरकार



तेजस्वी प्रसाद यादव
उप मुख्यमंत्री, बिहार

संदेश

राज्य के कृषि पारंपरिक रूप से जन समुदाय की आजीविका का प्रमुख स्रोत रहा है। अधिकतर ग्रामीण आबादी को कृषि से रोजगार भी प्राप्त होता है। बिहार में 90 प्रतिशत से अधिक किसान लघु तथा सीमांत श्रेणी के हैं, जिनके जोत का आकार 1 हेक्टेयर से कम है। राज्य की कृषि जलवायु परिस्थितियाँ भी विशिष्ट हैं। टाल, दियारा एवं चौर क्षेत्र वर्ष के कई महीनों तक पानी से डूबा रहता है। हिमालय से निकलने वाली नदियाँ, जहाँ एक तरफ सिंचाई का प्रमुख स्रोत हैं तो दूसरी तरफ बाढ़ की आशंकाएँ भी प्रबल होती हैं। दक्षिण बिहार का क्षेत्र सूखा से प्रवण है। राज्य में खेती मुख्य रूप से वर्षाश्रित है। डीजल आधारित नलकूप के माध्यम से सिंचाई की व्यवस्था के कारण खेती का लागत बढ़ता है। राज्य की विशिष्ट कृषि जलवायु परिस्थितियाँ एवं नैसर्गिक रूप से उपलब्ध उपजाऊ मिट्टी तथा प्रचुर भूमिगत जल एवं राज्य के किसानों का कृषि कौशल राज्य में कृषि विकास की असीम संभावनाओं का द्वार खोलता है।

किसानों को केन्द्र में रखकर चतुर्थ कृषि रोड मैप, 2023-2028 के लिए कार्यक्रम तैयार किये गये हैं। किसानों की आमदनी को बढ़ाने का लक्ष्य प्रमुख रूप से रखा गया है। रोड मैप कार्यक्रमों के अधीन फसल के विविधीकरण पर विशेष बल दिया गया है। शत प्रतिशत बिजली आधारित नलकूपों के माध्यम से सिंचाई की सुविधा विकास के साथ राज्य के कृषि में संरचनात्मक परिवर्तन अपेक्षित है, जिससे फसलों के क्षेत्र का विस्तार होगा। फसल क्षेत्र के क्षेत्रीय विस्तार के साथ उत्पादकता के स्तर में बढ़ोत्तरी के फलस्वरूप उत्पादन के लक्ष्य को प्राप्त करना संभव हो पायेगा। फसलों एवं बागवानी में विविधीकरण के साथ-साथ पशुपालन, मत्स्य पालन, कुक्कुट पालन, मधुमक्खी पालन, मशरूम उत्पादन को बढ़ावा देने के लिए वृहत कार्यक्रम चतुर्थ कृषि रोड मैप में शामिल किये गये हैं। फसल एवं उद्यान के विविधीकरण के फलस्वरूप किसानों की आमदनी को बढ़ावा देने पर बल दिया गया है।

चतुर्थ कृषि रोड मैप, (2023-2028) में खाद्य प्रसंस्करण के लिए वृहत कार्यक्रम तैयार किये गये हैं। मक्का, दलहन, फल एवं सब्जी आधारित प्रसंस्करण उद्योग पर विशेष बल दिया गया है। राज्य में प्रसंस्करण उद्योग की स्थापना के फलस्वरूप किसानों को उनके उत्पाद का उचित मूल्य प्राप्त होगा, जो किसानों की आमदनी को बढ़ावा देने में सहायक होगा। ग्रामीण कृषि परिवारों के लिए कृषि के साथ-साथ गैर कृषि कार्य भी

आमदनी बढ़ाने में सहायक है। चतुर्थ कृषि रोड मैप के तहत किसानों के कौशल विकास पर विशेष बल दिया गया है। जलवायु परिवर्तन का विषय कृषि के लिए अत्यन्त महत्वपूर्ण विषय बन गया है। इस क्षेत्र में अनुसंधान के साथ-साथ किसानों तक उपयुक्त कृषि तकनीक को पहुँचाना अत्यंत आवश्यक है। कृषि रोड मैप, 2023-2028 में जलवायु परिवर्तन से संबंधित विषय भी शामिल किये गये हैं। आधुनिक खेती ज्ञान पर आधारित है। बिहार में कृषि अनुसंधान तथा शिक्षा को बल देने के लिए कृषि रोड मैप में कई पहल किये गये हैं। चतुर्थ कृषि रोड मैप में कृषि, पशु एवं मत्स्य संसाधन, सहकारिता, गन्ना उद्योग, उद्योग, ग्रामीण कार्य, जल संसाधन, लघु जल संसाधन, ऊर्जा, राजस्व एवं भूमि सुधार, पर्यावरण, वन एवं जलवायु परिवर्तन, खाद्य आपूर्ति एवं उपभोक्ता संरक्षण सहित कुल 12 विभागों के कार्यक्रम शामिल हैं जो प्रत्यक्ष अथवा अप्रत्यक्ष तौर पर कृषि से जुड़े हुए हैं। चतुर्थ कृषि रोड मैप को तैयार करने में सम्बन्धित विभागों के तकनीकी पदाधिकारी के साथ-साथ प्रशासनिक पदाधिकारी भी शामिल रहे हैं, जिसके लिए वे सभी धन्यवाद के पात्र हैं। माननीय मुख्यमंत्री स्वयं इस रोड मैप के प्रेरणास्रोत हैं। मुझे आशा है कि कृषि रोड मैप के लक्ष्य शत-प्रतिशत पूरे होंगे तथा कृषि रोड मैप पूरे देश के लिए कृषि विकास का एक मॉडल प्रस्तुत करेगा।



तेजस्वी प्रसाद यादव
उप मुख्यमंत्री



बिहार सरकार
कृषि विभाग

मंत्री
कृषि विभाग
बिहार सरकार, पटना
Minister

Deptt. Of Agriculture
Govt. of Bihar, Patna

Office : 2nd Floor, Vikash Bhawan

Bailey Road, Patna (Bihar)

Ph. : 0612-2231212(O)

Fax : 0612-2215526(O)



कुमार सर्वजीत
कृषि मंत्री, बिहार

संदेश

बिहार एक कृषि प्रधान राज्य है। बिहार के माननीय मुख्यमंत्री एवं उप मुख्यमंत्री की दूरदर्शिता के कारण बिहार राज्य कृषि रोड मैप के माध्यम से कृषि एवं संबंधित क्षेत्र का सर्वांगीण विकास कर रहा है। राज्य में वर्ष 2008 से लगातार कृषि रोड मैप बनाकर किसानों के विकास से संबंधित कार्य किया जा रहा है। वर्ष 2008 से 2012 तक पहला कृषि रोड मैप, 2012 से 2017 तक दूसरा कृषि रोड मैप एवं 2017 से 2023 तक तीसरा कृषि रोड मैप को लागू किया गया। वर्ष 2023-28 हेतु चतुर्थ कृषि रोड मैप के माध्यम से कृषि एवं संबंधित क्षेत्रों के सर्वांगीण विकास का संकल्प राज्य सरकार ने लिया है।

माननीय मुख्यमंत्री के नेतृत्व एवं बिहार के लाखों किसानों की मेहनत तथा कृषि रोड मैप कार्यक्रमों के कार्यान्वयन के फलस्वरूप वर्ष 2011-12 में चावल, वर्ष 2012-13 में गेहूँ, वर्ष 2015-16 में मोटे अनाज (मक्का), वर्ष 2016-17 में मोटे अनाज (मक्का) तथा वर्ष 2017-18 में गेहूँ के उत्पादन एवं उत्पादकता में उल्लेखनीय उपलब्धि के लिए राज्य को कुल 05 कृषि कर्मण पुरस्कार प्राप्त हुआ है। राज्य सरकार के प्रयासों से बिहार के कृषि धरोहरों, कतरनी चावल, जर्दालू आम, शाही लीची, मगही पान, मिथिला मखाना को जी.आई. टैग से पंजीकृत किया गया है। राज्य की कृषि एवं संबंधित क्षेत्रों में अग्रणी बनाने में बिहार के करोड़ों किसान धन्यवाद के पात्र हैं, जिनके कठिन परिश्रम एवं कर्मठता से राज्य को यह गौरव प्राप्त हुआ है।

चतुर्थ कृषि रोड मैप के सूत्रण हेतु फसल एवं बागवानी के साथ-साथ पशु एवं मत्स्य संसाधन, सहकारिता, गन्ना उद्योग, जल संसाधन, लघु जल संसाधन, ऊर्जा, राजस्व एवं भूमि सुधार, पर्यावरण, वन एवं जलवायु परिवर्तन, ग्रामीण कार्य, खाद्य एवं उपभोक्ता संरक्षण, उद्योग से संबंधित कुल 12 विभागों के कार्यक्रमों को डी.पी.आर. के रूप में सन्निहित किया गया है। 21 फरवरी, 2023 को पटना के बापू सभागार में लगभग 5000 किसानों को आमंत्रित कर किसान समागम का आयोजन किया गया, जहाँ किसानों द्वारा प्राप्त सुझावों को कृषि रोड मैप में शामिल किया गया है। कृषि रोड मैप के सूत्रण हेतु डॉ० मंगला राय, माननीय मुख्य मंत्री के कृषि सलाहकार की अध्यक्षता में विशेषज्ञ समिति धन्यवाद को पात्र है, जिनके द्वारा तकनीकी विषयों में दिये गये बहुमूल्य सुझाव के फलस्वरूप चतुर्थ कृषि रोड मैप का सूत्रण संभव हो सका है।

कृषि रोड मैप के उद्देश्यों की प्राप्ति के लिए विभिन्न प्राथमिकताओं को निर्धारित किया गया है, जिसे चतुर्थ कृषि रोड मैप, (2023-28) में डी.पी.आर. के रूप में शामिल किया गया है। फसल एवं बागवानी के विकास

के लिए फसलों की प्रति हेक्टेयर उत्पादकता में वृद्धि इस रोड मैप का प्रमुख लक्ष्य होगा। उत्पादकता में वृद्धि के लिए आधुनिक तकनीक जिसमें अत्याधुनिक डिजिटल तकनीक शामिल है, के व्यापक स्तर पर उपयोग को बढ़ावा दिया जायेगा। फसल विविधीकरण एवं सघनीकरण हेतु बंजर एवं अकृष्य भूमि का विकास तथा चालू परती में खेती को प्राथमिकता दिया जायेगा। कृषि विकास के क्रम में यह विशेष ध्यान रखा जायेगा कि पर्यावरण का संतुलन तथा मानव स्वास्थ्य पर प्रतिकूल प्रभाव न पड़े। चतुर्थ कृषि रोड मैप में पहले तीन कृषि रोड मैप की तरह किसानों को यथावत परिभाषित रखते हुए रैयत के साथ-साथ गैर-रैयत किसानों के हितों के लिए कार्य करने हेतु समर्पित है।

कृषि एवं संबंधित क्षेत्र के बहुआयामी विकास तथा जलवायु परिवर्तन के कारण उत्पन्न परिस्थितियों के लिए किसान बन्धुओं को तैयार करना तथा परिस्थितिकी संतुलन को अक्षुण्ण रखने का लक्ष्य चतुर्थ कृषि रोड मैप द्वारा निश्चित रूप से प्राप्त होगा। मुझे आशा ही नहीं, पूर्ण विश्वास है कि चतुर्थ कृषि रोड मैप कृषि के क्षेत्र में मील का पत्थर साबित होगा।



कुमार सर्वजीत
कृषि मंत्री, बिहार



बिहार सरकार



मंगला राय माननीय मुख्य मंत्री के कृषि सलाहकार

संवर्द्धन से प्रौद्योगिकी आधारित कृषि के क्रमिक विकास के नये कीर्तिमान स्थापित करने की आवश्यकता के अनुरूप कार्य योजना है।

खेती, बागवानी, पशुपालन, मत्स्य, मशरूम एवं मधु उत्पादन आदि के साथ समेकित-समग्र, उत्पादन-उपभोग की एकीकृत प्रणाली विकसित करने की चेष्टा की गई है। उत्पादन से उपभोग तक की समस्त कड़ियों को आपस में पिरोते हुए उपकृषि (Secondary Agriculture) को मुख्य धारा में लाने का प्रयत्न किया गया है। उपकृषि, कृषि उत्पादों का प्रसंस्करण, मूल्य संवर्द्धन विविधीकरण से आगे चलकर बचे औद्योगिक अपशिष्ट (Industrial waste) का भी सदुपयोग कर अधिकाधिक धनोपार्जन का आधार बनाता है। तथाकथित बेकार अपशिष्ट से समृद्धि का द्वार खोलता है। यह टिकाऊ, लाभकारी खेती का रास्ता बनाता है तथा कृषि में वाणिज्य का समावेश करते हुए उपभोक्ताओं की बदलती आवश्यकता एवं आकांक्षा की अनुपूर्ति करने का मार्ग प्रशस्त करना है।

सेन्सर आधारित तकनीक के विकास से अब तक के असम्भव को सम्भव किया जा सकेगा। अतएव सेन्सर आधारित नीति निर्धारण हेतु सशक्त कार्य योजना को मूर्त रूप दिया गया है। इससे भविष्य में विशुद्ध (Precision) कृषि का बड़े पैमाने पर उपयोग किया जा सकेगा और कम-से-कम लागत में अधिक-से-अधिक गुणवत्तापूर्ण उत्पादन प्राप्त किया जायेगा। बीज, खाद, पानी, कीटनाशक आदि का विवेकपूर्ण उपयोग कर अधिक-से-अधिक लाभ की प्राप्ति एवं पर्यावरण संरक्षण सम्भव हो सकेगा।

संदेश

निरंतर बदलते परिवेश में, कृषि के समसामयिक-समग्र-समेकित उन्नयन और विकास के लिए नित नवीन प्रौद्योगिकी की आवश्यकता होगी। उपभोग आधारित उत्पादन, प्रशोधन, भंडारण, वाणिज्य, विपणन, विविधीकरण एवं मूल्य संवर्द्धन की सम्यक व्यवस्था की उपयोगिता सदा-सर्वदा बनी रहेगी। प्रतिस्पर्धा के युग में उत्पाद की गुणवत्ता, ग्राह्यता, संधारण क्षमता, लागत, उत्कृष्टता आदि बाजार में उसकी श्रेष्ठता सिद्ध करेगी। जल, जमीन, जलवायु, वन संरक्षण एवं संवर्द्धन सतत कृषि को अग्रणीय रखने में सहायक होगी। बाजार और विपणन की सुचारु व्यवस्था एवं विद्युत, सड़क, उद्योग आदि के

जीन सम्पादन कर आवश्यकतानुसार गुणवत्तापूर्ण, उन्नतशील प्रजातियों का विकास किया जा सकेगा। रोग-रोधिता, लवण, ताप, शीत सहिष्णुता आदि गुणों को विभिन्न प्रजातियों में विकसित कर जलवायु परिवर्तन का सामना किया जायेगा। अब तक की उपेक्षित दलहनी, तेलहनी और श्रीअन्न (Millets) की अनेक फसलों की उन्नत प्रजातियों को शीघ्र विकसित किया जा सकेगा। इन फसलों में नवीनतम प्रौद्योगिकी को समाहित करते हुए अनुसंधान और विकास की गति को बढ़ाने का प्रयास होगा। जैव प्रौद्योगिकी का प्रबल पुट दिया गया है, जिससे भविष्य की चुनौतियों का सफलतापूर्वक सामना किया जा सकेगा।

आज की लगभग पचहत्तर प्रतिशत संक्रामक बीमारियाँ जीवधारियों में एक से दूसरे में आती-जाती रहती हैं। कोविड-19 इसका एक ज्वलंत उदाहरण है, परन्तु बहुतायत देशों में पशु, मानव तथा पादप-चिकित्सक अलग-अलग अपने क्षेत्र तक सीमित, आधा-अधूरा अनुसंधान कर पाते हैं। उनका एकीकृत अनुसंधान मंच आज भी नहीं है। अतएव आने वाली चुनौतियों का सामना करने के लिए एक मंच का सृजन कर सामंजस्य के साथ कार्य करने हेतु बनायी गई योजना प्रशंसनीय है।

हमारे भविष्य के कर्णधार, आज के हजारों छात्र प्रदेश के विभिन्न कृषि विश्वविद्यालयों में पीएचडी के उपाधि हेतु कार्यरत हैं। सामान्यतः उनके कुछ शोध-पत्र प्रकाशित हो जाते हैं और तीन-चार वर्षों में वे उच्चतम उपाधि से विभूषित हो जाते हैं। लेकिन, निरन्तरता के अभाव में उपयोगी प्रौद्योगिकी का बहुधा विकास नहीं होता है। साथ ही, बहुत कम शोधार्थी तेलहन, दलहन, श्रीअन्न (Millets) आदि में शोध करते हैं जो वास्तविकता में हमारी आज की आवश्यकता है। अतएव, प्रोत्साहन आधारित प्रस्तावित अभिनव प्रयोग, अनुसंधान और प्रौद्योगिकी विकास को निरन्तरता प्रदान करेगा और आवश्यकतानुरूप प्रौद्योगिकी के सृजन का मार्ग प्रशस्त करेगा। इसके साथ ही, प्रत्येक विश्वविद्यालयों को प्रतिवर्ष 'पलैक्सी फण्ड' की व्यवस्था इस तरह के आवश्यक अनुसंधान को दृढ़ता प्रदान करेगी। हमें आशा है कि इस नई पहल से श्रम और धन की बचत होगी, आवश्यक अनुसंधान और प्रौद्योगिकी विकास को गति मिलेगी और प्रदेश का चहुँमुखी विकास होगा।

विगत पचहत्तर वर्षों से हमारे प्रदेश में खेतों की चकबन्दी नहीं हो सकी है और छोटी-छोटी जोतें यत्र-तत्र, सर्वत्र बिखरी हैं। नई तकनीक का सदुपयोग करते हुए सात-आठ वर्षों से चल रहे अथक प्रयास से 2024 तक प्रदेश की जमीन के सारे रिकॉर्ड ठीक हो जायेंगे और चकबन्दी का द्वार खुल जायेगा। निःसंदेह इससे कृषि को नया आयाम मिलेगा और अब तक के महानतम भूमि सुधार कार्यों में इसकी गणना होगी।

चौर भूमि में अन्तःस्थलीय मत्स्य विकास प्रदेश को नई ऊँचाइयों पर स्थापित करेगा। बिजली की व्यवस्था में आमूल सुधार से बिहार लाभकारी कृषि की ओर बढ़ेगा। वास्तव में पेंड-पौधों द्वारा सूर्य की रोशनी को कृषि उत्पादों में बदलना ही खेती-बाड़ी है। सूर्य ऊर्जा को रासायनिक ऊर्जा में बदलने के लिए ऊर्जा की ही आवश्यकता होती है। मानव एवं पशु जनित ऊर्जा तथा डीजल, पेट्रोल से उत्पन्न ऊर्जा, बिजली से महँगी होती है। अतएव, सस्ती सतत ऊर्जा की अबाध उपलब्धता कृषि उत्पादों को बढ़ाने और मूल्य कम करने में महत्त्वपूर्ण भूमिका निभाएगी।

विगत तीन सोपानों से धान, गेहूँ, मक्का, दूध, मछली, बिजली, ग्रामीण सड़क आदि में प्राप्त बढ़त हमारा मनोबल सुदृढ़ करती है। आशा के अनुरूप यह रोड मैप प्रदेश की उपलब्धियों को नई ऊँचाइयों पर पहुँचाएगा। हम बिहार कृषि में 'बचाओ और विकास करो' के सिद्धान्त पर कार्यरत हैं। हम तथाकथित कृषि (Primary Agriculture) एवं उपकृषि (Secondary Agriculture) को एकीकृत कर 'वास्तविक कृषि' की ओर बढ़ रहे हैं। इसीलिए, उत्पादन-उपभोग प्रणाली विकसित करने का प्रयास किया जा रहा है।

जल प्रबन्धन हमारी वरीयता है। विभिन्न को एक साथ लाकर विसंगतता को शून्य की तरफ ले जाना और समन्वयतात्मकता को अधिक-से-अधिक बढ़ाना हमारा उद्देश्य है। हमारा पूरा प्रयास है कि कृषि, प्रकृति के पारिस्थितिकी तंत्र (Ecosystem) में इस तरह नृत्य करे कि प्राकृतिक परितंत्र की चारों घटकों की सेवाएँ अबाध गति से जन-मानस को सर्वदा उपलब्ध होती रहे।

प्रौद्योगिकी का प्रचार-प्रसार अबाध गति से चल सके और कृषकों की विभिन्न आवश्यकताओं की समयानुकूल पूर्ति हो सके, इसके लिए प्रसार की विधि तथा संसाधनों में अनेक परिवर्तन किये गए हैं। इस संदर्भ में एक हजार से अधिक तकनीकियों से सदा सुसज्जित “ज्ञान वाहन, विकास वाहन” गाँव-गाँव में कृषि ज्ञान-विज्ञान का प्रकाश पहुँचाएगा तथा इन्द्रधनुषीय क्रान्ति का लक्ष्य पूरा करने में भरपूर सहयोग देगा।

करीब पाँच मास के अथक् प्रयास से माननीय मुख्यमंत्री जी की परिकल्पना को मूर्त रूप देने में प्रदेश के विविध नीति निर्णायकों, अधिकारियों, कर्मचारियों, किसान भाइयों-बहनों आदि ने अपना अमूल्य असीम योगदान दिया है। इसके अतिरिक्त देश-विदेश के अनेक उत्कृष्ट वैज्ञानिकों ने अपने ज्ञान से इसे अभिसिंचित किया है और पाँच वर्षों की विस्तृत कार्य योजना के साथ इस चतुर्थ कृषि रोड मैप को अतिविशेष बनाया है। राज्य सरकार ने इस योजना को 12 मई, 2023 को अपनी सैद्धान्तिक स्वीकृति प्रदान कर दी है। अतएव, सबका आभार व्यक्त करते हुए हमें अपार हर्ष की अनुभूति हो रही है। हमें आशा ही नहीं वरन् पूर्ण विश्वास है कि यह प्रयास सफल होगा और जन-जन की आकांक्षाओं पर खरा उतरेगा।

(मंगला राय)

माननीय मुख्य मंत्री के कृषि सलाहकार





बिहार सरकार
कृषि विभाग

विकास भवन, नया सचिवालय

पटना-800 015 (बिहार)

फोन : 0612-2215373

ई-मेल : agridep-bih@nic.in



संजय कुमार अग्रवाल

भा.प्र.से

सचिव, कृषि विभाग

प्रस्तावना

कृषि बिहार की अर्थव्यवस्था की धुरी है। राज्य का समस्त भौगोलिक क्षेत्र 93.60 लाख हेक्टेयर है, जिसमें 50.45 लाख हेक्टेयर शुद्ध फसल क्षेत्र तथा 72.48 लाख हेक्टेयर सकल फसल क्षेत्र है। बिहार कृषि संसाधनों से एक परिपूर्ण राज्य है जहाँ समृद्धि की अपार संभावनाएँ हैं परन्तु यह भी उल्लेखनीय है कि यहाँ 91.21 प्रतिशत सीमांत किसान हैं, जिनकी जोत 1 हेक्टेयर से भी कम है। कृषि क्षेत्र की अपार संभावनाओं को मूर्त रूप देने के उद्देश्य से बिहार में वर्ष 2008 से कृषि रोड मैप का सूत्रण एवं कार्यान्वयन किया जा रहा है। अब तक तीन कृषि रोड मैप को; वर्ष 2008-2012 की समयावधि में प्रथम, 2012-2017 में द्वितीय एवं 2017-2022 की अवधि में तृतीय कृषि रोड मैप का कार्यान्वयन पूर्ण किया गया है। कोविड महामारी के प्रकोप के कारण तृतीय कृषि रोड मैप को वर्ष 2023 तक बढ़ाया गया। इसी क्रम में चतुर्थ कृषि रोड मैप का सूत्रण अगले पाँच वर्षों (2023-2028) के लिए किया गया है।

कृषि रोड मैप बिहार के कृषि एवं संबद्ध क्षेत्रों के बहुआयामी विकास के लिए उठाया गया अनूठा प्रयास है। इसके द्वारा पाँच वर्षों के लिए सुनियोजित रूप से राज्य के कृषि क्षेत्र संबंधित विषयों के गहन अध्ययन वस्तुस्थिति के सम्यक विश्लेषण के उपरांत अगले पाँच वर्षों के लिए निश्चित लक्ष्य निर्धारित किये गये हैं एवं उनकी प्राप्ति हेतु कार्यान्वयन पद्धति का भी निर्धारण किया गया है। इस प्रकार यह एक नीति दस्तावेज के साथ साथ रणनीति दस्तावेज भी है। विगत तीन कृषि रोड मैप के सफल कार्यान्वयन के फलस्वरूप बिहार को राष्ट्रीय स्तर पर भारत सरकार द्वारा पाँच कृषि कर्मण पुरस्कार प्राप्त करने का गौरव मिला है।

माननीय मुख्यमंत्री श्री नीतीश कुमार के कुशल नेतृत्व व मार्गदर्शन में चतुर्थ कृषि रोड मैप का सूत्रण किया गया है। कृषि क्षेत्र के समेकित विकास के लिए इस रोड मैप में कृषि एवं संबद्ध कुल 12 विभाग यथा कृषि, पशु एवं मत्स्य संसाधन, ग्रामीण कार्य, जल संसाधन, लघु जल संसाधन, सहकारिता, गन्ना उद्योग, राजस्व एवं भूमि सुधार, खाद्य एवं उपभोक्ता संरक्षण, ऊर्जा, पर्यावरण वन एवं जलवायु परिवर्तन तथा उद्योग विभाग सम्मिलित हैं।

चतुर्थ कृषि रोड मैप का सूत्रण विभिन्न स्तरों पर व्यापक विचार-विमर्श के उपरांत किया गया है। राज्य के सभी 38 जिलों में नवम्बर, 2022 से जनवरी, 2023 तक किसान कर्मशाला आयोजित किये गये, जिनमें जिले से

आये हुए किसानों से मंतव्य प्राप्त किया गया। माननीय मुख्यमंत्री की अध्यक्षता में 21 फरवरी, 2023 को किसान समागम का सफल आयोजन किया गया। समागम में लगभग 5000 किसान बंधुओं ने अपनी सहभागिता प्रदान की तथा अपने बहुमूल्य सुझाव स्वयं माननीय मुख्यमंत्री के समक्ष रखे। 10-12 मार्च, 2023 को डॉ० मंगला राय की अध्यक्षता में गठित विशेषज्ञ समिति के साथ संबंधित विषयों पर गहन विवेचना की गई तथा विशेषज्ञों से परामर्श प्राप्त किया गया। इसके अतिरिक्त मुख्य सचिव की अध्यक्षता में अंतर्विभागीय बैठक की गई, जिसमें एक से अधिक विभागों से संबंधित विषय जैसे सब्जी विकास, शहद उत्पादन, जलछाजन इत्यादि के विकास हेतु समन्वित रूप से कार्यान्वयन की रूपरेखा तैयार की गयी। राज्य की परिस्थितियों को ध्यान में रखते हुए एवं विगत कृषि रोड मैप के कार्यान्वयन में प्राप्त अनुभवों को केंद्र में रखकर चतुर्थ कृषि रोड मैप तैयार किया गया है।

पहली बार कृषि रोड मैप के सूत्रण अंतर्गत विजन डॉक्यूमेंट तथा विस्तृत परियोजना प्रतिवेदन (डी.पी. आर.) की संकल्पना को समाहित किया गया है, जो चतुर्थ कृषि रोड मैप (2023-28) के भाग हैं। पहला भाग विजन डॉक्यूमेंट है जिसमें अगले पाँच वर्षों (2023-28) के लिए निर्धारित की गई प्राथमिकताओं के अंतर्गत निश्चित लक्ष्य रखे गये हैं। डी.पी.आर. रोड मैप का दूसरा भाग है जिसमें लक्ष्यों की प्राप्ति के लिए कार्यान्वयन पद्धति को विस्तृत रूप से वर्णित किया गया है। इसके साथ ही कृषि क्षेत्र में उत्पन्न हो रहे नवीन एवं समसामयिक चुनौतियों यथा जलवायु परिवर्तन को समावेशित किया गया है। इनके निराकरण हेतु फसल विविधीकरण एवं मिलेट्स को मिशन मोड में अपनाने हेतु योजना विकसित की गई है। मुझे पूर्ण विश्वास है कि चतुर्थ कृषि रोड मैप के कार्यान्वयन से बिहार की कृषि का बहुआयामी विकास होगा एवं यहाँ के किसान बंधुओं के जीविकोपार्जन एवं आय में आशातीत वृद्धि होगी।

कृषि रोड मैप के सूत्रण के व्यापक कार्य में समस्त कृषि विभाग ने एक टीम के रूप में कार्य किया है। इसमें शामिल सभी विभागों के अपर मुख्य सचिव/प्रधान सचिव/सचिवगण तथा कृषि विभाग के पूर्व सचिव एवं प्रधान सचिव के बहुमूल्य सहयोग के लिए मैं सभी के प्रति आभार प्रकट करता हूँ। राज्य के विकास आयुक्त श्री विवेक कुमार सिंह का मैं अत्यंत आभारी हूँ जिन्होंने अपना बहुमूल्य समय एवं सुझाव सूत्रण प्रक्रिया में दिया है। बिहार के मुख्य सचिव श्री आमिर सुबहानी ने हमें अपने बहुमूल्य सुझाव देकर तथा कतिपय समीक्षात्मक बैठक में अध्यक्षता कर हमें अनुगृहीत किया है, जिसके द्वारा अन्तर्विभागीय समन्वय सुगम हो पाया। माननीय मुख्यमंत्री के कृषि सलाहकार डॉ० मंगला राय, चतुर्थ कृषि रोड मैप के सूत्रण प्रक्रिया के महत्वपूर्ण स्तम्भ हैं। कृषि रोड मैप में शामिल सभी विभागों के माननीय मंत्रीगण का मंतव्य एवं सहयोग ने सूत्रण कार्य को रचनात्मक ढाँचा प्रदान किया है। कृषि विभाग के अमिभावक माननीय मंत्री श्री कुमार सर्वजीत के दिशा-निर्देश एवं निरन्तर प्रोत्साहन ने इस रोड मैप के सूत्रण के लिए ऊर्जा प्रदान की। बिहार के माननीय मुख्यमंत्री श्री नीतीश कुमार की दूरदर्शिता एवं कृषि के विकास के प्रति प्रतिबद्धता चतुर्थ रोड मैप के सूत्रण के प्रत्येक चरण में परिलक्षित हुई है। सूत्रण की सम्पूर्ण प्रक्रिया में उनके नेतृत्व का योगदान अतुलनीय है। चतुर्थ कृषि रोड मैप के सूत्रण कार्य में सम्मिलित उन सभी के प्रति मैं अत्यंत आभारी हूँ जिन्होंने प्रत्यक्ष या अप्रत्यक्ष रूप से अपना योगदान दिया है।



संजय कुमार अग्रवाल, भा.प्र.से
सचिव, कृषि विभाग

**Fourth
Agriculture Roadmap
(2023-28)**

Index

Sr.No	Subjects	Page Number
	Introduction of Fourth Agriculture Roadmap	01-08
1	Agriculture-Crop & Horticulture	09-118
2	Animal and Fisheries Resources	119-196
3	Rural works	197-200
4	Water Resources	201-226
5	Minor Water Resources	227-230
6	Cooperatives	231-238
7	Sugarcane Industries	239-248
8	Revenue and Land Reforms	249-254
9	Food and Consumer Protection	255-270
10	Energy	271-274
11	Environment, Forest & Climate Change	275-280
12	Food and Processing Industries	281-300
13	Institutional Finance	301-312
	Budget Requirement for Fourth Agriculture Road Map	313
	Milestone of Fourth Agriculture Road Map	314
	Sankalp	315-319



A close-up photograph of several rice panicles. The panicles are golden-brown, indicating they are ripe. They are hanging from green stems. The background is heavily blurred, showing more of the same scene in soft focus, creating a sense of depth. The lighting is bright and even, highlighting the texture of the rice grains.

Fourth
Agriculture Roadmap
2023-28



Fourth Agriculture Roadmap 2023-28

- Background-** Bihar is an agrarian state. The state is endowed with fertile land and hardworking farmers. Therefore, Dr. A.P.J Abdul Kalam, the former President of India, called agriculture sector, core competence of Bihar. Accelerated development of agriculture sector in eastern states, especially Bihar, is important for the food security of the country, it has been highlighted by the National Commission on Farmers.

Current status of agriculture in the state can be understood on the basis of land utilization statistics of the state. According to the land utilization statistics, 2020-21, Out of 93.6 lakh hectares of total land area of the state, 50.45 lakh hectares is under net cropped area and 72.46 lakh hectare is the under the gross cropped area. Cropping intensity in the state is 144 percent. The land use details of the state (year 2020-21) are as follows,

Land Use	Area (in 000 hectares)
Geographical Area	9359.57
Forest Area	621.64
Barren and uncultivable land	431.72
Non agricultural land	1750.74
Agricultural wasteland	43.79
Non agricultural land other than fallow	264.76
Fallow land	
1. Current fallow	1028.10
2. Other fallow	173.50
Net cropped area	50.45
Gross cropped area	72.46
Cropping intensity (%)	144

According to the agriculture census (year 2015-16), out of the total number of land holdings in the state, 91.21 percent are marginal holdings, whose holding size is less than 1 (one) hectare.

Agriculture sector has an important contribution in the economy of the state. According to Bihar economic survey 2021-22, the contribution of agriculture sector in the Gross Domestic Product of the state in 2020-21 was about 19 percent. Within the agriculture sector, the contribution of Crop is 9.3 percent, livestock is 6.6 percent and fisheries is 1.7 percent. Contribution of agriculture sector at fixed price in





2016-17 was Rs.66668 crore (21.7 percent of gross domestic product), which increased to 74086 crores in the year 2020-21(19 percent of gross domestic product). The Compound Annual Growth Rate (CAGR) of agriculture sectors contribution to GSDP during the period 2016-17 to the year 2020-21 was 2.1 percent.

According to the 2019 NSS report, *Situation Assessment of Agricultural Households and Land and Livestock Holding of Households in Rural India*, average income of agricultural households in the state is 7542 rupees which is more than double as compared to that in year 2012-13 as per the NSS report of 70th round of survey. In the same period, the average income of agricultural households at the national level increased from Rs.6426 to Rs.10218. Therefore, the rate of increase in income of agricultural household in Bihar has been higher than the national average. As per the above mentioned NSS report, 39.7 percent of agricultural households in Bihar are indebted and the debt per agricultural household is Rs. 23534, while at the national level 50.2 percent of agricultural households are indebted and the debt per agricultural household is Rs.74121.

For the optimum utilization of the agricultural resources of the state and for the economic upliftment of the farmers, the State Government has been consistently working for the development of agriculture sector through Agricultural Road Map since 2008. For the first time, Farmer was defined under the Agricultural Road Map for the sake of implementation of the schemes. According to this definition, *"Farmers will refer to both men and women and include landless agricultural labourers, sharecroppers, tenants, small, marginal and sub-marginal cultivators, farmers with larger holdings, fishers, livestock and poultry rearers, pastoralists, small plantation farmers, as well as rural and tribal families engaged in a wide variety of farming related occupations such as apiculture, sericulture and vermiculture. The term will include tribal families sometimes engaged in shifting cultivation and in the collection and use of non-timber forest products. Farm and Home Science graduates earning their livelihoods from crop and animal husbandry, fisheries and agro-forestry will have their rightful place in the world of farmers and farming"*. As a result of this, more than 1.90 crore farmers have been registered on DBT portal of Agriculture department, in which more than 68 lakh are landless farmers.

First three Agricultural Road Map have been implemented by the state government with the resolve 'A dish of Bihar in the plate of every Indian'(Pratyek Bhartiya ke thal me Bihar ka ek vyanjan). With this resolve, schemes were implemented for qualitative increase in the production of agricultural products and also schemes for strengthening and rejuvenation of infrastructure to take agricultural produces of the state to the entire country.





Fourth Agriculture Roadmap 2023-28



The major achievements of the policies and Agricultural Road Map programs are as follow,

- As a result of the implementation of agriculture road map, a total of 5 (five) Krishi Karman Awards have been given to the state by the Government of India, for its remarkable achievement in production and productivity of Rice in the year 2011-12, Wheat in the year 2012-13, coarse cereals (Maize) in the year 2015-16, coarse cereals (Maize) in the year 2016-17 and Wheat in the year 2017-18.
- The average productivity of wheat was 18.29 quintals per hectare in the 05 years (2003-04 to 2007-08) preceding Agriculture Road Map which increased to 28.89 quintals per hectare in the last 05 years of the third Agriculture Road Map (2017-18 to 2021-22). The average production of wheat increased from 37.97 lakh metric tonnes to 62.82 lakh metric tonnes during the same period.
- The average productivity of maize increased from 25.04 quintals per hectare in the 05 years (years 2003-04 to 2007-08) before agricultural road map to 50.26 quintals per hectare in the last 05 years (years 2017-18 to 2021-22) of the third Agriculture Road Map. The average production of maize increased from 15.97 lakh metric tonnes to 33.72 lakh metric tonnes during the same period.
- The production of fruits in the pre-agriculture road map period was 32.2 lakh metric tonnes, which has increased to 45.36 lakh metric tonnes. Vegetable production increased from 101.03 lakh metric tonnes to 169.25 lakh metric tonnes during the same period.
- Before the agricultural road map, milk production per year was 57.7 lakh metric tonnes, which has increased to 115 lakh metric tonnes in the year 2020-21.
- Egg production was 10667 lakhs per year in the year 2007-08, which has increased to 30132 lakhs per year in the year 2020-21.
- Meat production was 1.80 lakh metric tonnes per year in the year 2007-08, which has increased to 3.97 lakh metric tonnes in the year 2020-21.
- Before the implementation of the agriculture road map, the state's fish production was 2.88 lakh metric tonnes. After the implementation of the agriculture road map, the present fish production of the state has increased to 7.62 lakh metric tonnes.

Despite the significant achievements of the first three agricultural road maps, there are many challenges and new opportunities before the agriculture sector. The challenges and opportunities of the state's agriculture can be outlined in the following details,





- **Strengths of state's agriculture sector**

- Fertile soil
- Abundance of water sources like rivers, chaur, mann etc. and availability of underground irrigation water sources
- Suitable agro climatic situation for growing three crops in a year
- Hard working farmers
- Priority for agriculture sector in state government policies
- Availability of Agricultural Research and Education Centers
- Availability of agricultural extension system up to Panchayat level
- Rich agricultural heritage with GI tag such as Zardalu Mango, Shahi Litchi, Magahi Paan, Katrani Rice, Mithila Makhana

- **Weaknesses**

- Small and Fragmented Holdings - More than 91 percent of all the farmers belong to marginal farmer's category in the state.
- Lack of infrastructure for storage, processing, marketing etc. due to less investment in agriculture sector
- Lack of use of modern technology in agricultural extension system, lack of timely communication of market related information to the farmers.
- The productivity of agricultural enterprises are less than the potential.
- Cropping system is dominated by paddy – wheat cropping system.

- **Opportunities**

- To take agricultural heritage products in the different parts of the country and abroad market.
- To increase production of fruits and vegetables of the state for national and international market.
- Organize small farmers and transform them into an economic unit.
- Crop Diversification
- To take benefits of the Agriculture Road Map schemes through effective coordination between different departments.
- Increase in the income of farmers by processing and value addition
- Agricultural Input Marketing by adopting digital technologies

- **Threats**

- Climate Change
- Flood
- Drought
- Irregularity of Monsoon
- Terminal Heat



In view of the above analysis, it is clear that despite significant achievements in the last three agricultural road map period, there are many challenges to work in this area. Along with this, there are many opportunities in front of the state agriculture. The Fourth Agriculture Road Map has been prepared to address the challenges before agriculture. In formulating this road map, it has been kept in mind that there should be development of multitude of marginal farmers of the state. Special attention has been paid to address the needs of women farmers. This road map promotes investment in the public sector on a priority basis, along with creating a conducive environment to encourage private investment in the state. The Fourth Agriculture Road Map also aims at convergence between various departments, public-private working together for the farmers. The specialty of the fourth agriculture road map is that along with the detailed vision of this road map, approval has been granted for the DPRs of priority sector. As a result, continuous work of these schemes will be possible for five years to achieve the target. The fourth Agriculture Road Map is dedicated to work for the interests of *raiyyat* as well as *non- raiyyat* farmers, keeping the same definition of the farmers as in the first three agricultural road maps. The objectives of the Fourth Agriculture Road Map have been set as follows,

1. Food and Nutrition Security
2. Promotion of *non- raiyyat* and women farmers along with *raiyyat* farmers for inclusive development
3. Sustainable development.
4. Convergence between different departments of agriculture road map as well as mutual coordination between government departments and private sector in relation to farmer related subjects.
5. Forming farmers' groups for the purpose of small farmer-big farming.
6. Maximum use of modern technology in agriculture, so that farmers' lives can be improved by solving their problems.
7. Specific measures to reduce damage to agricultural produce during production and after production.
8. Special program for the development of specific agricultural areas of the state such as Tal and Diara and Chaur.
9. Integrated development of agriculture sector, which includes development of horticulture, animal husbandry, fisheries sector along with crops.
10. To prepare farmers for the situations arising due to climate change and to keep the ecological balance intact.





Fourth Agriculture Roadmap 2023-28



Extensive discussions have been held in preparing the fourth agriculture road map. First discussion was held on 10.11.2022 at the level of Advisor to the Hon'ble Chief Minister. After this, discussions were held in this regard before the Hon'ble Chief Minister on 16.11.2022 and 22.12.2022. Meetings were organized with various departments at the level of the Chief Secretary on 25.11.2022, 13.12.2022 and 16.12.2022. Discussions were held on 12.11.2022, 14.12.2022, 17.11.2022 and 19.12.2022 at the level of Dr. Mangla Rai, Agriculture Advisor to Hon'ble Chief Minister. Consultations were organized with farmers and other stakeholders at all district levels. Kisan Samagam was organized on 21.02.2023 at Bapu Sabhagar, Patna in which about 5000 farmers participated and suggestions were taken. The DPRs were discussed on 10-12 March 2023 by an expert committee of eminent agricultural scientists from across the country. Discussions were held on 14.03.2023, 15.03.2023, 27.03.2023 and 31.03.2023 by the committee constituted under the chairmanship of the Chief Secretary.

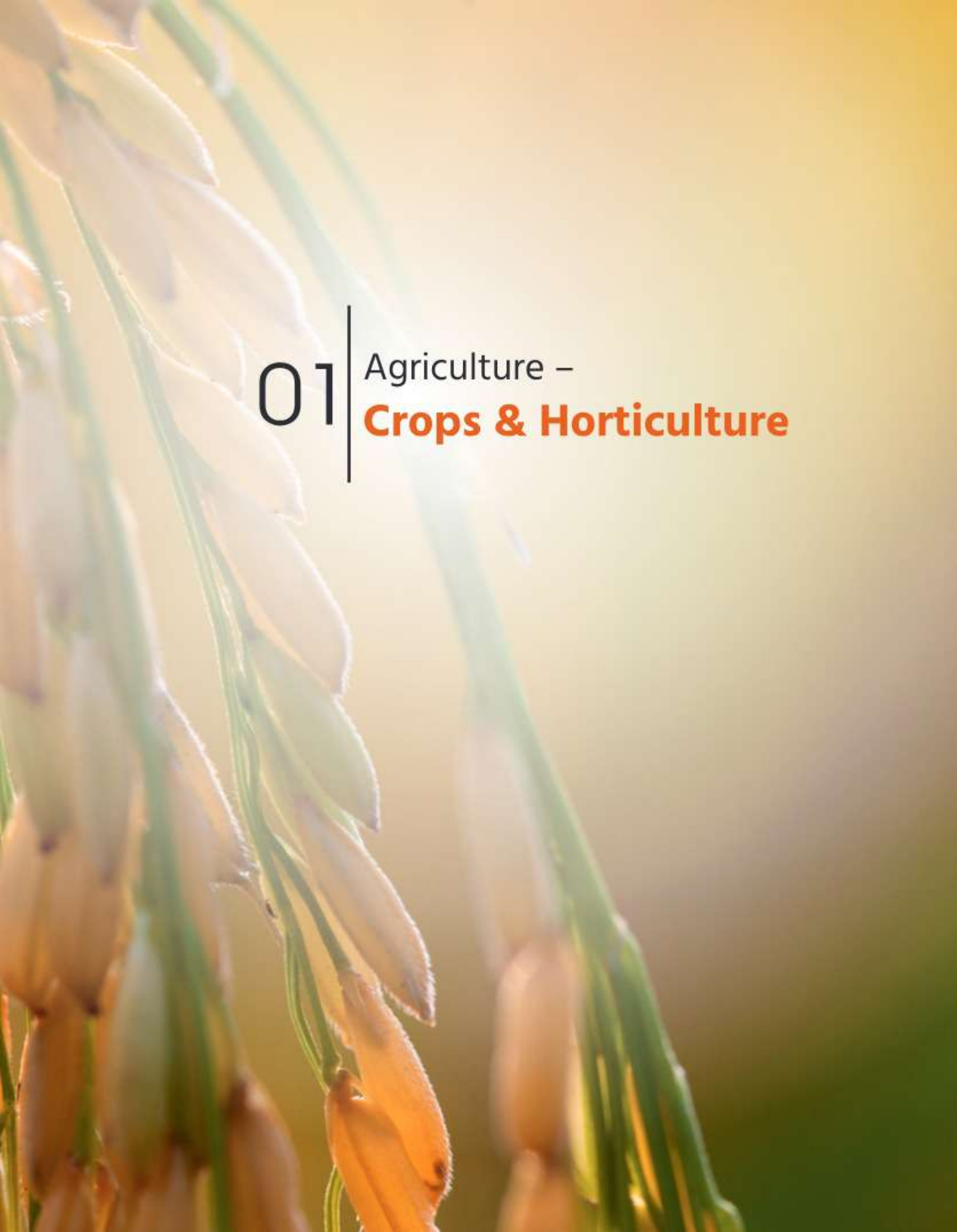
The Fourth Agriculture Road Map has been prepared after extensive discussions. Various priorities have been set for achieving the objectives of the Agriculture Road Map. Detailed Project Report (D.P.R) have been prepared for the priority areas. Alongwith the DPRs and on going projects which needs to be implemented in next five years also form part of this roadmap. Subject-wise DPR and ongoing schemes are described in the subsequent chapters.



Fourth Agriculture Roadmap 2023-28







01 | Agriculture – **Crops & Horticulture**



Agriculture – Crops & Horticulture

For the holistic development of Agriculture and allied sectors, the main target of the fourth Agriculture Road Map is to increase per hectare productivity of crops. In order to enhance productivity, the use of Modern agriculture techniques, particularly digital technology will be extensively used. This Road Map aims at reducing the cost of cultivation and increasing realization from Agriculture to all farmers' especially small and marginal farmers. The Agricultural development strategies will use the sustainable development techniques that does not adversely affect environmental and human health. To develop the crop and horticulture sector in the state the use of barren, uncultivable and current fallow land would be prioritized. Crop diversification and crop intensification shall be the focus of this Road Map. In order to achieve the goals/objectives for overall development of crop and horticulture sectors, major priority areas (DPR) along with the ongoing schemes have been identified for the fourth Agriculture Road Map which are as under:-

- 1.1 Seed Development
- 1.2 Crop diversification
- 1.3 Pulses and Oilseeds Mission
- 1.4 Plant Protection
- 1.5 Bihar Organic Farming Promotion Program
- 1.6 Agricultural Market System Reforms
- 1.7 Soil and Water Conservation Program
- 1.8 Agricultural Mechanization
- 1.9 Climate Resilient Agriculture Program
- 1.10 Horticulture Development
- 1.11 Use of Modern Technology In Agriculture
- 1.12 Agricultural Education
- 1.13 Agricultural Research
- 1.14 Agricultural Extension
- 1.15 Risk / Mitigation / Management
- 1.16 Soil, Seed, Fertilizer Pesticide Testing Laboratory
- 1.17 Establishment of MEL cell for monitoring and evaluation





1.1 Seed Development

1.1.1 Production, storage, processing and use of quality seeds

Introduction:- Seed is an important and indispensable component of agriculture. The efficacy of other agricultural inputs depends on the quality of seed. High yielding varieties' seeds have played an important role in the Green Revolution. Higher yield can be obtained by cultivating quality seeds. Various researches and studies confirm that 15-20 percent more yield can be obtained by using quality seeds and up to 45 percent more production can be obtained as a result of proper use of other inputs and timely cultivation activities. In order to ensure supply of quality seeds to the farmers, Agriculture road map has been implemented in the state since 2008

Achievements of the last three agricultural road maps: As a result of the action plans implemented under the Agricultural Road Map, there has been a significant improvement in the seed replacement rate. There has been a significant increase in annual seed replacement rate of paddy, wheat and maize crops. Under the Agriculture Road Map 2017-23, the target of seed replacement rate of paddy was kept at 50 percent, against which the average achievement of last 5 years was 45.16 percent. Similarly, the average achievement for wheat, maize, pulses and oilseeds was 39.10 percent, 94.39 percent, 16.14 percent and 51.74 percent respectively against the target of 35 percent, 90 percent, 30 percent and 70 percent respectively. Therefore it is evident that except wheat and maize, the seed replacement rate for other crops especially pulses and oilseeds crop is low and it is important to increase seed production to promote use of quality seeds in Bihar.

Various centrally sponsored schemes and state schemes such as Chief Minister Crash Seed Program, Integrated Seed Village Scheme, Mini-kit Seed Distribution, Certified Seed Production Program, Special Pulses and Oilseed Seed Distribution Program and Sub Mission on Seeds and Planting Material were implemented during the Agriculture Road Map 2017-23 and a total of 34.15 lakh quintal seeds were distributed among the farmers. During Covid-19, the facility of home delivery was started by the department to provide seeds to the farmers at their doorstep. A total quantity of 2.50 lakh quintal of seeds have been distributed among farmers through home delivery under various schemes during the third road map period. Under various schemes quality seeds are being provided to the farmers through an App developed by BRBN. Reports related to seed distribution and details of beneficiary farmers are obtained through the online App. The target for the seed replacement rate under the fourth Agriculture Road Map is as below,





Seed Replacement Rate Target

Sl.No.	Crop	Seed Replacement Rate Target (in %)				
		2023-24	2024-25	2025-26	2026-27	2027-28
1	Rice	50	50	50	50	50
2	Wheat	36	37	38	39	40
3	Pulses	30	32	34	35	35
4	Oilseeds	40	42	44	46	50
5	Maize (Kharif)	30	35	40	45	50
6	Maize (Rabi)	100	100	100	100	100

Several new initiatives have been taken under the agricultural road map is reflected in the increased seed replacement rate and also increased yield of the various crops. There is a need to rationalize some of the programs currently implemented under the agricultural road map and there is also need to implement some new initiatives under the fourth Agriculture Road Map. Therefore the Agriculture Road Map programs have been categorized into two sets, First one is **DPR component** which are on top priorities of this fourth Agriculture Road Map and second one is **ongoing schemes** which are being implemented since last several years and also needs to be implemented under the fourth Agriculture Road Map. The following programs related to seeds will be implemented in the fourth agriculture road map as **ongoing schemes**-

- CM Crash Seed Programme:-** To ensure the availability of seeds of new crop varieties at the village level, two farmers of each revenue village will be given foundation seed of improved varieties of paddy and wheat at 90% subsidized rate.
- Seed Distribution Programme:-** To promote new varieties of seeds and to achieve the target SRR seeds of improved varieties of paddy and wheat will be distributed among farmers on 50 percent subsidy.
- Certified Seed Production Programme:-** To become self reliant in seed production, a production incentive will be given to farmers for production of seed varieties of Paddy and Wheat of age less than 5 years. The production incentives is as below:-

Crop	Incentive Amount (Rs./qt.)
Rice	2000
Wheat	2000



Financial target of Ongoing scheme

(Rs. in lakh)

Sl.No.	Component	2023-24	2024-25	2025-26	2026-27	2027-28	Total
1	CM Crash Seed Programme	908.48	953.90	1001.60	1051.68	1104.26	5019.92
2	Seed Distribution Programme	6225.00	6269.40	6319.65	6349.08	6126.15	31289.28
3	Certified Seed Production Programme	520.00	520.00	520.00	520.00	520.00	2600.00
	Total	7653.48	7743.30	7841.25	7920.76	7750.41	38909.20

Along with above ongoing schemes, certain areas have been identified, which will be specially emphasized in this road map to ensure quality seed production, processing and to boost storage infrastructures in the state under DPR component are as follows:-

- 1.1.1 Seed Production on State Seed Multiplication Farm.
- 1.1.2 Certified Seed Production through Seed Hub.
- 1.1.3 Development of processing and storage capacity of Bihar Rajya Beej Nigam.
- 1.1.4 Development of infrastructure of Bihar State Seed and Organic Certification Agency.

The brief descriptions of DPR's are as follows:-

Sl.No.	D.P.R.	Activities	Output	Outcome
1.1.1	Seed Production on State Seed Multiplication Farms	The infrastructure of seed multiplication farms will be developed.	- Development of Infrastructure in 238 seed multiplication farms - Total outlay for 5 years Rs 249.90 crore.	- Enhanced production of quality seed. - Better utilization of infrastructure available on the farm. - Generation of additional employment.



Fourth Agriculture Roadmap 2023-28



Sl.No.	D.P.R.	Activities	Output	Outcome
1.1.2		Seed and Farm Society will be constituted.	- Constitution of Seed and farm society at the apex level under the chairmanship of Principal Secretary/Secretary, Agriculture for Implementation of all activities related to seed production. - A fund of Rs. 3000 lakh will be given as revolving fund for crop cultivation to Seed multiplication farms.	- Ease of fund flow and financial management. - Ease of decision making as regards seed production activities in the state. - Planning & Monitoring of seed production activities.
		Seed Multiplication Farms will be developed under Public Private Partnership.	38 seed multiplication farms will be operated under Public Private Partnership. - The number of farms under PPP may be increased based on the needs.	- To develop entrepreneurs in the field of seed production. - Encourage local farmers for seed production.
	Certified seed production through seed hub	Certified Seed production through seed hub.	100 seed hub of different crops in the next 5 years. 85 seed hubs will be developed at department level and 15 seed hubs will be developed under CRA village by Agricultural University/ BISA. - Total financial outlay will be Rs. 102 Crore. - Training and exposure of farmers for seed production.	- Self sufficiency in seed availability. - Seed organizers for sustainable seed production activities. - Income generation for seed producing farmers.





Fourth Agriculture Roadmap 2023-28



Sl.No.	D.P.R.	Activities	Output	Outcome
1.1.3	Strengthening of Processing and Storage Capacity of BRBN	Various new construction work/ renovation work/ construction of link road and development of storage capacity in Kudra plant premises.	In the next five years, a total of Rs 1778.56 lakh will be spent on the infrastructure development of Kudra Plant Premises.	- Ease of loading, unloading and transportation of Seeds - Better seed storage facility. - To ensure supply of good quality seeds to farmers.
		Development of processing capacity of Bihar Rajya Beej Nigam.	At the cost of Rs. 800 lakhs establishment of 4 TPH capacity new processing plant Bhagalpur and Begusarai plant premises and repair work will be done in Hajipur and Kudra plant premises.	- The production capacity of the processing plant will increase. 10 lakh quintals of raw seeds can be processed every year.
1.1.4	Strengthening of Infrastructure of BSSOCA	Recurring expenses for establishment/ training/ inspection/ certification/ grow out test & Inspection of Field by Specialized scientist of university. 5% of referee sample will be sent to ISTA accredited lab.	- Establishment, training, certification, seed testing laboratory etc. will be strengthened at a total cost of 1585 lakhs. - Training of seed producing farmers by scientists.	- Enhancement of quality certification and quality testing. - By adopting proper certification, quality seed will be available in the market.





Year wise financial targets of different DPRs

(Rs. in Lakh)

Sl.No.	Discription	2023-24	2024-25	2025-26	2026-27	2027-28	Total
1.1.1	Seed Production at Seed Multiplication Farms	4515.2	6018.3	7470.7	7470.7	2515.2	27990.10
1.1.2	Certified Seed Production Through Seed Hub	1200.00	1680.00	2400.00	1440.00	3480.00	10200.00
1.1.3	Strengthening of Processing and Storage Capacity of BRBN	1018.93	1559.63	0.00	0.00	0.00	2578.56
1.1.4	Strengthening of Infrastructure of BSSOCA	385.00	351.00	317.00	283.00	249.00	1585.00
	Total	7119.13	9608.93	10187.70	9193.70	6244.20	42353.66

Total Financial Target

Sl.No.	Year	Item wise Amount (in Lakh)		Total
		D.P.R	Ongoing Schemes	
1	2023-24	7119.13	7653.48	14772.61
2	2024-25	9608.93	7743.30	17352.23
3	2025-26	10187.70	7841.25	18028.95
4	2026-27	9193.70	7920.76	17114.46
5	2027-28	6244.20	7750.41	13994.61
	Total	42353.66	38909.20	81262.86

➤ Sources of funds

Upon approval of Central Scheme of Sub-Mission on Seeds and Planting Material, seed distribution program will be implemented. In seed distribution, the subsidy amount to the farmers will be same as in the state scheme. State share shall be provided in proportion to the central share received.





1.2. Crop Diversification and Intensification

Introduction:

The prevalent cropping system of the state is Rice-Wheat based. The Productivity of rice-wheat cropping system in the state is low for several reasons. This cropping system is majorly affected by the Climate Change attributes. In accordance with the priority of the development of Agriculture in the state there is need for diversification in the cropping system. It is also important to develop the cropping system as per the needs of the market. Crop diversification is expected to increase the income of farmers. To promote diversification schemes such as Climate resilient agriculture program, Oil seeds and pulses promotion program and horticulture development programs are currently implemented in the state.

Under DPR of Crop Diversification and Intensification following components will be implemented-

1. Millets Development Programme
2. Jute Development Programme
3. Aromatic and Medicinal Plant Promotion Programme.
4. Dry land Horticulture Crop Promotion Programme.
5. Flexi fund for promotion of Processing.
6. Research, Training and implementation of micro-irrigation.

To promote crop diversification programme Centre of Excellence (COE) for millets will be established at Gaya. The COE will facilitate development of new varieties of millets as per the agro-climatic situation of the state and it will also facilitate post production marketing and value addition of Millets as per the demands of the market. To promote crop diversification suitable seeds of jute and millets will be provided to the farmers. Cultivation of aromatic and medicinal plants viz., Lemongrass, Palma-rosa, Tulsi, Satawari etc. with micro-irrigation and distillation unit facility will be promoted in the barren and uncultivated lands of South Bihar. Cultivation of dry land horticulture crops viz., Indian gooseberry (Amla), Wood apple, Jackfruits etc., would be promoted. Khus cultivation will be promoted in Diara areas of Budhi gandak and Kosi river of North Bihar.

Summary of DPR: Summary of physical and financial target of different interventions proposed in the crop diversification & Intensification plan is given below



Fourth Agriculture Roadmap 2023-28



Physical Target

Sr. no	Name of Programme	Unit	2023-24	2024-25	2025-26	2026-27	2027-28	Total
1	Millet Development Programme							
1.1	Value chain of Millets	Nos	4	4	4	4	4	20
1.2	Centre of Excellence of millets	Nos						1
1.3	Demonstration of Millets	Ha	2150	2150	2150	2150	2150	10750
1.4	Distribution of Millet seeds	Qtl	220	220	220	220	220	1100
2	Jute Development Programme							
2.1	Jute Demonstration	Ha	2000	2000	2000	2000	2000	10000
2.2	Jute certified seed distribution	Qtl	24	24	24	24	24	120
2.3	Pucca retting tank of Jute	Nos	500	500	500	500	500	2500
3	Promotional Programme of Aromatic & Medicinal Plant	Ha	750	750	750	750	750	3750
4	Promotional Programme of Arid Aromatic Plant	Ha	2000	2000	2000	2000	2000	10000





Fourth Agriculture Roadmap 2023-28



Sr. no	Name of Programme	Unit	2023-24	2024-25	2025-26	2026-27	2027-28	Total
5	Flexi Fund for Agriculture processing and Value Chain	-	-	-	-	-	-	-

Financial Target

(Rs. in Lakh)

Sr. no	Name of Programme	2023-24	2024-25	2025-26	2026-27	2027-28	Total
1	Millet Development Programme						
1.1	Value chain of Millets	1822	2010	1500	1452	1576	8360
1.2	Centre of Excellence of millets	1261	741	716	221	221	3160
1.3	Demonstration of Millets	198.75	208.69	219.12	230.08	241.58	1098.22
1.4	Distribution of Millet seeds	17.60	18.48	19.40	20.37	21.39	97.24
	Jute Development Programme						
2.1	Jute Demonstration	500.00	525.00	551.25	578.81	607.75	2762.81
2.2	Jute certified seed distribution	9.60	10.08	10.58	11.11	11.67	53.04
2.3	Pucca retting tank of Jute	1000.00	1050.00	1102.50	1157.63	1215.51	5525.63





Fourth Agriculture Roadmap 2023-28



Sr. no	Name of Programme	2023-24	2024-25	2025-26	2026-27	2027-28	Total
3	Promotional Programme of Aromatic & Medicinal Plant	562.50	590.63	620.16	651.16	683.72	3108.17
4	Promotional Programme of Arid Aromatic Plant	1000.00	1050.00	1102.50	1157.63	1215.51	5525.64
5	Flexi Fund for processing and Value Chain	200	200	200	200	200	1000
Total		6571.45	6403.88	6041.51	5679.79	5994.13	30690.77

(Three Hundred Six Crore Ninty Lakh Seventy seven Thousand only)





1.3 Pulses and Oilseeds Mission

Introduction: Pulses and oilseeds are grown in different agro-climatic zones of Bihar. Arhar, Urad, Moong and Kulthi are cultivated during kharif season and Gram, Lentil, Pea, Lathyrus are cultivated in rabi season. Moong is also cultivated during summer season. Similarly Soybean and Groundnut is cultivated in few districts of the State during kharif season while Rapeseed, Mustard and Linseed are mostly cultivated in the rabi season. The area under sunflower and sesame cultivation is very limited but its potential during summer season is very high in the state. The statistical data of Area, Production and Productivity of various pulses and oilseeds during last five years is as per table given below:

(Unit: Area in Lakh Ha, Production in Lakh qtls, Yield in qtls/Ha)

Year	Kharif Pulses			Rabi Pulses			Oilseed		
	Area	Prod.	Yield	Area	Prod.	Yield	Area	Prod.	Yield
2017-18	0.44	0.50	11.45	2.61	2.83	10.82	1.02	1.24	12.08
2018-19	0.46	0.54	11.83	2.72	2.85	10.47	1.00	1.24	12.47
2019-20	0.41	0.47	11.68	2.58	1.81	0.70	1.13	1.24	10.99
2020-21	0.42	0.48	11.43	1.59	0.88	0.55	1.51	1.24	10.77
2021-22*	0.35	0.39	11.21	2.43	2.39	0.98	1.15	1.21	10.48
Average	0.42	0.48	11.52	2.39	2.15	4.70	1.16	1.23	11.36

Area under different pulses and oilseed cultivated in different agro-climatic zones are as per the table given below:

(Lakh Ha)

Sr. No.	Crops		Area under Agro-Climatic Zones				Total
			ACZ-I	ACZ-II	ACZ-III A	ACZ-III B	
1	Pulses	Pigeon pea	0.05	0.00	0.05	0.02	0.12
		Black gram	0.01	0.04	0.002	0.003	0.06
		Horse Gram	0.005	0.01	0.01	0.03	0.06
		Gram	0.004	0.001	0.37	0.13	0.52
		Lentil	0.28	0.30	0.86	0.14	1.33
		Pea	0.03	0.02	0.06	0.02	0.14
		Green Gram	0.70	0.76	0.06	0.02	1.56
Total			1.079	0.861	1.412	0.363	3.79





Sr. No.	Crops		Area under Agro-Climatic Zones				Total
			ACZ-I	ACZ-II	ACZ-IIIA	ACZ-IIIB	
2	Oilseeds	Soybean	0.22	0.007	0.00	0.00	0.23
		Groundnut	0.00	0.00	0.00	0.01	0.01
		Sunflower	0.00	0.06	0.001	0.00	0.06
		Rapeseed/ Mustard	0.40	0.11	0.20	0.06	0.78
		Linseed	0.006	0.02	0.02	0.01	0.05
		Sesame	0.005	0.003	0.001	0.00	0.01
Total			0.63	0.2	0.222	0.08	1.14

Increase in area under assured irrigation and release of high yielding new varieties of cereal crops, crop damage by blue bulls & other wild animals are the major reasons for decrease in area under these crops. There is need of a committed scheme to increase production and productivity of pulses and oilseeds and also for increase in area under these crops. This mission will give focus to research and development of new varieties, production of seed of pulses and oilseed seeds, adoption of CRA technique in the targeted areas and distribution of certified seeds of new and improved varieties as special kits to farmers on 80% subsidy.

Achievements of last three Agriculture Road Map: The three agriculture road maps have been implemented so far, major emphasis was on seed distribution and various kinds of demonstrations. A special programme of minikit seed distribution was also implemented during 2021-22 and 2022-23. This programme is quite popular among the farmers. Centrally sponsored schemes of NFSM-Pulses and NFSM-Oilseed have also been implemented during this period. Due to unavailability of quality seed in the state the achievement has been less than the target. Target and achievements during Agriculture Road Map is given below:

(Unit Phys in Ha, Fin Rs. lakh)

Road Map	Interventions	Target		Achievement	
		Physical	Financial	Physical	Financial
Krishi Road Map 2008-12	Pulses Seed distribution	11572	138.86	24164.1	284.03
	Oil-seed Seed distribution	2016	24.19	3522.23	72.952





Fourth Agriculture Roadmap 2023-28



Road Map	Interventions	Target		Achievement	
		Physical	Financial	Physical	Financial
Krishi Road Map 2012-17	Pulses Seed distribution	363800	7276.00	24473.7	446.62
	Oil-seed Seed distribution	37000	740.00	3112.03	42.785
Krishi Road Map 2017-23	Pulses Seed distribution	1700073	11905.15	21058.8	801.89
	Oil-seed Seed distribution	3316	109.41	1053.6	39.12

Priority Areas of Fourth Agriculture Road Map: The present proposal of pulses and oil-seed mission is mainly focused on technology demonstration and area expansion under pulse & oilseed crops in Bihar. Quality seed will be distributed among farmers for expansion of area under new and improved varieties. In about one lakh Ha of Tal area pulses are grown during rabi season. The infestation of pests mainly pod borer is the limiting factor in production & productivity in these areas. Use of Drone for application of plant protection measure in Tal area is proposed for efficient and quick application of plant protection measures in large areas within short span of time. Intercropping of Jute, sugarcane, millets and coarse cereals with pulses and oilseeds will also be promoted under the fourth agriculture road map. The current fallow land which remains uncultivated after paddy harvest can be brought under cultivation for area expansion of pulses & oilseed crops with aid of micro irrigation facilities. The proposed interventions under DPR of Pulses and Oilseed Mission are summarized in the following table:

Sr. No.	Work Programme
1	Cluster demonstration of Pulses and Oilseed
2	Intercropping demonstration with Pulses and Oilseed
3	Seed distribution programme of Pulses and Oilseed
4	Seed production programme of Pulses and Oilseed
5	Plant Protection measures in Tal areas using drone
6	Promotion of micro-irrigation in pulses and oilseed

Summary: Summary of physical and financial target of different interventions proposed in the pulses and oilseed mission is given below:





Physical Target

Sr. no	Name of Programme	Unit	2023-24	2024-25	2025-26	2026-27	2027-28	Total
1	Cluster Demonstration							
1.1	Tech. Demonstration Pulses	Ha	15200	15200	15200	15200	15200	76000
1.2	Tech. Demonstration Oilseed	Ha	6000	6000	6000	6000	6000	30000
1.3	Coarse cereal intercropping demonstration with Pulses/Oilseed	Ha	2000	2000	2000	2000	2000	10000
1.4	Sugarcane intercropping demonstration with Pulses/Oilseed	Ha	5200	5200	5200	5200	5200	26000
1.5	Jute intercropping demonstration with Pulses/Oilseed	Ha	1000	1000	1000	1000	1000	5000
2	Seed Distribution							
2.1	Seed distribution of Pulses	Qtl	65100	65100	65100	65100	65100	325500
2.2	Seed distribution of Oilseed	Qtl	5000	5000	5000	5000	5000	25000
3	Promotion of seed Production of Pulses	Qtl	44000	44000	44000	44000	44000	220000





Fourth Agriculture Roadmap 2023-28



Sr. no	Name of Programme	Unit	2023-24	2024-25	2025-26	2026-27	2027-28	Total
4	Promotion of seed Production of Oilseed	Qtl	1300	1300	1300	1300	1300	6500
5	Flexi fund for Processing and Value addition		120	120	120	120	120	600

Financial Target

(Rs. in Lakh)

Sr. No.	Name of the Programme	2023-24	2024-25	2025-26	2026-27	2027-28	Total
1	Cluster Demonstration						
1.1	Tech. Demonstration Pulses	1520.00	1596.00	1675.80	1759.59	1847.57	8398.96
1.2	Tech. Demonstration Oilseed	530.00	556.50	584.33	613.54	644.22	2928.59
1.3	Coarse cereal intercropping demonstration with Pulses/Oilseed	200.00	210.00	220.50	231.53	243.10	1105.13
1.4	Sugarcane intercropping demonstration with Pulses/Oilseed	262.50	275.63	289.41	303.88	319.07	1450.48
1.5	Jute intercropping demonstration with Pulses/Oilseed	100.00	105.00	110.25	115.76	121.55	552.56

Fourth Agriculture Roadmap 2023-28



Fourth Agriculture Roadmap 2023-28



Sr. No.	Name of the Programme	2023-24	2024-25	2025-26	2026-27	2027-28	Total
2	Seed Distribution						
2.1	Seed distribution of Pulses	6336.00	6652.80	6985.44	7334.71	7701.45	35010.40
2.2	Seed distribution of Oilseed	461.94	585.04	509.29	534.75	561.50	2552.51
3	Promotion of seed Production of Pulses	2200.00	2310.00	2425.50	2546.78	2674.11	12156.39
4	Promotion of seed Production of Oilseed	65.00	68.25	71.66	75.25	79.01	359.17
5	Flexi fund for Processing and Value addition	120.00	126.00	132.30	138.92	145.86	663.08
Total		11795.44	12485.22	13004.48	13654.71	14337.44	65177.27

Grand Total Financial Target

DPR	Rs. 65177.27 Lakh
Ongoing Scheme	0.00
Total amount	Rs. 65177.27 Lakh
(Six hundred Fifty-One Crore Seventy-Seven Lakh Twenty-Seven Thousand Only)	





1.4. Plant Protection

Introduction: - Plant protection has an important role in modern technology based crop production. In India, about 30-35% crop is lost every year due to pests and weeds. By strengthening plant protection and adopting measures to effectively control pests/diseases and weeds, the percentage of crop damage caused by pests and weeds can be reduced. Due to the lack of modern spraying/dispersion equipment at the plant protection centers, the plant protection services provided to the farmers have gradually declined. There is a need to increase the manpower at the Plant Protection Centers to rejuvenate the plant protection services. In the aftermath of the Green Revolution, the dependence of farmers on chemical pesticides has increased. Pesticides are not used in the scientifically recommended doses by the farmers, therefore there is an urgent need to provide training on plant protection measures. Consequently, the environment and human health is adversely affected.

Brief achievements of the last three agricultural road maps: Field schools which are based on the principle of learning by doing and believing on seeing were organized in the farmers' fields in Kharif and Rabi seasons. The theme of the farmers training in the farmer's field school has been based on the integrated pest management. There is need to increase the number of farmer's field schools.

Priorities for Plant protection

To control the menace of Blue Bull and other wild animal effective coordination will be done with the Panchayati Raj institutions and with the Forest, Environment and Climate Change department. Management of the wild animals through alternative techniques shall also be explored.

For the holistic development of Plant Protection services and to impart latest techniques to the farmers an action plan in form of DPR has been prepared. The details are as follows: -

1. Operationalization of plant protection centers at block level in PPP mode
2. Encouragement to private entrepreneurs for setting up of Biopesticide production unit
3. Use of Unmanned Vehicle (Drone) for Plant Protection
4. Plant Protection Advisory & input distribution

❖ **Brief discussion of above mentioned DPR are as follows-**

1 Operationalization of plant protection centers at block level in PPP mode

- The identified service provider agency shall arrange necessary spraying





equipment, rocker sprayer, knapsack sprayer, duster cum sprayer, power sprayer, multiboom sprayer, STP power sprayer/dusters and adequate number of security equipment for spraying at plant protection centers and skilled personnel for spraying etc. The payment received by the service agency from the farmers shall be shared between the service agency and the government in proportion of 80 : 20 respectively.

- At present only 338 Plant Protection Centres are located in E-Kisan Bhawan, in the remaining blocks, 196 Plant Protection Centres will be set up in the next 05 years.
- Stationary materials, furniture will be provided to Plant Protection Centers in 534 blocks in a phased manner in the next 05 years for operationalization of Plant Protection Centers in PPP mode. A provision has been made for recurring expenditure on this component.

2. Encouragement to private entrepreneurs for setting up of biopesticide production unit:-

In the state of Bihar bio-agents/bio-pesticides are produced in negligible quantity, as a result bio-pesticides produced outside Bihar is supplied to the farmers, which affects the availability of quality input to the farmers. 10 bio-pesticide production units will be set up by private entrepreneurs in a phased manner in the next five years for the supply of *Trichoderma* and *Trichogramma* cards. Land for the production unit will be arranged by the entrepreneurs themselves and 20% of the total cost will be borne by the entrepreneur on the construction and equipment of the proposed production unit and 80% of the total cost will be the subsidy from the department. A provision has been made for recurring expenditure for every year.

3. Use of Unmanned Vehicle (Drone) for Plant Protection:-

Service provider agency will be identified for operation of unmanned aerial vehicle (drone) for all 38 districts. 5, 70,000 acres of land will be covered under this initiative in next 5 years. Spraying services will be made available to the farmers through drone technology, for which farmers will be given government assistance at the rate of Rs. 250/- per acre. A provision has been made for recurring expenditure for every year.

4. Plant Protection Advisory & input distribution:-

- **Plant protection school:** Plant protection schools will be organized on





the fields of progressive farmers to propagate the latest techniques of agriculture. Information related to field preparation, crop management and pest/disease, weed control will be provided to farmers by plant protection workers, agricultural experts and extension workers. This school will be based on the principle of learning by doing and believing on seeing.

- **Demonstration of biological components of plant protection in farmer's field:** The live demonstration of the biological component of plant protection will be undertaken at the farmers' fields, which will encourage farmers to use bio-agents and bio-pesticides. The use of bio-agents and bio-pesticides will encourage organic farming. In the cultivation of major crops of Bihar such as mango, litchi, makhana, basmati rice, bio-agents and bio-pesticides will be encouraged which will increase the export quality and will fetch good prices to the farmers. A provision has been made for recurring expenditure for every year.
- **Capacity building of extension personnel with the help of agricultural scientists:** Agricultural personnel will be trained in latest techniques related to plant protection measures. This training program will be organized by Plant Protection Centres, which will augment the capacity of the personnel of the Agriculture Department.
- **Capacity Building of Pesticide dealers:** Pesticide dealers act as the first point of contact for most of the farmers for their crop related problems. Farmers generally take suggestion from these dealers at the time of purchase of pesticides and other related inputs. In order to increase the capacity of these pesticides dealers, training program will be organized in a batch of 25 dealers in each district.
- **Providing organic / chemical inputs to the farmers at a subsidized rate:** To promote integrated pest management and integrated disease management, the inputs will be provided on subsidized rate under the plant protection schemes. In addition to organic/chemical inputs, pheromone trap, sticky trap etc. will also be provided. A provision has been made for recurring expenditure on this every year.
- **Analysis for quality of pesticides and biological pesticides:** At present there is no system of testing of biopesticides in the state of Bihar. For its testing, samples are sent outside the state to Hyderabad and Faridabad for testing, in which a huge amount is spent per sample and analysis takes a long time. At present, the total testing facility is only for 87





pesticides in the state at Quality Control Laboratory, Mithapur, and Patna. There are 318 insecticides registered as on date 1.10.2022 under Section - (3)9 of Insecticides Act 1968. Due to inadequate testing facility, samples of all pesticides sold in the state is not being taken and tested. Adequate financial outlay has been provided for testing all kinds of pesticides. To ensure quality of the pesticides, samples for testing will be sent to Quality control laboratory, Mithapur, Patna, Indian Agricultural Research Institute affiliated institute, National Institute of Plant Health Management (NIPHM), Hyderabad, Bihar Agricultural University Sabour, Bhagalpur, Dr. Rajendra Prasad Central Agricultural University, Pusa, Samastipur and other identified Bio-Products Testing Laboratory.

- **Modernization and Renovation of Plant Protection Office:** Necessary furniture, accounting material, computer, computer operator on contract basis shall be made available to Joint Director, Plant Protection, Divisional Deputy Director, Plant Protection and Assistant Director posted in the district, to strengthen the Plant Protection Offices. Vehicles on monthly hire basis will be ensured. A provision has been made for recurring expenditure on this every year.
- **Exposure Visit / Training:** The officials of Plant Protection will be trained from National Institute of Plant Health Management (NIPHM), Hyderabad and other training institutes for knowledge enhancement and capacity building. Through exposure visits, the officials of the Plant Protection will be exposed to the advanced technology based crop protection programme adopted in other states, which will enhance their knowledge.
- **Seed treatment campaign:** In Kisan Chaupal and other programmes, seed treatment awareness campaign will be organised, and publicity material will be distributed among the farmers for their knowledge enhancement.





The details of physical and financial targets for the programs of plant protection are as follows: -

Sr. No.	Particulars	2023-24		2024-25		2025-26		2026-27		2027-28	
		Physical	Financial	Physical	Financial	Physical	Financial	Physical	Financial	Physical	Financial
(1) Operation of Plant Protection Center in PPP mode (Physical target in number and financial target - in lakh Rs)											
A	Furniture for Plant Protection Center	105	55.125	105	60.6375	105	66.70125	105	73.36350	114	87.609
B	Stationary item	105	12.6	210	25.2	315	37.8	420	50.4	534	64.08
(2) Incentive to private entrepreneurs for setting up bio-pesticide production unit (Physical target in number and financial target - in lakh Rs)											
A	Establishment of Bio pesticide unit	2	229.36	2	366.976	2	518.3536	2	570.18896	2	627.20785
(3) Use of Unmanned Aerial Vehicles (Drone) for Plant Protection (Physical target in Acres Financial - Rs.Lakhs)											
A	Use of Unmanned Aerial Vehicle (Drone) for Plant Protection	38000	95.00	76000	190.00	114000	285.00	152000	380.00	190000	475.00



Fourth Agriculture Roadmap 2023-28



Sr. no.	Particulars	2023-24		2024-25		2025-26		2026-27		2027-28	
		Physical	Financial	Physical	Financial	Physical	Financial	Physical	Financial	Physical	Financial
(4) Plant Protection Advisory & input distribution											
(i) Plant protection material distribution at subsidized rate (Physical target in hectare, Financial target - in lakh Rs)											
A	Pheromone trap	1.00	900.00	1.25	1218.75	1.50	1575.00	1.75	1963.75	2.00	2400.00
B	Sticky Trap (A-4Size)	0.05	39.375	0.05	43.3125	0.10	95.625	0.10	104.625	0.15	168.75
C	Bio pesticide	1.00	750.00	1.25	937.50	1.50	1350.00	1.75	1575.00	2.00	2100.00
D	Chemical Insecticide, Fungicide, Weedicide, Plant Growth Regulator	0.80	600.00	0.80	600.00	1.00	900.00	1.00	900.00	1.20	1260.00
E	Life time trap	1.00	1500.00	1.25	1968.75	1.50	2475.00	1.75	3018.25	2.00	3600.00
(ii) Plant Protection School and Training Program (Physical target in numbers - Financial in Lakhs Rs.)											
A	Plant protection school	10680	2683.2432	10680	2683.2432	10680	2683.2432	10680	2683.2432	10680	2683.2432
	One day master										
B	trainer training at divisional level	380	1.71	380	1.71	380	1.71	380	1.71	380	1.71



Fourth Agriculture Roadmap 2023-28



Sr. no.	Particulars	2023-24		2024-25		2025-26		2026-27		2027-28	
		Physical	Financial	Physical	Financial	Physical	Financial	Physical	Financial	Physical	Financial
C	Honorarium of 5-5 resource persons for one day master trainer training at divisional level	90	0.9	90	0.9	90	0.9	90	0.9	90	0.9
	Two-day master trainer training at district level (2-2trainers from each block)	4272	19.22	4272	19.22	4272	19.22	4272	19.22	4272	19.22
E	Honorarium of 5-5 resource person for two-day training of master trainer at district level	760	7.6	760	7.6	760	7.6	760	7.6	760	7.6

Fourth Agriculture Roadmap 2023-28





Fourth Agriculture Roadmap 2023-28



Fourth Agriculture Roadmap 2023-28

Sr. no.	Particulars	2023-24		2024-25		2025-26		2026-27		2027-28	
		Physical	Financial	Physical	Financial	Physical	Financial	Physical	Financial	Physical	Financial
F	Two-day training of trainers at block level (2-2trainers from each panchayat)	21360	96.12	21360	96.12	21360	96.12	21360	96.12	21360	96.12
	Honorarium of two resource persons for two days training of trainers at block level	4272	42.72	4272	42.72	4272	42.72	4272	42.72	4272	42.72
H	District Level Training of Pesticide Dealers (25 participants twice a year)	76	6.08	76	6.08	76	6.08	76	6.08	76	6.08





Sr. no.	Particulars	2023-24		2024-25		2025-26		2026-27		2027-28	
		Physical	Financial	Physical	Financial	Physical	Financial	Physical	Financial	Physical	Financial
I	Two days residential training of 25farmers at block level (for two crops)	1068	267	1068	267	1068	267	1068	267	1068	267
(III) Quality Check of Biopesticide/Chemical Pesticide (Physical target in numbers and Financial target - in lakhs Rs)											
A	Biopesticide sample	380	20.90000	380	22.99	380	25.289	380	27.8179	380	35.59869
B	Chemical pesticide sample	380	32.30000	380	35.53	380	39.083	380	42.9913	380	52.28943
(iv) Modernization of State headquarter, Divisional and District level offices (Physical target in numbers and Financial target - in lakhs Rs)											
A	Date Entry Operator	50	150.00	50	165.00	50	181.50	50	199.65	50	219.615
B	Furniture & Computer Sets	48	168.00	-	-	-	-	-	-	-	-
C	Vehicle	38	15.561	38	15.561	38	15.561	38	15.561	38	15.561



Fourth Agriculture Roadmap 2023-28



Fourth Agriculture Roadmap 2023-28

Sr. no.	Particulars	2023-24		2024-25		2025-26		2026-27		2027-28	
		Physical	Financial	Physical	Financial	Physical	Financial	Physical	Financial	Physical	Financial
D	Training-cum-Exposure Visit	50	17.5	50	19.25	50	21.175	50	23.2925	50	25.62175
(v)	Seed treatment campaign and distribution of promotional materials for farmers' knowledge enhancement (Physical target in numbers and Financial target - in lakhs Rs)										
A	Seed treatment campaign	16434	82.17	16434	82.17	16434	98.604	16434	98.604	16434	123.255
B	Distribution of leaflets/ pamphlets and promotional material	-	30.00	-	33.00	-	36.00	-	39.00	-	42.00
C	Contingency	-	0.75	-	0.825	-	0.90	-	0.975	-	1.05
(VI)	Demonstration program of plant protection inputs in field and garden (Physical target in acres and Financial target - in lakhs Rs)										
A	Demonstration	1068	38.448	3204	115.344	3204	115.344	4272	153.792	4272	153.792





Fourth Agriculture Roadmap 2023-28



Total financial target of plant protection under the fourth agricultural road map (in lakh rupees)

Sr.	Program/Application Details	Financial goal					Contingency	Total amount
		2023-24	2024-25	2025-26	2026-27	2027-28		
1	Operation of government plant protection centers in PPP mode	67.72	85.83	104.50	123.76	151.68		533.51
2	Encouragement to private entrepreneurs for setting up of biopesticide production unit	229.36	366.97	518.35	570.18	627.20		2312.08
3	Use of Unmanned Vehicle (Drone) for Plant Protection	95.00	190.00	285.00	380.00	475.00		1425.00
4	Plant Protection Advisory & input distribution	7468.84	8381.75	10052.77	11286.92	13321.07	4.5	5051.87
Total		7860.93	9024.56	10960.63	12360.88	14574.97	4.5	54786.47



Fourth Agriculture Roadmap 2023-28





1.5. Bihar Organic Promotion Program

Introduction: -

Injudicious and incessant use of chemical fertilizers and pesticides has adversely affected human health and environment. Around 30 percent of food produced worldwide gets wasted. Around 1 million species are threatened with extinction. Unsustainable agriculture attributes to biodiversity loss, contributing to global warming, contaminating soil, and threatening rural livelihoods as well as food & nutrition security. The recent Intergovernmental Panel on Climate Change (IPCC) report showed that our food systems are estimated to cause up to 29% of global anthropogenic greenhouse gas emissions.

One of the major causes of Nitrous Oxide emission is crop production and the use of chemicals in day to day life. Due to various schemes of the Govt. of Bihar such as construction of vermicompost, Green manuring and training and capacity building of farmers there has been inclination towards adoption of Organic Farming among the farmers leading to emerging markets for organic produce.

Achievements of Last three Agricultural Roadmap: In last three agriculture road map, various government schemes for promotion of organic farming have been successfully implemented. The major achievements of these schemes are construction of 786604 Pucca Vermi Units, 179369 Unit HDPE vermin units, 614 pre-fabricated Vermicompost units, promotion of 4568 Jaivik Grams, 852558 Quintal vermicompost distribution, 13241 units of Gobar gas, 86 Commercial Vermicompost units, 23 Commercial bio-fertilizer Units, bio-fertilizer distribution for 936487 ha, Dhaincha seed distribution for 1814053 ha, Seed Treatment for 90326 ha, Pheromone Trap application in 35489 ha, bio-pesticide application in 44691ha and 800 units of seed drums were distributed.

Jaivik Corridor Yojna, in Phase -1 was rolled out in 2019 under State Plan, in which the state govt. identified 13 districts (Bhagalpur, Begusarai, Bhojpur, Kathihar, Khagaria, Buxar, Lakhisarai, Patna, Munger, Nalanda, Samastipur, Saran & Vaishali). Currently under this scheme 187 groups / FPOs have been formed and are in the process of 2nd-year conversion (C2), involving 21119 farmers covering 17507 acres under NPOP through third party certification from Bihar State Seed and Organic Certification Agency (BSSOCA). Detailed Agronomic Practices for Organic Cultivation for different Crops have been prepared. All documentation works for certification & updation of TRACENET data has been completed well within the stipulated time frame. Input supplier & distribution of organic inputs have been empaneled. By fulfilling all statutory requirements under the Societies & Companies act, 187 FPOs have been promoted. 27 local points of Sale have been made operational for the





facilitation of C1 and C2 sales in 13 districts. 24 e-rickshaws have been provided for logistic support to the farmers.

Priority Areas for Fourth Agricultural Roadmap:

This RoadMap has been prepared to give focus to production and use of organic inputs alongside organic certification. The gains of first three agriculture road maps shall be continued and this roadmap will focus on the following objectives:-

- Availability of organic inputs and organic pesticides at local level.
- Creation of infrastructure for increase in organic value chain at local level.
- Farmers training and capacity building on organic farming and awareness campaign among users about the health benefits of the organic products.
- Strengthening of FPO/FPC for marketing of organic produce.

Following components will be implemented under the fourth Agriculture Road Map

- Pucca Vermi compost Unit:
- Commercial Vermi Compost/ PROM Manufacturing Unit/ Organic Input Manufacturing Unit
- Bio Gas
- Biocontrol/ Bio lab at District Level under PPP Mode:
- Establishment of Bioagents Testing Lab.
- Innovation and Startup assistance in Organic Farming
- Green Manuring/ Hari Chadar Yojana
- Strengthening of FPO/FPC.
- Help to farmers for certification.
- Flexi Scheme for Promotion of Organic and Sustainable Agriculture:
- Farmers Training and Capacity Building.

The above components will be implemented in all 38 districts (it is worthwhile to mention that these components are majorly implemented in 13 districts of organic corridor at present).

Following components through different schemes will be implemented for promotion of organic farming as DPR:

Sl. No.	DPR Components	Budget (Rs. Lakhs)
01	Pucca Vermicompost Unit (10'X3'X2.5')- Pit/ Dher	9000.00
02	Commercial Vermicompost/ PROM/ Organic Input Manufacturing Unit	1000.00
03	Biogas	225.00





Sl. No.	DPR Components	Budget (Rs. Lakhs)
04	Bio-control/ Bio Lab at District Level under PPP Mode	900.00
05	Startups and Innovation Fund	1600.00
06	Flexi Scheme for promotion of Organic and Sustainable Agriculture	1600.00
07	Green Manuring/ Hari Chadar Yojana for Dhaincha / Sunhemp	7200.00
08	Dhaincha Seeds Production	-
09	Certification assistance to farmers	700.00
10	Creation of an Online Platform for Society/ FPOs/ FPCs for strengthening of Marketing of Organic Produce	2500.00
11	Training and Capacity Building of Farmers on Organic Farming	2500.00
Total		27225.00
Ongoing Scheme		
01	Jaivik Corridor Yojana	16762.85
Total (DPR + Ongoing Scheme)		43987.85

Total Financial Outlay of Bihar Organic Promotion Programme is Rs. 43987.85 lakh out of which Rs. 27225.00 lakh is for DPR component and rest Rs. 16762.85 lakh is for ongoing scheme.

Brief Description of the components covered under the DPR are as below:

Sl. No.	DPR Components	Implementation	Outcome
1	Vermi Compost Unit No- 180000 units. Amount- Rs. 9000.00 lakh. Commercial Vermicompost/PROM construction/ Organic Input Construction unit. No- 50 units. Amount- Rs. 1000 lakh Biogas No- 1000 units. Amount- Rs. 225 lakh	The scheme will be implemented by DBT on the basis of verification by DAO and Assistant Director (A.D.). The beneficiaries should be engaged in agriculture activity besides animal husbandry. The maximum limit is 3 Vermi pits / farmer. The Details of the scheme and the name of the beneficiary will be indicated at the Pucca Vermipit site.	It will increase soil fertility and water holding capacity of the soil.





Fourth Agriculture Roadmap 2023-28



Sl. No.	DPR Components	Implementation	Outcome
2.	Establishment of Bio-control/ Bio Lab at District Level under PPP Mode No- 3 units. Amount- Rs. 900 lakh.	After deliberation at appropriate level and after approval of competent authority, the laboratories will be established. The DAOs will be responsible for implementation of the component.	This will assure timely supply of organic input. This will lead to creation of entrepreneurship and employment.
3.	Hari Khad/ Hari Chadar Yojna (<i>Sesbania</i> and Sunnhemp) Area- 5 lakh hectare Amount- Rs. 7200 lakh	The Bihar State organic mission shall pose requirements district wise to BRBN. BRBN will ensure timely distribution of seeds at district level. DAOs will ensure timely availability of seeds to the farmers. BRBN will also ensure that the germination % of seeds is as per the norms of the Seed Act. All the process involved in the distribution of seeds will be photographed with GPS coordinates.	Adds Nitrogen and Carbon in the soil. This will increase the numbers of micro-organisms in the soil.
4.	Innovation and Startup assistance in Organic Farming Amount- Rs. 1600 lakh.	After the approval of Secretary, Agriculture cum Chairman of Working Committee of Bihar State Organic Mission in coordination with incubation institute, new startup will be promoted. Under the provisions of this scheme, youths will get a maximum fund of Rs.10 lakh without interest on the recommendation of the	Startup/Innovation will be promoted.





Fourth Agriculture Roadmap 2023-28



Sl. No.	DPR Components	Implementation	Outcome
		incubation institutes, in addition to this if any individual seeks assistance under Bihar State Organic Mission for any of the initiatives under the Flexi Fund, he will get an additional fund of Rs. 2 lakh. - To Angel Investors which generates profits then the investor will get success fee @ 2%. - Women startup will be given Rs 50000 more than their men counterparts i.e total sum of Rs 10.50 lakh whereas women belonging to SC category will get Rs 11 lakh. - If required necessary advisory, training and marketing assistance will be provided. - For fund management of Bihar State Organic Mission, a MOU will be signed with fund management company or an executive committee of Bihar State Organic Mission under the chairmanship of Secretary, Agriculture will take final decision.	
5.	Flexi Fund for promotion of Organic and Sustainable Agriculture. Amount- Rs. 1600 lakh	- Secretary Agriculture cum Chairman of Executive committee of Bihar State Jaivik Mission will be competent authority to approve this component. - Proposal will be submitted on the recommendation of the District Magistrate.	New opportunities/ new enterprises will be promoted in the field of organic farming.





Fourth Agriculture Roadmap 2023-28



Sl. No.	DPR Components	Implementation	Outcome
5.	Flexi Fund for promotion of Organic and Sustainable Agriculture. Amount- Rs. 1600 lakh	- Secretary Agriculture cum Chairman of Executive committee of Bihar State Jaivik Mission will be competent authority to approve this component. - Proposal will be submitted on the recommendation of the District Magistrate. - Bihar State Organic Mission shall put up a proposal to Secretary Agriculture cum Chairman of Executive committee of BRJM	New opportunities/ new enterprises will be promoted in the field of organic farming.
6.	Creation of an Online Platform for Society/ FPOs/ FPCs for strengthening of Marketing of Organic Produce Amount- Rs 2500 lakh.	BRJM shall create online platform for marketing of organic produce by groups/organisations so that FPO/FPC can become self reliant for marketing.	This will lead to increase in sale of organic produce.
7.	Certification Area- 1.40 lakh hectare. Amount- Rs.700 lakh.	BSSOCA/any other agency shall certify the produce.	This will increase area under organic agriculture.
8.	Training and Capacity building. Number-50000 Amount-2500.00 Lakhs	For training and capacity building. Resource institution shall be empanelled at state level by Bihar Rajya Jaivik Mission and district can take assistance from the empanelled resources. But the district may also rope in resources as per their local requirement in training. To reach the larger extent the multimedia, print media, digital media, or social media shall also be used. At district level DAO and nodal officers will be responsible for training and capacity building and Head quarter level Bihar Rajya Jaivik Mission and nominated officer through Project Management Unit.	To enhance organic farming skill and productive capabilities of farmers.





Fourth Agriculture Roadmap 2023-28



Ongoing Scheme- Jaivik Corridor Yojana.

Name of the Ongoing scheme	Jaivik Corridor Yojana
Component	Assistance for production, certification and marketing to the farmers.
Target	Financial Target- Rs.16762.85 lakh for 13 districts in five years.
Implementation	At district level, DAOs and at the state level, Director, BRJM will implement the scheme.
Outcome	Adoption and certification of 40,000 acres land under organic farming.

Component	Target	2023-24	2024-25	2025-26	2026-27	2027-28	Total
Jaivik Corridor Yojana	Physical (in acres)	20000		20000			40000
	Financial (in lakh)	3250.84	3075.97	4109.22	3250.84	3075.97	16762.85

3 years is the time required for soil to become completely organic.





1.6 Development of Agriculture marketing in Bihar

Introduction

The agricultural sector in Bihar makes a significant contribution to the state's economy and employment. As per the census 2011, about 70% of the workforce is engaged in agriculture either as a cultivator or agricultural labourers. The availability of fertile alluvial soil, adequate rainfall, and other favourable agro-climatic conditions provide a congenial environment for the cultivation of a variety of food grains, vegetables, fruits, spices, and other commercial crops.

The government of Bihar has taken various policy and institutional initiatives in the last 15 years under the three Agricultural Road Maps which have transformed the agricultural landscape of the state. The investments made by the state government in the areas of irrigation, and rural infrastructure as laid out in the Agriculture Road Maps have boosted agricultural outputs, increased crop yields, and enhanced diversification. The production of cereals in the state has reached 181 Lakh MT in 2021-22 from 113.4 Lakh MT in 2007-08. Similarly, the production of fruits has increased to 49.77 Lakh MT from 32.52 Lakh MT while that of vegetables to 178.4 Lakh MT from 140.6 Lakh MT in 2007-08.

Bihar is self-sufficient in the production of food grains and the focus has now shifted to the management of surplus to ensure that the gains in production and productivity are translating into higher prices. An efficient agricultural marketing ecosystem in the state will ensure that the farmers are getting the optimal price for agricultural produce. The state government has established Bihar Agricultural Produce Value Addition System (BAVAS) in the department of agriculture for the development of the agricultural marketing ecosystem in the state. The division is making concerted efforts to improve the access of farmers to markets by working in the areas of infrastructure development for domestic and international trade, bridging the information gaps, adopting digital technologies, and providing support to farmers' collectives.

Progress so far

The state government has accorded top priority to the development of agriculture and allied sectors with the roadmap-based strategy. Agriculture Roadmap-based strategies helped the state in achieving a very high level of production and productivity of food grains. The second road map helped farmers in improving their market access through improved rural connectivity and enhanced storage capacity in the state through the construction of new godowns. The storage capacity in the state increased by more than three times in the state by the end of the second road map. Provisions of previous roadmaps have also boosted the growth of the food processing





Fourth Agriculture Roadmap 2023-28



industry in the state which has contributed to a higher amount of value addition activities in the state. More than 300 food processing units were started in the state during the second agriculture road map.

The third agriculture road map paved the way for the renovation and development of government agricultural market yards with work on renovation started in 22 agricultural produce market yards. Basic infrastructure such as internal roads, drainage systems, toilet blocks, high mast lights, etc., were developed in these market yards. To bridge the information gap between the farmers and markets the department also started the collection and dissemination of price and arrival data from the 100 market nodes.

Fourth Agriculture Roadmap (2023-28)

The fourth Agriculture Roadmap in the state envisages the strengthening and development of the agricultural marketing ecosystem in the state by providing systemic interventions, the creation of enabling infrastructure, and assistance to various stakeholders. For a holistic development of the agricultural marketing ecosystem in Bihar, an action plan for the overall development of government agricultural market yards, promotion of agricultural exports, strengthening of farmer producer organization ecosystem, and development of rural haats. The Department of Agriculture will implement various proposed activities with the following objectives:

- a) To enable the farmers of the State to increase their access to remunerative markets
- b) To strengthen the agricultural marketing ecosystem by improving market infrastructure and providing other enabling infrastructure for agribusinesses to flourish
- c) To promote the export of agricultural produce from the State by developing and strengthening the agri-export ecosystem
- d) To increase the use and adoption of digital initiatives to enhance efficiency and transparency in the agricultural marketing ecosystem.

A summary of DPRs being these proposed activities are as follows:

Development of Government Agricultural Produce Market Yards

Recognizing the importance of agricultural produce market yards in the state the government has prioritized the work of renovation and modernization of all 54 market yards in the state under the fourth agriculture roadmap. These market yards will be linked to the e-NAM platform which will facilitate the integration of these market yards with a common national-level online marketing platform facilitating pan-India trade of agricultural commodities from these market yards.





To provide real-time market information, the existing system of collection of price and arrival data through the AGMARKNET platform will further be strengthened by the integration of the AGMARKNET portal with BIHAN App of the Government of Bihar and developing a state-level information and intelligence platform.

The department has prepared a comprehensive policy for the allotment of assets in the market yards (Bihar Policy for Allotment of Assets in Agricultural produce Market Yards) which will ensure the allotment of assets in the agriculture market yards in a fair, transparent, and inclusive manner. The Policy for allotment of assets in the market yard has been included in the DPR for development of government agriculture market yards. Community institutions like Farmer Producer Organizations/ SHGs and their federations have been provided preferential treatment in the allotment of assets by making provisions or reservations and relaxations in eligibility conditions.

Further on, the department will also bring a policy for management and maintenance of market yards. Provisions of this policy will ensure the long-term sustainability of the assets being created in market yards.

To facilitate activities related to the marketing of agricultural products in the state and ensure that farmers can get fair and remunerative prices a 'Directorate of Agricultural Marketing' will be established within the department. The directorate will implement various proposals and other marketing-related schemes and policies envisaged under the Agriculture Roadmap and will work closely with farmers, traders, and other stakeholders.

The initiatives related to the development of government agriculture market yards will support farmers in getting remunerative prices, provide impetus to the food processing industry in the state, and will create opportunities for employment generation in the state.

Development of Rural Haats

After the repeal of 'Agricultural Produce Marketing Act' in 2006 bulk of the transactions of agricultural products shifted at the farmgates. It has led to the emergence of small unorganized wholesale and consumer markets commonly known as rural haats. These haats function as periodic markets and operate mostly twice or thrice a week. As per the report of the Standing Committee on Agriculture (2018-2019) about 1,794 Grameen Haats exist in Bihar. The lack of basic infrastructures and facilities such as platforms, covered sheds, storage facilities, drinking water, and sanitation facilities leads to significant losses of agricultural produce and also restricts the functioning of these markets.





Improving the infrastructure facilities in these haats will increase the efficiency of these haats through efficient price discovery, reduced transaction costs, and increased competition between buyers and sellers. These haats will also be linked with the larger market yards improving the efficiency of market yards by integrating the supply chain of commodities. These initiatives will facilitate higher price realization for farmers, minimize post-harvest losses and will develop a competitive market closer to the farm gate.

Promotion of FPO ecosystem in Bihar

Agriculture in the state is dominated by small and marginal farmers who face multiple challenges related to small volumes of marketable surpluses and limited access to critical agricultural inputs and services. Recognizing these needs of smallholders, the collectivization of smallholders through farmer-producer organizations has gained substantial momentum in the state in the last few years. However, most of the FPOs in the state are in a nascent stage and are facing multiple challenges related to capacity building, access to credit and market linkage. The Government of Bihar will work for the overall development of the FPO ecosystem in the state and will take steps to address the multiple challenges being faced by FPOs and other stakeholders.

The Government of Bihar has prepared an umbrella policy (Bihar FPO promotion Policy) for facilitating the development of FPO ecosystem in the Bihar. The policy will support in building an enabling environment for promotion of sustainable Farmer Producer Organizations in Bihar and will support FPOs, promoting organizations, and other stakeholders in addressing various challenges faced by them. The proposed policy for promotion of FPO ecosystem in the Bihar has been included in the DPR for promotion of FPO ecosystem in Bihar.

To streamline the efforts for the overall development of FPO ecosystem in the state Bihar Small Farmers Agribusiness Consortium (BSFAC) under the Department of Agriculture, shall work as the nodal agency in the state. BSFAC will undertake initiatives to support FPOs, promoting organizations, and other stakeholders to support them in addressing their challenges.

Capacity-building exercises such as residential training, certificate course, short-duration trainings, exposure visits to best-performing FPOs etc., will be undertaken. These initiatives will enhance the capacity of FPO Board members, lead farmers, accountants & other staff of FPOs. To streamline training and capacity-building initiatives BAMETI shall be designated as the dedicated State Level training institution for FPOs.



FPOs in Bihar are mostly in the early stages of business development and often face difficulties in accessing institutional finance at affordable rates. Schemes will be formulated to provide seed fund/initial capital to nascent FPOs. The scheme will be used to build a corpus with financial institutions for lending to FPOs in Bihar at a concessional rate of interest. In addition to this, the government will also facilitate the setting up and operationalization of a blended revolving corpus fund with eligible financial institutions to provide low-interest rate working capital assistance to FPOs.

To support FPOs in the marketing of agricultural produce BSFAC shall organize buyer-seller meetings/tie-ups to promote FPOs' engagement/tie-ups with various procurement companies, traders, exporters, and other stakeholders. These events will help in generating more business, meet national and international buyers, forge new strategic partnerships, and gain industry knowledge.

The initiatives will help in the development of financially viable and sustainable Farmer Producer Organizations (FPOs) in the state of Bihar thereby increasing the incomes of farmers by providing an enabling ecosystem for leveraging the economies of scale.

Promotion of Agri-Exports from Bihar

The rising growth in agriculture and allied sectors in Bihar offers ample scope and opportunity for entering global value chains to earn foreign exchange and enable producers to earn higher prices for their farm produce. With more than 70% of the population of Bihar engaged in the agriculture sector, linking the production in these sectors to the export markets is one of the best ways to stimulate growth and thereby expand the farmers' markets substantially enhancing income opportunities of producers. Export orientation of the agriculture sector coupled with quality produce, sizeable processing industry, and strong domestic market are some of the prerequisites for harnessing the true export potential of Bihar. The Government of Bihar has prepared a comprehensive policy to encourage and promote the exports of agriculture and allied sector products from Bihar. The policy will create an enabling environment for export promotion and will enhance the level of processing, storage, reducing post-harvest losses, value addition, and trade facilitation thereby generating higher income returns for farmers and contributing to India's vision of increasing agricultural exports of India.

Bihar is a landlocked state and its exporters are competitively disadvantaged against states that have sea coasts and an international airport. Exporters of horticultural produce such fruits /vegetables / flowers also face significant risk of quality deterioration. To make the exports from Bihar price competitive with other states, government will bring a comprehensive freight assistance scheme for exporters of agricultural products. Exports of fresh horticultural produce





(fruits/vegetables/flowers) will also be incentivized in the form of packaging assistance.

The insistence on quality of agricultural/food products being imported in high value markets across the globe is a major concern for exporters due to stringent quality norms. To meet such stringent norms processors/ manufacturers will be encouraged for implementation and certification of Food Safety Management Systems. Government of Bihar shall provide assistance to exporters/processing units to implement certifications such as ISO, HACCP, TQM, KOSHER, etc.

Aggressive market access and market penetration is required to increase the share of exports from Bihar to newer markets. Government will undertake targeted promotional activities including participations in international exhibitions, organizing fairs, in-store marketing, brand promotion etc and shall organize aggressive international marketing and branding of local ethnic and GI products to gain the market advantage for such products.

The proposed initiatives will encourage and promote the exports of agriculture and allied sector products from Bihar by creating an enabling environment for export of agricultural commodities. It will also enhance the level of value addition in the state leading to higher price of agricultural products in the state thereby generating higher income for farmers.

Other Initiatives

- The department will implement the agricultural marketing policies/ programmes /schemes of both state and central government for the integrated development of marketing of agricultural and other allied produce in the state. It will coordinate with various agencies to increase the market access of farmers and safeguard the interests of farmers.
- The department shall facilitate the development of export-enabling infrastructures such as integrated pack houses, center for perishable cargos, cold chains, food processing industries common facility centers, NABL accredited laboratory labs, etc., in convergence by leveraging the benefits /incentives already being provided under the various policies/schemes of Government of Bihar, Government of India, and other central/state government agencies.
- The department shall coordinate and leverage support from the central government and other concerned agencies for the implementation of Price Support Schemes for the procurement of commodities from time to time as per the requirements.





Fourth Agriculture Roadmap 2023-28



- On the basis of a preliminary analysis and discussion with key stakeholders Department of Agriculture has identified the various challenges at pre-production, production, harvesting and post-harvest management, marketing and value addition. The various crops covered under the preliminary analysis are maize, wheat, rice, onion and potato, makhana, banana, mango and litchi.
- The various challenges identified have also been mapped to interventions which are required to be taken up. Some of the suggested interventions are already included as part of the existing activities proposed under the agriculture roadmap while the remaining activities will be taken up separately by the department.



Fourth Agriculture Roadmap 2023-28





Fourth Agriculture Roadmap 2023-28



Fourth Agriculture Roadmap 2023-28

Financial Targets

S. No.	DPR	Interventions	Budget (Rs in Lakh)					
			2023-24	2024-25	2025-26	2026-27	2027-28	Total
1	Development of Government Agricultural Produce Market Yards	Modernization and renovation of agricultural produce market yards	66534	62376	58045	46436	11609	245000
		Implementation of e-NAM in agricultural produce market yards	740	740	740	1683	1683	5586
		Development of market information and intelligence system	262	112	112	112	112	710
		Policy for allotment of assets in agricultural produce market yards	NA	NA	NA	NA	NA	NA
		Policy for management of agricultural produce market yards	1220	1281	1345	1412	1483	6741
2	Development of Rural Haats	Establishment of Agricultural Marketing Directorate	100	100	100	100	100	500
		Development of basic infrastructure as per the requirements	600	600	600	600	600	3000





Fourth Agriculture Roadmap 2023-28



S. No.	DPR	Interventions	Budget (Rs in Lakh)					
			2023-24	2024-25	2025-26	2026-27	2027-28	Total
3	Promotion of Farmer Producer Organization (FPO) Ecosystem in Bihar	Institutional strengthening of Bihar-Small Farmer Agri-business Consortium	20	20	20	20	20	100
		Convergence between different schemes of state and central government for FPO strengthening	NA	NA	NA	NA	NA	NA
		Training and exposure of Farmers Producer Organization (FPOs)	157	157	157	157	157	785
		Seed capital fund for FPOs	250	250	250	250	250	1250
4	Promotion of Agricultural Exports from Bihar	Revolving Fund for FPOs	1666.5					1666.5
		Freight assistance to exporters of agricultural products	345	477.5	570	702.5	835	2930
		Packaging assistance to exporters of agricultural products	150	185	220	255	290	1100
		Support for development of quality control systems	50	50	50	50	50	250
		Marketing and branding support for export promotion	150	150	150	150	150	750
Total			72244.5	66498.5	62359	51927.5	17339.0	270368.5





1.7. Soil and Water Conservation Program

Introduction:-

Conservation of natural resources like Soil and Water has an important role in the development of agriculture in an agricultural state like Bihar. Due to climate change and increase in global temperature, from the past several years, irregularity in the timing and quantity of rains and decrease in rainfall is also being seen in the rainy season. The per capita availability of water is decreasing every year in view of the potential adverse impact of climate change along with rapidly growing population and increasing needs of a rapidly developing state. As a result, agricultural productivity is decreasing, as well as due to dependence on ground water for irrigation, there is a continuous decline in ground water level. Therefore, there is a need to promote and strengthen the activities of water conservation and water use management in the state by adopting a holistic and integrated approach.

The districts of southern Bihar are dominated by barren land and farmers mainly depend on monsoon for irrigation. In these rain-fed areas of southern Bihar, water scarcity, rapid decline in ground water level and more effect of soil erosion are seen. Evaporation is also very high in these regions due to the high temperature. Therefore, sufficient quantity of water is not available for farming. The problem of soil erosion is acute in southern Bihar. Every year the fertile soil gets washed away along with the rain water into the river drains. Therefore, it seems impossible to maintain agricultural productivity without adopting soil and water conservation techniques. To understand the importance of water conservation, rainwater harvesting, to conserve soil and water at the same place, to ensure community participation for soil and water conservation, to enhance capacity, to promote livelihood and productivity system directorate of Soil Conservation, Agriculture Department and Bihar Watershed Development Society in 18 districts of the state namely Banka, Muger, Jamui, Nawada, Gaya, Aurangabad, Rohtas, Kaimur, Lakhisarai, Sheikhpura, Nalanda, Patna, Jehanabad, Arwal, Bhojpur, Bhagalpur, Buxar and Begusarai is implementing various schemes such as Pradhan Mantri Krishi Sinchai Yojana – Watershed Development Component, construction of pucca check dams up to 30 feet under Saat Nischay-2 and Soil and water conservation schemes are being implemented under the State Plan. Under this, land levelling, field Bunding, check dam, pond construction, ahar-pyne renovation, Silt Detention Dam, community irrigation well etc. are being constructed. With the adoption of this technology, the concept of field water in the field and field soil in the field is proving effective. In order to make the rural communities socially and economically prosperous, the Watershed Development Programme for conservation of natural resources, especially soil and water, has got immense success, under which multi-level method from ridge to valley for soil and water





conservation, community participation, capacity building, promoting livelihood and productivity systems etc is being adopted.

Brief achievement of the last three agricultural road maps:- Under the last three agricultural road maps (2007-2023), Directorate of Soil Conservation and Bihar Watershed Development Society in 17 districts of the state, namely Banka, Muger, Jamui, Nawada, Gaya, Aurangabad, Rohtas, Kaimur, Lakhisarai, Sheikhpura, Nalanda, Patna, Jehanabad, Arwal, Bhojpur, Bhagalpur and Buxar under various schemes such as Pradhan Mantri Krishi Sinchai Yojana-Watershed Development, Construction of pucca check dams up to 30 feet in Saat Nischay-2, Pradhan Mantri Krishi Sinchai Yojana (Per Drop More Crop), Green Revolution Scheme for Eastern India under RKVY and Soil and Water Conservation Schemes under State Plan were successfully implemented. The benefits of which have been seen at the ground level. Total of 64 projects have been successfully implemented under the Integrated Watershed Management Program (IWMP) Batch-III (2011-12) and Batch-IV (2012-13) in the previous Agriculture Road Map. As a result, a total of 311993 hectares of project area has been treated in 8 districts of South Bihar namely Aurangabad, Rohtas, Kaimur, Gaya, Nawada, Jamui, Munger and Banka. Under this, apart from soil and water conservation programme, along with encouraging livelihood activities, financial assistance has been provided to self-help groups. Through self-help groups formed by Jeevika, assistance has been provided for goat rearing, fish farming, poultry farming, agro-based small scale industries etc. to make the landless families of the project area economically empowered. Need based seed distribution was done to promote the production system under the project area. Need based structures related to soil and water conservation have been created under the state plan. Private and community borewells, ponds and community irrigation wells have been constructed to provide irrigation facilities under the Pradhan Mantri Krishi Sinchai Yojana-Per Drop More Crop and RKVY. A total of 37034 structures have been constructed under these schemes. In which 10297 water harvesting ponds of different sizes, 6964 Aahar Pyne renovation, 2051 Pucca Check Dam construction, 722 Community Pond Renovation, 4324 Silt Detention Dam construction, 979 Earthen Check Dam, field bunding in 3131 hectare, 1498 Irrigation Wells and 7068 other structures like continuous contour trench, staggered contour trench, private and community borewell etc. have been constructed. A total of 80206 hectares of additional irrigation potential has been created by the construction of the above structures. As a result, according to the survey conducted by the Public Health Engineering Department (PHED) in 08 districts of South Bihar, the ground water level has increased from 04 feet to 17 feet, which has also been appreciated by NITI Aayog, Government of India. As a result of construction of soil and water conservation structures and increase in underground water level, farmers are taking more than one crop in a year, due to which cropping intensity and crop productivity have increased in the project area.





Fourth Agriculture Roadmap 2023-28



Priority of Fourth Agriculture Road Map:- In view of the achievements of the previous three Agriculture Road Map, the Fourth Agriculture Road Map (2023-28) is based on conservation of natural resources like soil and water, promote livelihood and advancement of productivity system in the rain-fed areas of southern Bihar. Under which land levelling, construction of check dam, Aahar-Pyne renovation, construction of silt detention dam, pond etc. is proposed. In this context, some other activities like Livelihood Support and Productivity System for landless households are also proposed in rainfed areas of Southern Bihar. After discussion with the technical experts for the agricultural road map, it was decided that provision of funds should be made for continuous monitoring, maintenance and partial repair of the structures built under various schemes. Keeping this in view, a provision of 10 percent of the total financial target will be made in the state plan for repair and maintenance of previously constructed structures. To solve the problems like dependence on monsoon for agriculture, climate change, excess of rain-fed areas, low income, poverty, unemployment and food security in rain-fed areas in the state, soil and water conservation works will be done under the state plan, areas identified under watershed development component 2.0 will be treated, Pucca Check Dam up to 30 feet will be constructed under Saat Nischay-2. These schemes will be implemented in 18 districts of the state, Banka, Muger, Jamui, Nawada, Gaya, Aurangabad, Rohtas, Kaimur, Lakhisarai, Sheikhpura, Nalanda, Patna, Jehanabad, Arwal, Bhojpur, Bhagalpur, Buxar and Begusarai. Details of soil and water conservation structures to be constructed through these schemes are as follows:-

- (1) **Pucca Check Dam (PCD):-** PCD is a barrier made of brick, stone, cement, sand, ballast etc., which is erected in the opposite direction of the water flow of any river-drain. The main purpose of PCD is to impound excess water of monsoon rains, so that it can be used for crop irrigation. This water can be used during and after monsoon and also increases the ground water level.
- (2) **Earthen Check Dam:-** Small earthen check dams are made in series to collect rain water in rugged areas and to prevent soil erosion. The height of this dam is generally kept from 1 to 1.25 meters. This also increases the ground water table.
- (3) **Rubber Check Dam:-** Rubber Check Dam or Flexible Check Dam is an inflatable structure built across a stream used for water conservation and regulating flow of water in the stream. When it is inflated, it serves as a check dam. When it is deflated, it functions as flood mitigation device and sediment flushing.
It will be implemented in the state after checking its suitability and utility in context of soil and water conservation work in the fourth Road Map.
- (4) **Renovation of Ahar/Pyne:-** Ahar and Pyne are the ancient sources of irrigation in South Bihar. To overcome the water crisis in this area, our forefathers had developed a wonderful water management system which is still





in vogue at present. Ahar and pyne were made to stop water on the ground and to collect rain and rain water. The water collected in Ahar and Pyne is collectively used for crop irrigation & other works.

- (5) **Silt Detention Dam (SDD):-** During rains in hilly areas, small particles of soil mix with rain water and flow into rivers and streams. To stop and collect these, earthen dams are made, which are called Silt Detention Dam (SDD). This prevents soil erosion in hilly areas and along with increase in underground water table and helps in retaining the soil moisture. Hon'ble Chief Minister, during his visit to Banka during the Samadhan Yatra, has directed to construct a large-scale Silt Detention Dam in South Bihar as per requirement.
- (6) **Water Harvesting Tank (WHT):-** Water Harvesting Tank is constructed to accumulate rain water. Its size is generally 150'x 100'x 8' (length x width x depth). The water accumulated from this is mainly used for irrigation of crops and other works like fish farming etc. Under the fourth agricultural road map, coordination will be established with the fisheries department to ensure arrangements for fish farming in the pond constructed by the Directorate of Soil Conservation.
- (7) **Farm Pond:-** Farm pond is constructed to collect rain water. Its size is generally 100' x 66' x 10' (length x width x depth). This water is mainly used for irrigation horticultural and field crops. Apart from this, the level of ground water also increases.
- (8) **Community Irrigation Well: –** It has been used on a large scale in the plain area. Since ancient times, it has been used for agricultural works and for drinking water. As a result of its construction, farmers can easily use ground water for irrigation of their crops. The well water is easily lifted by the pump set and the crops are irrigated in the fields.
- (9) **Community Ponds:-** In order to provide irrigation facilities to the agricultural land of group of villagers, construction/renovation of community irrigation ponds is done keeping in view the condition of the area of different sizes and types, so that the farmers can use it alternatively.
- (10) **Land Levelling:-** Under this, the rough land with mild slope is made arable by levelling it with the help of agricultural equipments. Along with preventing soil erosion, land levelling also makes the equal distribution of moisture in the land. Levelling also provides a suitable base for agricultural work.
- (11) **Farm Bunding:-** Bunding is adopted on the land with mild slope. It controls runoff velocity by reducing the length of slopes and prevents runoff flow from flowing down the slopes. As a result, soil moisture is also conserved along with soil erosion control.





Physical and Financial Targets Under Fourth Agriculture Road Map:-

(Phy. in No/Ha and Fin. in Lakh Rs.)

SN	Activity Activities	Target													
		2023-24		2024-25		2025-26		2026-27		2027-28		2023-28			
		Phy.	Fin	Phy.	Fin	Phy.	Fin	Phy.	Fin	Phy.	Fin	Subsidy	Contr- ibution	Total	
1	Pucca Check Dam	319	2687.54	253	2097.68	206	1711.49	0	0.00	0	0.00	778	6496.71	0.00	6496.71
2	Farm Pond	1149	1889.48	1122	1828.67	1094	1773.36	1072	1720.56	837	1343.39	5274	6779.92	1775.54	8555.46
3	Water Harvesting Tank	1866	4845.90	1701	4371.30	1652	4244.43	1488	3821.19	1269	3258.79	7976	16625.64	3915.97	20541.61
4	Land Levelling	910	141.38	918	142.49	898	139.33	885	137.17	684	106.01	4295	539.13	127.25	666.38
5	Sild Detention Dam	1095	2196.71	955	1936.65	952	1932.58	772	1526.98	686	1372.41	4460	8965.33	0.00	8965.33
6	Renovation of Aahar	2480	4434.26	2425	3931.68	2440	4033.11	2467	3667.21	2470	3670.92	12282	19737.18	0.00	19737.18
7	Earthen Check Dam	783	488.61	690	423.89	670	400.81	625	352.60	520	282.08	3288	1947.99	0.00	1947.99
8	Farm Bunding	2703	203.59	3098	210.76	2118	131.01	1128	86.77	1143	77.71	10190	598.96	110.88	709.84





Fourth Agriculture Roadmap 2023-28



SN	Activity Activities	Target											
		2023-24		2024-25		2025-26		2026-27		2027-28		2023-28	
		Phy.	Fin	Phy.	Fin	Phy.	Fin	Phy.	Fin	Phy.	Fin	Subsidy	Contribution
9	Community Irrigation Well	136	707.94	108	554.19	96	487.27	61	303.66	58	288.72	2341.78	0.00
10	Construction of Community Pond	29	288.45	18	173.07	11	115.38	0	0.00	0	0.00	576.90	0.00
11	Renovation of Community Pond	28	208.95	17	125.37	11	83.58	0	0.00	0	0.00	417.90	0.00
12	Others	228	963.12	137	577.87	92	385.25	0	0.00	0	0.00	1926.24	0.00
13	Production System	0	1808.38	0	1808.38	0	1808.38	0	0.00	0	0.00	4717.50	707.64
14	Livelihood Activity		1648.00	0	1648.00	0	1648.00	0	0.00	0	0.00	4944.00	0.00
15	Consolidation	0	0.00	0	0.00	0	427.00	0	0.00	0	0.00	427.00	0.00
16	Maintenance	0	650.14	0	616.83	0	612.69	0	569.20	0	571.57	3020.43	0.00
17	Contingencies	0	65.01	0	61.68	0	61.27	0	56.92	0	57.16	302.04	0.00
Total		11726	23227.46	11442	20508.51	10240	19994.94	8498	12242.26	7667	11028.76	49573	80364.65
												6637.28	87001.93

Fourth Agriculture Roadmap 2023-28





DPR Scheme	Subsidy	80364.65 lakh
	Farmer's Contribution	6637.28 lakh
	Total	87001.93 lakh

Result:

- (1) Increase in agricultural production and productivity
- (2) Increase in soil moisture and ground water level
- (3) Reduction in soil erosion
- (4) Increase in fish production
- (5) Employment generation

Financial Target:

(Rs. In lakh.)

S N	Description	Subject	Financial
1	DPR Scheme	Soil Conservation Structures	10341.55
2		Water conservation Structures	62541.77
3		Production System and livelihood support activities	10369.14
4		Others	3749.47
Total (1 to 4)			87001.93
5	Need based Honorarium of Centrally Sponsored Scheme personnel	Human resource management	4884.00
Total (1 to 5)			91885.93

(Nine hundred eighteen crore eighty five lakh ninety three thousand only)

Human Resource Management for WDC-PMKSY 2.0 under Krishi Road Map 2023-28:

Services of personnel is being taken under Watershed Development Component of Pradhanmantri Krishi Sinchai Yojana- 2.0. At present, work has been executed by the following personnel in 34 projects of this scheme. The services of these personnel has been taken on contract through service provider.





Fourth Agriculture Roadmap 2023-28



SLNA Level			
Sl. No.	Post	Nodal Officer	State Level Nodal Agency (SLNA)
1	Chief Executive Officer BWDS, SLNA	Chief Executive Officer BWDS, SLNA	1
2	Administrative Officer		1
3	Finance-cum-Account Officer		1
4	Technical Expert Agri. Engg.		1
5	Technical Expert Livelihood		1
6	GIS Expert		1
7	Programmer		1
8	Account Assistant		2
9	Assistant		2
10	Data Entry Operator		4
11	Peon		4
Total:-		-	19

Watershed Cell-cum-Data Centre (WCDC) for 18 districts

Sl.	Post Name	Total No.
1	Project Manager-cum-Technical Expert	18
2	SMS	18
3	Accountant	18
4	Data Entry Operator	18
Grand Total-		72

Watershed Development Team (WDT) in 18 districts for 34 projects

Sl.	Post Name	Total No.
1	WDT (Engg. Expert)	34
2	WDT (Fin. Expert)	34
3	WDT (Agri. Expert)	34
4	WDT (Social Mobilizer)	34
Grand Total-		136





According to the above, the estimated expenditure on SLNA, WCDC & PIA Level from the financial Year 2023-24 to 2027-28 is as follows.

(Rs. In Lakh)

Sl. No.	Financial Year	Estimated amount to be spent
1	2023-24	800.00
2	2024-25	880.00
3	2025-26	968.00
4	2026-27	1065.00
5	2027-28	1171.00
Grand Total		4884.00

Currently, honorarium/salary of these personnel is being paid from the project fund. In earlier years honorarium/salary of these personnel was paid from the state plan in the event of the project was not being extended. There may be need to pay honorarium/Salary of these personnel from state plan during the period of road map if needed. Therefore, it is necessary to assess this in the road map.

Ongoing Intervention

Details of conversion and reorganization of posts under Soil Conservation:-

By the notification number 2298 dated 27.05.2014 of the Agriculture Department, the post of Deputy Director and Assistant Director of Soil Conservation has been created at the district level in all 38 districts of Bihar under the Directorate of Soil Conservation. Therefore, need-based posts of non-gazetted officers/employees have to be created according to the posts of office bearers.

In 17 districts of South Bihar, creation of total 151 posts of non-gazetted officers/employees is proposed in the non-plan head for execution of the above-mentioned schemes of Soil and water conservation works.

A total of 348 need-based posts have been identified for 17 districts under the Directorate of Soil Conservation, Bihar, Patna. At present, a total of 305 posts of non-gazetted officers/employees are sanctioned in non-plan items in 07 districts of South Bihar under Directorate of Soil Conservation. The category wise details of total 348 posts are as follows:-

S N	Posts	No. of Posts
1	Assistant Soil Conservation Officer and Assistant Soil Conservation Survey Officer	46
2	Assistant technical officer	03
3	Statistical Assistant	01



S N	Posts	No. of Posts
4	Junior Engineer	46
5	Office superintendent	01
6	Head clerk	19
7	Stenographer	01
8	Upper Division Clerk (Regional Cadre)	42
9	Lower Division Clerk (Regional Cadre)	74
10	Jeep driver	01
11	Surveyor and draftsman	17
12	Field supervisor	36
13	Amin	17
14	Office attendant	80
Total		348

The amount to be spent in one year on already approved 305 posts is Rs 17,28,11,226.00, for 348 posts Rs 19,80,99,514.00 will be spent on salary item, in this way additional expenditure will be incurred in one year after acceptance of additional 43 posts. Amount $(19,80,99,514.00 - 17,28,11,226.00) = 2,52,88,288.00$ whose year wise details are as follows: -

(Rs in lakh)

SN	Financial Year	Amount to be spent
1.	2023-24	252.88
2.	2024-25	278.17
3.	2025-26	305.99
4.	2026-27	336.59
5.	2027-28	370.25
Total		1543.88

The total amount to be spent in the financial year 2023-24 to 2027-28 is fifteen crore forty three lakh eighty eight thousand only. This amount will be spent from the non-plan item, hence it has not been calculated under the ongoing scheme component.





Financial Target:-

Rs. In lakh.

Details		Centrally Sponsored Scheme	State Sponsored Scheme	Total
DPR Scheme	Subsidy	40341.25	40023.40	80364.65
	Farmer's contribution	2313.83	4323.45	6637.28
	Total	42655.08	44346.85	87001.93
Need based Honorarium of Centrally Sponsored Scheme personnel		Subsidy	0.00	4884.00
Total:-		42655.08	49230.85	91885.93

Source of Fund:-

- (1) Under the state plan and Sat Nischay- 2, the Total amount will be spent from the state fund.
- (2) Under the Centrally Sponsored Watershed Development Component- Pradhan Mantri Krishi Sinchai Yojana 2.0, the percentage of central share and state share is 60:40. Under the scheme, the amount will be spent by combining the central share item and proportionate state share to be made available by the Government of India.

Keeping in view the overall approach of agriculture sector development, need-based planning will be implemented in the identified watershed area of South Bihar and outside the watershed, from which the following results can be expected:-

- (1) There will be increase in agricultural land and green area.
- (2) Along with increase in underground water level and soil moisture, erosion of fertile soil will be prevented as much as possible.
- (3) As a result of development of irrigation facility due to maximum conservation of rain water, increase in crop production, horticulture development and fisheries etc. along with improvement in the economic condition of the villagers, self-employment can be provided to the unemployed.





1.8 Agriculture Mechanization

Introduction:-

Bihar is predominantly an agrarian state. Most of the population in the state is directly or indirectly dependent on agriculture. The production and productivity of crops can be increased by adopting advanced agricultural machinery. Time, manpower and money can also be saved by the use of agricultural machinery. To achieve these objectives, the State Government is implementing the Agricultural Mechanization Scheme in all the districts. Under agricultural mechanization, subsidy is being given on agricultural machines, which include machines from tillage to harvesting and threshing. Along with this, to control the incidents of crop residue burning, subsidy is also being given on equipments related to crop residue management.

In order to bring transparency in the implementation of agricultural mechanization scheme, the mechanization software "Online Farm Mechanization Application Software (OFMAS)" was developed by the Department of Agriculture in 2014-15, through which interested farmers of the state can apply online from anywhere for obtaining subsidy on purchase of various agricultural machines. After verification of the application at various levels, permits are issued, on the basis of which farmers purchase agricultural machinery at subsidized rates from authorized dealers of their choice.

In order to provide quality agricultural machinery to the farmers of the state, only those agricultural machinery are included in the agricultural mechanization subsidy scheme, which have been tested and certified by designated institutions recognized by the Government of India. To generate interest of farmers towards high quality modern agricultural machinery, Agricultural Mechanization Fairs are organized in all the districts of the state, in which quality agricultural machinery is also made available to the farmers at a subsidized rate. Farmers can buy agricultural machinery at subsidized rates from authorized dealers of their choice in the fair or outside it.

Achievement of last three Agriculture Road Maps:-

Agricultural mechanization has been an important component in the last three agricultural road maps. Due to agricultural mechanization, advanced agricultural machines are being used by the farmers for various agricultural activities. According to an estimate, about 80 percent or more of tillage, spraying and threshing works are being done through machines. But the use of machines in harvesting is about 35-40 percent, 15-20 percent in sowing and only about 10-15 percent in weeding. The farm power availability was 0.8 kW/Ha in 2008, but as a result of agricultural mechanization, it gradually increased to 3.21 kW/Ha in 2021-22. During last three agricultural road maps, a total of 27,77,925 agricultural machines, big and small, were distributed among the farmers at a subsidized rate, with a total subsidy amount of Rs. 1846.43 crores. During the previous agriculture road map, 660 custom hiring





Fourth Agriculture Roadmap 2023-28



centers have been established at subsidized rates. For proper management of crop residues, 21 Special Custom Hiring Centers have also been established.

Priorities under fourth Agriculture Road Map:-

The fourth agricultural road map has the following priorities:-

1. To increase the farm power availability to 4.50 kW/Ha by providing advanced agricultural machinery to the farmers at a subsidized rate.
2. To establish 5000 new custom hiring centres/farm machinery banks to facilitate farmers with small holdings to get access to advanced agricultural machinery.
3. To establish 500 Special Custom Hiring Centers in order to control the incidents of crop residue burning.
4. To provide a skilled repairman for every panchayat of the state by imparting practical training for repairing agricultural machinery.
5. To establish a quality testing center to ensure the quality of equipments supplied to the farmers.

Summary of DPR 01- Financial assistance to farmers for Procurement of agricultural machinery

Objectives:-

1. Maximum use of machinery to increase productivity & production
2. Saving time, money and labour
3. Timely execution of agricultural operations
4. Promotion of crop based Mechanization
5. Promotion of equipments for line sowing
6. Promotion of agricultural machinery related to post harvest and horticulture.

Intervention	Main Components
Providing improved agricultural machinery to the farmers at a subsidized rate. (112070 Lakh)	1. Providing advanced agricultural machinery to the farmers at a subsidized rate, so that the farmers can carry out timely agricultural activities such as land leveling, primary ploughing, secondary ploughing, sowing, transplanting, weeding, irrigation, plant protection, harvesting, threshing, post-harvesting etc. As a result, production and productivity will increase. 2. The special focus of agricultural mechanization will be on the machines related to the following activities. • Equipments for line sowing (13750 Lakh.) • Agricultural machinery related to Maize, Potato, Jute, Sugarcane, Makhana, Millets, etc. (4900 Lakh.) • Agricultural machinery related to post harvest and horticulture (15000 Lakh.) • Other Equipments & Machinery (74420 Lakh.) • Distribution of Manual Agriculture implement kit (4000 Lakh.)





Intervention	Main Components
Establishment of Custom Hiring Centers/ Farm Machinery Banks (30400 Lakh)	1. Easy access to advanced agricultural machinery for small and marginal farmers and to generate self-employment. 2. Establishment of 5000 Farm Machinery Banks / Custom Hiring Centers.
Training of Operators of Custom Hiring Centers (750 Lakh)	To conduct training program for efficient operation of Farm Machinery Banks / Custom Hiring Centers.

Output:

- Reduction in input cost of agriculture
- Reduction in dependence on agricultural labour
- Timely execution of Agricultural operation
- Increase in production and productivity
- Increase in farm power availability
- Increase in cropping intensity
- Efficient use of agricultural land
- Access to improved agricultural machinery for small & marginal farmer
- Self-employment generation for at least 10000 people

Summary of DPR 02- Crop Residue Management

Objectives:-

The widespread availability of equipments related to crop residue management will reduce the incidence of crop residue burning. This project has the following objectives:-

- To reduce air pollution.
- Preservation of soil nutrients and micro-organisms.
- Enhancing soil fertility by In-situ management of crop residues.
- To strengthen the farmers financially by Ex-situ management of crop residues.
- To spread awareness among the farmers.

Intervention	Main Components
Providing agricultural machinery related to crop residue management at a subsidized rate. (27500 Lakh)	To make available improved agricultural equipments related to crop residue management easily to the farmers at a subsidized rate.



Fourth Agriculture Roadmap 2023-28



Intervention	Main Components
Establishment of special custom hiring centers for crop residue management. (6000 Lakh)	1. To provide easy access to improved agricultural equipments related to crop residue management for small and marginal farmers and to generate self-employment. 2. Establishment of 500 Special Custom Hiring Centers.

Output:

- Reduction in the incidence of crop residue burning.
- Increase in the soil fertility.
- Proper management of crop residue.
- Timely execution of Agriculture operation.
- Increase in farm power availability.
- Access to agricultural equipments related to crop residue management for small & marginal farmer.
- Generation of self-employment for at least 1000 people.

Summary of DPR 03- Training Programme for repair & maintenance of agricultural machinery and availability of spare parts

Objectives:-

1. To give practical training for repair & maintenance of agricultural machinery.
2. To make the facility of timely repairing of agricultural machinery available to the farmers.
3. To create self-employment for repairing agricultural machinery.

Intervention	Main Components
Practical training for repair & maintenance of agricultural machinery (4432 Lakh)	1. Conducting practical training programs to provide skilled labour to farmers for timely repair of their agricultural machinery. 2. Self-employment generation after training. 3. To conduct training programs in both the Agricultural Universities of the state and in 03 Agricultural Engineering Workshops of the Department of Agriculture. 4. To provide basic training for repair and maintenance of implements at the district level.
Availability of spare parts	Spare parts of related equipments will be made available through enlisted agricultural machine manufacturers. The manufacturers will ensure to make available the spare parts at the market rate within 3 working days.





Output:

- Increase in the number of agricultural machinery repairmen
- Self employment generation
- Increase in useful life of agricultural machinery
- Timely execution of farming activities
- Timely repair of agricultural machinery
- Availability of a skilled agricultural machinery repairman in every panchayat of the state

Summary of DPR 04- Quality Testing of Agricultural Machinery/Equipments

Objectives:-

Analyzing the quality of all agricultural implements except tractors, power tillers and electric motors and verifying whether the distributed agricultural implements at subsidized rate are as per the test report submitted at the time of enlistment or not.

Intervention	Main Components
Establishment of Agricultural Machinery Quality Testing Center. (307 Lakh)	1. To check the quality of the equipments supplied to the farmers under the scheme. 2. To check the quality of agricultural machinery distributed at subsidized rates or by randomly selecting the enlisted make/models of agricultural machinery.

Output:

- Availability of quality agricultural machinery
- Increase in useful life of agricultural machinery
- State's own testing institute

Financial Target of DPR

Sl. No.	DPR Subject	Budget (Rs in Lakh)
1	Financial Assistance to farmers for Procurement of agricultural machinery	143220
2	Crop Residue Management	33500
3	Training Programme for repair & maintenance of agricultural machinery and availability of spare parts	4432
4	Quality Testing of agricultural machinery/ equipments	307
Grand total:-		181459

For agricultural mechanization, Rs. 145059 Lakh scheme will be implemented under the State Plan. Rs. 36400 Lakh scheme will be implemented under centrally sponsored scheme, in which Central share will be Rs. 21840 Lakh and State share will be Rs. 14560 Lakh.





1.9. Climate Resilient Agriculture (CRA) Program

Background:

- Extreme climatic conditions (floods, drought, rainfall & temperature) that can lead to reduction in yields and shifts in cropping patterns of the region.
- This is more challenge for marginal holder farmers who constitute more than 91% of the population of Bihar state. The uncertainty brought in by this development is threatening the agriculture system, making farmers ever so vulnerable; and posing a challenge to policy makers. Another impediment to their extensive cultivation is lack of sufficient quality seeds.
- Climate change affects agriculture and food production in complex ways; directly affecting food production through increase in frequency of extreme weather events that are inhospitable for normal development of crops, and indirectly by affecting their growth and distribution.
- Managing adverse effects of climate change thus assumes paramount importance for farmer's livelihoods and to ensure food security for all, small and marginal farmers in particular.

Partners

- Borlaug Institute for South Asia (BISA), Pusa
- Bihar Agricultural University (BAU), Sabour
- Dr. Rajendra Prasad Central Agricultural University (RPCAU), Pusa
- ICAR-Research Complex for Eastern Region (ICAR-RCER), Patna

Technical Support

- International Rice Research Institute (IRRI)
- International Potato Center (CIP)
- International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)

Interventions:

Laser land levelling, climate resilient varieties, direct seeded rice, zero tillage, raised bed planting, crop diversification, precision input management, intercropping, community irrigation, potato-based farming system, crop residue management, carbon credit, solar harvesting, millets in food system, empowering rural women.

Key Outputs

1. Based on intensive knowledge, a compendium of fully validated climate resilient agriculture (CRA) practices portfolio for the relevant agro-climatic zones.
2. Zero Tillage (ZT) systems helps in advancing the planting dates of wheat, by at least 7-10 days, by saving the land preparation time. It has been found that ZT rice followed by ZT wheat provides better net returns to small and marginal farmers.



Fourth Agriculture Roadmap 2023-28



3. Farm household typologies will be developed for targeting CRA technologies that help in improved productivity by 35% and income by 50%, in spite of climate related risks.
4. Climate resilient germplasm of crops will be identified and made available to farmers.
5. Capacity building of 1,000 young researchers & extension agents, 1,900 service providers and 7,50,000 farmers helping in improved understanding on climatic risk and adaptation strategies to ensure large-scale adoption of CRA practice portfolio.
6. Scalable business model will be developed to scale up CRA practices involving farmers through a public-private engagement model.
7. Water, nutrient, energy, labour and time use efficient (by at least 20%) climate CRA practices with 35% higher yields, and improved soil health and reducing environmental footprint by 25%.
8. Achieving carbon-friendly intensification and systems resilience: ZT plays a significant role in minimizing emissions of GHGs.
9. Farm machinery: Introduced several new technologies in the form of farm machineries like Laser land leveler, Tractor mounted sprayer, zero tillage machine, raised bed planter and Happy Seeder.

Key Outcomes

- Development of CRA practices portfolio with economic compatible technologies for large scale under diverse climatic conditions.
- Empowering smallholder farmers to combat climate change.
- Development of linkages with FPOs, private-companies, e-market/digital market.
- Economic upliftment of farmers of Bihar State.

Job & Enterprises: 3,800 jobs, 380 SHGs and 38 FPOs will be created in five years.

Budget: Rs 52606 Lakh.





1.10 Horticulture Development

Introduction:-

Food, livelihood, nutritional security, employment generation and health care are crucial to human and socio-economic development. Horticulture sector which includes fruits, vegetables, tuber crops, floriculture, mushrooms, beekeeping, spices, plantation crops and aromatic & medicinal plants, is considered as sunrise sector. It has a universal appeal for all nations because of diverse nature of its products to suit different agro climatic conditions, higher biomass production per unit area and thereby more income per unit area, scope of massive employment generation and unveiling new horizons of value addition. At present the Horticulture sector has been the main stay of State's agriculture with major contribution to agriculture GDP and export earnings in Agriculture. Horticulture, today, has become a sustainable and viable option for the small and marginal farms and better commercial ventures for entrepreneurs.

Even though Bihar's agro climatic conditions are well suited for horticulture sector, production constraints, lack of technology advancement and marketing constraints act as impediments in the development of the said sector.

Through the last three Krishi Road Maps (during the period 2008 to 2022), State Government has been promoting various technologies and management practices through multiple schemes to increase the quality production and productivity of horticultural crops. The impact of Krishi Road Maps can be seen as follows:

Crops	Before Krishi Road Map		Post 3 rd Krishi Road Map		%age increment post 3 rd Krishi Road Map	
	Production (Lakh MT)	Productivity (Q/ha)	Production (Lakh MT)	Productivity (Q/ha)	Production	Productivity
Fruits	32.28	112.90	45.36	136.90	40.52	21.26
Veg.	101.03	159.40	169.25	194.60	67.52	22.08

- Directorate of Horticulture, Department of Agriculture, Government of Bihar is implementing many centrally and state sponsored schemes like Mission on Integrated Development of Horticulture (MIDH), Chief Minister Horticulture Mission, Pradhan Mantri Krishi Sinchai Yojana (PMKSY), Rashtriya Krishi Vikas Yojana, Dry Land Horticulture Promotion scheme, Bihar Rajya Udyanik Utpad Yojana etc. for overall development of Horticulture in the State. The State Government is providing assistance in many components to help farmers to adopt these practices.





- Farmers in Bihar are getting better returns with cultivation of tissue culture (TC) banana. Before the first Krishi road map only 27,988 ha. area was under banana cultivation in Vaishali, Bhagalpur, Katihar, Purnea, etc. and banana sucker was used as planting material with only 9,20,044 MT production. Promotion of banana tissue culture planting material since 2005-06, now 80% area under banana cultivation is covered with tissue culture planting material along with plastic mulching and micro-irrigation and has led to higher production. Bihar presently is producing 19.68 lakh MT in an area of 42,921 ha.
- Bihar has emerged as one of the leading producers of mushroom in the country. As the result of facilitation through these flagship schemes (including mushroom kit distribution with 90% subsidy), State Government of Bihar has been progressive towards making efforts via multiple schemes / benefits for mushroom production, enhancing the training and capacity building for the cultivators and creating opportunities for processing has led to increase in production. The state government is providing additional subsidy of 15% to the 35% provisioned under the National Horticulture Mission and CM's Horticulture Mission. For the landless farmers, the mushroom production is promoted through distribution of Mushroom Kit at 90% subsidy rate. A special scheme of Mushroom production in Thatch house with 50% subsidy gives affordable option for mushroom production to farmers of the State. Bihar with more than 29,000 MT production leads the country in mushroom production.
- The State is also one of the leading producers of honey with unique flavours of litchi and mustard honey. The Department is providing 75% subsidy on bee box (90% for SC/ST) and through convergence with JEEViKA (Bihar Livelihoods Promotion Society-SRLM, Bihar) the assistance is being provided to JEEViKA promoted SHGs and hence is able to not only enhance the livelihoods of thousands of farmers, but also improved the productivity of the related crops.
- Bihar accounts for approximately 90% of total Makhana production in the country. The State Government also implemented a special Makhana Development programme to increase makhana production through area expansion in 11 makhana producing districts of Bihar and also through adoption of new technologies. The area under Makhana cultivation has increased in last 9 years from approx.13000 ha in FY 2012-13 to 35224 ha in FY 2021-22 and the total pop production has been increased to 23,656 tonnes in FY 2021-22.





- On 16th Aug 2022 Bihar has been accorded GI tag for 'Mithila Makhana' giving a new identity to the State's unique product (the State already has GI tag for Shahi Litchi, Zardalu aam, Magahi Paan and Katarni chawal).
- Tea, which is grown in abundance in Kishanganj district of Bihar, is now a notified horticulture crop and is now covered under Vishesh Fasal Yojana facilitating farmers in area expansion through 50% subsidy. Cultivation of exotic fruits (i.e. Dragon Fruit, Strawberry) and vegetables under protective structure is also being promoted through different schemes. Apart from the above schemes, several initiatives have been started to cater to the specific needs of the farmers. In urban areas, a new beginning has been made to promote Roof Top Gardening.
- Cultivation of strawberry, dragon fruit and other such exotic fruits is being done in Bihar which was earlier unheard of. Aurangabad district in Bihar has developed into a hub for strawberry cultivation with an area of more than 100 ha. under production across State. 90% subsidy by the state for cultivation of these crops in combination of micro irrigation creates a substantial support for the farmers.
- The Directorate of Horticulture, Department of Agriculture has established two Centres of Excellence, one at Chandi for Vegetables and other at Desari for fruits and these are presently running in a self-sustainable mode through O&M (Operation & Maintenance) model. The key activities performed by these centres are production and supply of quality seedlings and planting material, training and dissemination of technology and demonstration of advanced technologies. Since operationalization, the Centre of Excellence for vegetables at Chandi produced about 64 lakh vegetable seedlings to farmers and Centre of Excellence for fruits at Desari provided about 24 lakh fruit planting material to farmers. Both the centres have imparted trainings to more than 18,500 farmers.
- Micro Irrigation is an important technique in modern agriculture. The State Government is providing 90 percent subsidy on drip and micro sprinkler systems to promote efficient judicious use of irrigation water. Approx. 18500 Acre area has been covered under drip irrigation benefiting over 5500 farmers. In order to promote increasing acreage under micro-irrigation in the State, the Department is implementing very effective supporting schemes for community borewell, individual borewell, trenching and mulching under the under Saat Nischay-II. An exclusive digital application has been deployed for generation of online application





for the administration of subsidy to farmers. This has given transparency and accountability in its administration and the scheme has found a new impetus.

- In order to promote agri based industries in the State with an aim to enhance farmers' income, generate employment, reduce produce wastage, the Department is implementing Bihar Agri Investment Promotion Policy which extends capital subsidy of 15% to individual investors and 25% to Farmer Producer Companies for establishing new or expansion / modernization / diversification of existing units in seven focus sectors of makhana, fruits & vegetables, maize, medicinal & aromatic plant, seed, honey and tea.
- Under the Bihar State Horticulture Produce Development Scheme, the Directorate of Horticulture has facilitated formation / adoption of 23 Farmer Producer Companies (FPCs) in 22 districts focusing 15 horticulture produces. The scheme is extending financial support for registration of FPCs, matching grant, packhouse establishment, training and capacity building, etc.
- In 2022, the export of Shahi Litchi and Zardalu Mango to Middle East, United Kingdom and Bahrain was done. To create enabling infrastructure for export, an export packhouse for fruits and vegetables is under construction in the Agriculture Research Institute, Mithapur, Patna.

Priorities of fourth Krishi Road Map :-

The horticulture sector has no doubt progressed but in terms of productivity the State has long way to go. There is a vast potential to increase the productivity of horticultural crops in view of the conducive agroclimatic situation and soil of the state. The Directorate will undertake needful actions to cater to all the challenges with support of the other directorates, agencies and Departments. The following interventions will be covered under DPR in fourth Agriculture Road Map:-

- Production of quality planting materials.**
 - Vegetable development**
 - PARAG: Promoting Apiculture for Revolutionizing Agrarian Growth**
 - Centre of Excellence- Honey, Mushroom, Post-Harvest Management, Makhana, Mango, Fruits, Vegetables**
- Production of Quality Planting material:** With a budget of Rs. 23030 lakh, more planting material producing infrastructures such as block nurseries, progeny nurseries and plug-type nurseries will be established in the State so as to achieve self-sufficiency in planting material production and make healthy, affordable and on time planting material available to the farmers of the State.





For running the nurseries, priority to be given to JEEViKA SHGs and their federation/FPCs/ ATMA Groups/FPOs. Identified groups/FPCs will be trained by Dept. of Agriculture to run these nurseries. If any nurseries will be left after given priority to SHGs/FPOs then Dept. will allocate nurseries to other private players on Private Partnership mode.

In order to promote tissue culture based planting material in the State, the Directorate will promote tissue culture for banana (Chinia, Alpan, Malbhog varieties), pomegranate, anjeer, pineapple and strawberry. Further, the protocols for tissue culture of these will be developed by the Agriculture Universities (AUs) / Research institutions (RIs). In case the protocols are already developed by any private agency, the trial of the same to be done for an year at different locations in the State by Agriculture Universities. For establishment of new Tissue Culture lab in fourth Krishi Road Map, Directorate of Horticulture will promote and invite private investments with 50% subsidy.

The Operation & Management support will be extended by the State government upto a period of two years from being in production beyond which the nurseries will be self-sustainable to earn the Operation & Management cost from the sale of the produced planting material. Presently, the functional sharing of the earnings from the nurseries is 60% of net profit is government's revenue and 40% is used for the operation and maintenance. Once the establishment cost is met with the 60% (of net profit) contribution, the nurseries will retain 100% of the net profit earned so as to run in a self-sustainable mode.

In order to assure the quality of the planting material produced by the State owned and private nurseries the Department will come up with Bihar State Nursery Policy with an objective of registration, licensing, accreditation and regulation of all horticulture nurseries in the State.

- ii. **Vegetable Development:** Vegetable is an integral and important part of horticulture development. Hence, increasing both production and productivity becomes imperative for vegetable development in the state. For achieving this, distribution of quality seedlings to the farmers, distribution of specific varieties developed by research institutes, promoting establishment of Protected structures (poly house, shade net house for high value vegetables) will be undertaken. The State government will distribute quality Seedlings among farmers, promote onion cultivation and protected cultivation with a budget of Rs. 12428 lakh.
- iii. **Promoting Apiculture for Revolutionizing Agrarian Growth (PARAG):** Beekeeping plays an important role in rural development, by providing income from sale of honey and other bee products, in addition to improving agricultural productivity. In order to strengthen the entire value chain of beekeeping in the





State the key interventions with a budget of more than Rs. 22332 lakh are planned which include release of advisory and training to beekeepers on Quality Honey production and Colony management, distribution of bee boxes, hives and honey extractor cum food grade containers to beekeepers.

Under convergence assistance to be given on priority to beekeepers of VEGFED, COMFED, JEEViKA and other FPO/FPC groups. Only the farmers (tenant / non-tenant) having received training shall be given assistance under the initiative. The initiatives around the post-harvest management for Honey storage, packaging, processing, marketing and processing will be implemented by COMFED.

- iv. **Centre of Excellence:** With two Centres of Excellence (Fruits and Vegetables) creating a successful example of an institution running on self-sustainable model through O&M mode, plan is to establish seven similar set-ups focusing on specific crop / commodity with an overall budget of Rs. 10041 lakh. The State government will establish Adarsh Bagwani Kendras for Honey, Mushroom, Makhana, Mango, Post-Harvest Management and additional one CoE for Vegetables and one for Fruits across Bihar.

Summary of DPRs:

Sl. No.	DPR Title	Budget (In Lakh Rs.)
01	Production of Quality Planting Material	23030
02	Vegetable Development	12428
03	PARAG: Promoting Apiculture for Revolutionizing Agrarian Growth	22332
04	Centre of Excellence	10041
Total		67831

Summary of DPR components are as follows-

Name of DPR	1. Production of quality planting material
Constraints and requirements	85% gap in demand and supply (from government and private sources) in case of planting material especially for high value fruits and vegetables - Farmers use unscientific methods (in uncontrolled environment) to develop seedlings which leads to low quality of seedlings affected by disease & pests leading to low productivity - Requirement of quality planting material production infrastructure



Fourth Agriculture Roadmap 2023-28



Interventions	Activity	
1. Rejuvenation of Block Nurseries	Rejuvenation of 226 block nurseries across the State	
2. Rejuvenation of Progeny Nurseries	Rejuvenation of 15 Progeny nurseries	
3. Establishment of Plug Type Nurseries	Establishment of 30 new Plug-Type Nurseries in order have one plug-type nursery in each district	
4. Strengthening of Betelvine Research Centre, Islampur (Nalanda)	Strengthening of Betelvine Research Centre, Islampur (Nalanda) for Production of planting material of medicinal & aromatic Plants	
Interventions	Activity	
Outcome	• Increase in production of quality planting material in the state and enhancement of production and productivity. • Area expansion of horticultural crops • Crop diversification through horticultural crops • Promotion of specific varieties developed by Research Institute with reference to disease & pest/climatic stress resistant/keeping quality of produce.	
Budget	Interventions	Budget (in Rs. lakh)
	Rejuvenation of Block Nurseries	16441
	Rejuvenation of Progeny Nurseries	2274
	Establishment of Plug Type Nurseries	3867
	Strengthening of Betelvine Research Centre, Islampur (Nalanda)	448
	Total	23030





Name of DPR	2. Vegetable Development		
Constraints and requirements	- Farmers use unscientific methods (in uncontrolled environment) to develop seedlings which leads to low quality of seedlings affected by disease & pests leading to low productivity - Lack of technical knowledge among farmers regarding cultivation of high value vegetable and unavailability of good quality planting material. - The farmers of the State generally cultivate onion in <i>rabi</i> season. Need is to support the same in <i>kharif</i> season with support through quality planting material. - High value vegetables require protected cultivation for optimum results, which is a costly affair for the farmers		
Intervention	Activity		
1. Distribute seedlings among farmers raised under Protected cultivation	Distribution of more than 17 crore quality Seedlings among farmers raised under protected cultivation (including high value vegetables & varieties developed by research institutes)		
2. Promoting cultivation of onion	Assistance in onion cultivation in an area of 13,500 ha.		
3. Protected cultivation (Poly House, Shade Net for high value vegetables)	Assistance for establishment of poly house and shade net and cultivation of high value vegetables in 3,30,000 sq. m. area		
Outcome	- Distribution of more than 17 crore vegetable seedlings in 5 years - Area expansion of horticultural crops - Crop diversification through horticultural crops - More than 38,000 farmers will be benefitted in 5 years through quality seedling distribution and more than 15,000 ha land of area will be covered under quality seedling distribution - Generation of employment of more than 98,400 days		
Budget	Sl No	Components	Budget (in Rs. lakh)
	1	Distribution of vegetable seedlings among farmers	3825
	2	Promoting cultivation of onion	6615
	3	Protected cultivation	1988
	Total		12428



Name of DPR	3. PARAG: Promoting Apiculture for Revolutionizing Agrarian Growth
Constraints and requirements	• Beekeeping plays an important role in rural development, by providing income from sale of honey and other bee products, in addition to improving agricultural productivity. • Dismal farm gate prices despite of higher retail price is a challenge for beekeepers • Lower adoption of good production practices leading to quality concerns • Logistics and operation inefficiency for bee-box movement • Requirement of larger scale to reach a critical mass of different products being produced for harnessing economies at scale • Lack of honey processing within the state, low awareness on diversified beehive products and associated income benefits, forest honey remaining untapped, which needs to be given thrust
Interventions	Activity
1. Distribution of bee box, hives and honey extractor cum food grade container	• Distribution of 550,000 bee boxes along with 550,000 hives (8-frame) and 11,000 honey extractor cum food grade container (1 set / 50 boxes)
2. Training & exposure visit	• 6 days residential training (within state) of 27,500 farmers • 7 days Exposure visit cum training (outside state) for 50 progressive beekeepers
3. Post-Harvest Management	• Assistance extended to 15 units towards post-harvest management for Honey processing, packaging, and storage • Storage, Branding & Marketing interventions to be undertaken by support from COMFED





Interventions	Activity		
	- Enhanced production & productivity of crops through cross pollination as production of many fruits and vegetables depends partially on pollination by insects for which managed honeybees are boon - Estimated Crop area covered for cross-pollination by bees (in ha.) with 550,000 boxes = 1,10,000 - Annual Production of honey (in MT) with 550,000 boxes = 27,500 MT per year - Generation of employment and promotion rural entrepreneurship in the state; 27500 farmers/beekeepers engaged for 240 days in a year - Creation of an institution providing a comprehensive support from production & processing of honey & other hive products to its marketing - Provision of creating honey and other hive products processing units in the state with modern technology bringing efficacy in the production process - Creation of efficient market linkages and provide an alternative marketing platform to the beekeepers for better price realization of their produce		
Budget	Sl No	Interventions	Budget (in Rs. lakh)
	1	Honeybee box/colony	8531
	2	Honey extractor cum food grade container	8531
	3	Honey extractor cum food grade container	1706
	4	Training & Exposure visit of farmers	1665
	5	Post-harvest management	1900
	Total		22332



Name of DPR	4. Centre of Excellence		
Constraints and requirements	• Lack of quality planting material / spawn in case of horticulture crops • Absence of demonstration centre for entire value chain of the produce • Requirement of training and capacity building of farmers and entrepreneurs on crop specific good practices, modern technology demonstration, post harvest management, etc.		
Intervention	Activity		
Establishment of seven crop specific Centre of Excellence	1. Honey – Banka district (Katoria Krishi farm) 2. PHM – Patna district (Fatuha Krishi farm) 3. Mushroom – Gaya district (Tankuppa Krishi farm) 4. Makhana – Purnea district (Bhola Paswan Shashtri Agriculture College, Purnea) 5. Vegetables – Aurangabad district (Kutumba Krishi farm) 6. Mango – Bhagalpur district (Progeny baag, Shahkund) 7. Fruits – Jamui district (Progeny bag, Sono)		
Outcome	• Establishment of seven crop / activity specific Centre of Excellences with which will undertake following activities: ➤ Field trial of improved varieties ➤ Production of quality planting material / spawn ➤ Residential training of farmers ➤ Open Field Demonstration Area ➤ Production related Infra (Like polyhouse, shade net etc.) ➤ Post-harvest management / value added products manufacturing unit and packaging facilities ➤ Retail Outlet • These seven establishments will run in self-sustainable model on Operation and maintenance mode		
Budget	Sl No	Interventions	Budget (in Rs. lakh)
	1	Adarsh Bagwani Kendra - Honey	1230
	2	Adarsh Bagwani Kendra - PHM	1330
	3	Adarsh Bagwani Kendra -Mushroom	1435
	4	Adarsh Bagwani Kendra - Makhana	1315
	5	Adarsh Bagwani Kendra - Mango	1587
	6	Adarsh Bagwani Kendra - Fruits	1572
	7	Adarsh Bagwani Kendra - Vegetables	1572
	Total		10041





Ongoing scheme's components under 'Horticulture'

- The total budget for the Ongoing scheme components under 'horticulture' is that of Rs. 221477 lakh in the five years, covering area expansion, promoting cultivation of vegetables, spices, mushroom etc., assisting post-harvest management infrastructure and components in the State including market infrastructure and processing units, micro irrigation, training and exposure visits, demonstrations, etc.
- Area expansion of the horticulture crops has been promoted in the State and it will be continued through so as to enhance the horticulture crop acreage in the State bringing better income to farmers. The State government will extend assistance of Rs. 58939 lakh to enhance the acreage of fruit crops, flowers, spices, aromatic plants, tea, makhana, betel vine, ginger, turmeric, etc. by 1,18,155 ha.
- The State government will support mushroom production and related project with Rs. 6494 lakh.
- Training to 1,88,000 farmers will be given in next five years and more than 205 horticultural Seminars/conferences/workshops/exhibitions (State Level, Division Level, District Level, Out Side State and National and abroad) will be organized by the State government.
- With an overall budget of more than Rs. 102094 lakh for micro irrigation and related schemes, 79,400 ha will be covered under micro irrigation, under which the other interventions under PDMC, community borewell, mulching and trenching schemes will be implemented through convergence.
- Post-harvest management infrastructures/components including food processing under Bihar Agri Investment Promotion Policy will be assisted with Rs. 5358 lakh. Other than this post-harvest management through other schemes will be promoted with a budget of Rs. 15037 lakh. The same support for marketing infrastructure will be Rs. 877 lakh.
- The Directorate of Horticulture will also make efforts for enhancing the market linkages for the key horticulture produces of the State bringing better returns to the farmers / FPCs.
- Awareness creation and knowledge dissemination on good cultivation practices, technology adoption, best practices, etc. will also be prioritized.
- Cluster approach will be promoted to bring economies of scale into play for the small and marginal farmers especially in beekeeping, vegetable development components.
- Convergence with other government schemes / programmes will be explored for effective and efficient use of resources and facilitating maximum benefit reaching the farmers.





Financial target of DPR components:

(Rs in Lakh)

SN	Component	FY 2023-24	FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28	Total
A	Planting material	5940	6269	7142	1736	1942	23030
B	Vegetable Development	1506	2149	2679	2934	3159	12428
C	PARAG: Promoting Apiculture for Revolutionizing Agrarian Growth	4095	4281	4466	4652	4838	22332
D	Adarsh Bagwani Kendra	6331	2975	350	385	-	10041
Total (A+B+C+D)		17873	15674	14638	9707	9939	67831

Means of finance for the above-mentioned DPRs financial target is as follows:

(Rs in lakh)

SN	Component	Scheme	Gol share	State share	Beneficiary share	Total
1	Production of quality of planting material	RKVY	13549	9481	-	23030
2	Vegetable Development	NHM / CMHM	1193	11235	8553	20981
3	PARAG	NHM / CMHM / NBHM	3917	18415	6583	28915
4	Adarsh Bagwani Kendra	NHM / State plan	1000	9041	-	10041
Total			19659	48172	15136	82967

Note: In case the fund for the above mentioned interventions are not available from Central share then provision for the same will be made in State plan.





Fourth Agriculture Roadmap 2023-28



Financial target of Ongoing scheme components under 'Horticulture'

(Rs in lakh)

SN	Component	Financial target for five years					
		2023-24	2024-25	2025-26	2026-27	2027-28	Total
1	Area expansion of horticulture crops	8864	10336	11854	13225	14660	58939
2	Mushroom	817	1079	1306	1524	1768	6494
3	Micro Irrigation	16254	16254	19458	22661	27467	102094
4	Frontline demonstration	1125	1219	1313	1406	1406	6469
5	Input distribution (leno bag, mulching, fruit trap bag, plastic crates, storage bag)	1797	2329	2862	3055	3608	13651
6	Post-Harvest Management infrastructure	2752	2844	2941	3111	3389	15037
7	Market infrastructure	86	132	170	216	273	877
8	Bihar Agri Investment Promotion Policy	1078	1078	1071	1067	1064	5358
9	FPO strengthening	1100	350	350	350	350	2500
10	Roof Top gardening	45	53	60	75	90	323
11	Human Resource Development	400	450	480	500	550	2380
12	Seminars	350	385	425	470	525	2155
13	Mission Management	800	900	1000	1150	1350	5200
	Total	35468	37409	43290	48810	56500	221477

Note: All the estimated installments have been included in the specified amount.





Fourth Agriculture Roadmap 2023-28



The details of the means of finance for the Ongoing scheme components is as follows:-

In Rs. lakh

Year	Project Cost	Subsidy Amount			Beneficiary's Share
		Central Share	State Share	Total	
2023-24	54128	8312	27156	35468	18660
2024-25	57823	9008	28401	37409	20414
2025-26	66185	10842	32448	43290	22895
2026-27	74093	12580	36230	48810	25283
2027-28	84564	14938	41562	56500	28064
Total	336793	55680	165797	221477	115316

Note: In case the fund for the above-mentioned interventions are not available from Central share then provision for the same will be made in State plan.

Total Financial Outlay of DPR and ongoing schemes:-

In Rs. lakh

SN	Details	Subsidy			Beneficiary share	Total Cost
		Gol share	State share	Total		
A	B	C	D	E = C+D	F	G = E+F
1	DPR	19659	48172	67831	15136	82967
2	Ongoing scheme	55680	165797	221477	115316	336793
	Total	75339	213969	289308	130452	419760





1.11 Use of Modern Technology in Agriculture

Introduction:

The centric vision is to develop and explore the interventions and usage of modern technology for combining and integrating multiple data sets and data marts which are in disintegrated forms across Departments and Agriculture Universities. The focus of the vision is to create and implement modern technologies for submission of smart agriculture system through integration of various data components and leveraging the integration to be used by IoT devices like Sensors, Drones, and AI & ML kinds of IoT innervations.

State has traversed a long way from the third Krishi Road Map, but the agri-prosperity in the state needs higher interventions from IT & ICT to enhance Agri-incomes of the farmers. Department has planned to leverage on IT & technology to usher efficiency in Agricultural production. Precision in Agricultural operations through an institutional initiative is highly required to reduce the inputs cost, wastages and enhance per unit income of the farmers in Bihar. Also, it is important to orient technology towards service delivery than mere products offering to the Agri-community.

The states like Bihar where agriculture is principal occupation are more prone to these emerging threats need to invent and adopt technologies to sustainably enhance and the agricultural productivity under diminishing land and other resources. Hence, the emerging technologies like High Resolution Remote Sensing Tools, IoTs, Artificial Intelligence, Robotics and Unmanned Aerial Vehicles (Drones) etc. are promising tools to address the rising challenges of agriculture sector.

Sensor and AI-based technology in agriculture is a rapidly growing field that has the potential to significantly improve crop yields, reduce costs, and minimize the environmental impact of farming using gather data on things like soil moisture, temperature, and nutrient levels while AI algorithms are used to analyze that data and make predictions about things like crop growth and water usage. Additionally, there are AI-powered prediction models for pests and diseases, and crop growth forecasting which help farmers to take preventive measures. Overall, the use of sensor and AI technology in agriculture is still in its early stage, but it holds a lot of promise for the future of farming.

Development of Augmented Reality - Virtual Reality (AR-VR) lab can be a powerful tool in agriculture, providing farmers with a virtual environment to learn, test, and innovate. An AR-VR lab can provide farmers with a 360 degree view of their fields, enabling them to monitor crops, detect abnormalities, and make informed decisions. It can also provide real-time data on weather conditions, soil moisture, and nutrient levels, allowing farmers to adjust their farming practices accordingly.

In sensor-based technology development for enhancing agricultural productivity, identified sensors, satellite data, GPS, computer hardware and





Fourth Agriculture Roadmap 2023-28



software, robotics, Artificial Intelligence (AI) and Machine Learning (ML), and data analytics (using computer programming languages such as C++, JAVA, R and Python) have helped to develop models for quick response to take a meaningful decision over land use plan for screening suitable crops, suitable sites for reclamation of soils, wetlands management, advanced diagnosis of soil properties and enhancement of aquaculture activities.

Establishment of Bioinformatics and Computational Biology Laboratory will address the need to manage and interpret the data that in the past decade was massively generated by genomic and molecular breeding research. This discipline represents the convergence of genomics, biotechnology and information technology, and encompasses analysis and interpretation of data, modeling of biological phenomena, and development of algorithms and statistics.

In this era, there is a growing demand for data driven decision making system for agriculture. There is certainly a need for data driven real time smart solutions for transforming agriculture sector. It means that there would be requirement of human resources adequately equipped in the field of digital agriculture. To do this, it is proposed to have certain skill based diploma/certificate courses in "Agricultural Drone Technology" in Agricultural University. This proposal is also in the line of New Education Policy 2020.

Achievements in last 3 Agriculture Road Map:

- There is always an opportunity to do something new and unique in the field of technology. Digital application has been done by the state government from Aadhaar based registration of farmers to Aadhaar based payment. In the fourth agricultural road map, how to link the use of data with new technology and dimensions, as well as create a strong integrated system so that farmers can join and increase their income by being informed before a natural disaster occurs, can do agriculture work with better capacity and can consult for 24 hours in case of problems related to agriculture, can tell their problems so that the problem can be diagnosed easily. The aim is also that our farmers should be prosperous and utmost transparency can be brought in the agriculture sector.
- The need for technology was felt in the third agriculture road map, the main reason for which was that the farmers were not getting detailed information about the schemes of the department, the farmers were deprived of the benefits of the schemes, and the farmers who are being helped by the department are not informed. In the year 2017, establishment of D.B.T. cell had been imagined and first of all it was emphasized that the department must have the data of the farmers. For this reason, in the year 2017, the process of preparing the database of the farmers was started, which was a unique initiative. Unique because the





process of preparing Aadhaar-based database of farmers was done and arrangements were made to send subsidy to the bank account linked to Aadhaar of farmers.

- So far, Aadhaar based registration of 190 lakh farmers has been done, with the help of which we are reaching among the farmers and it is the endeavor of the department to connect all the schemes with the online system. It has been successful to some extent. There is a need to make this work comprehensive and universal. Online module has been prepared by the Agriculture Department for schemes such as Kisan Samman Nidhi, diesel subsidy, agricultural input subsidy, agricultural mechanization, seed distribution, godown construction, water harvesting in the field, etc.
- So far, through the online system, we have given a total subsidy of 19 thousand crores in various schemes, in which 86 lakh farmers have been benefitted in Kisan Samman Nidhi Yojana, 81 lakh farmers in agricultural input subsidy, 51 lakh farmers in diesel subsidy, 80 lakh farmers in seed distribution.
- Dwelling into the mobile applications or Apps BIHAN app was developed initially for monitoring all the initiatives taken by Department using G2G model which is later set to be released to the citizens as G2C citizen centric.
- Development of Krishak Satyapan App which is essentially a G2G mobile application, focusses on timely actions for the subsidy applications catered. It aims at providing scalable, faster, easier and location-based disposal of applications.
- Department has been very keen to reaching out to farmers by giving timely SMS in variety of schemes. Weather forecast information has also been provided through SMS with the help of Meghdoot initiative.
- Messages regarding ill-effects of stubble burning and fire hazards, inclement weather, essential COVID protocols, Scheme advisory, application status and many more farmer related advisory have been channeled out till date.
- The department has also reached out to other Allied departments like Food and Consumer Protection Department, Cooperative Department, Department of Fisheries and Animal Husbandry for sharing of Farmer details using API sharing mechanism.
- Disaster Management Department has mandated their Input Subsidy scheme aiming for providing assistance to farmers due to longer dry spells, or floods or situations arising due to natural calamity and adverse weathers to be carried out via DBT platform of Department of Agriculture.





Fourth Agriculture Roadmap 2023-28



Important Interventions in the Fourth Agriculture Road Map:

- Establishment of Digital Farmers' Services.
- Formation of Bihar Kisan Utthan Society (This idea has been put forward only in principle. This will be firmed after giving considerable thought about the rationale of its establishment.)
- Development of e-Machan platform.
- Development of Smart/Digital Agri-Ecosystem
- To facilitate the standardization of sensor based protected cultivation for capsicum, tomato, cucumber and gerbera.
- Development of sensor based (AI and IoT based) farm equipment for operations and post-harvest technology.
- Standardization of UAV for crop production management and monitoring.
- To establish bioinformatics and computation biology lab for accelerating agricultural breeding programme.
- To develop protocol for smart dairy and aquaculture system.
- To develop capacity building programme through certificate and diploma courses in AI&ML, IoT and Automation and Block chain Technology.

Financial Management of DPR Component:

(In Rs lakh)

S.N.	Particulars	Year				
		2023-24	2024-25	2025-26	2026-27	2027-28
DPR1: Digital Farmers' Services						
1.	To establish Digital Farmer Services. (Financial Source: BMGF)	0	0	0	0	0
DPR 2: Formation of Bihar Kisan Utthan Society (In the light of discussions at a higher level, this society will be formed only after complete consideration. This idea has been put forward only in principle.)						
1.	Formation of Bihar Kisan Utthan Society	525	560	525	445	445
DPR 3: Development of e-Machan						
1.	Development of multimedia two-way communication system with different stakeholders.	100	100	100	100	100





DPR 4: Development of Smart/Digital Agri-Ecosystem						
A. Non- Recurring						
1	Digital Agriculture Lab (IoT and Drone)	200	-	-	-	-
2	Development of A-VR lab (2 No., RPCAU and BAU)	150				
3.	Capacity Building for Faculty	15	15			
4.	Capacity Building for stakeholders		15	15	15	5
Total		365	30	15	15	5
DPR 5: Establishment of hi-tech protected cultivation system set up for vegetables and flowers for development of SoP.						
1	Piloting modified existing protected cultivation system in Nalanda & Vaishali districts for vegetable cultivation while for cut flowers Patna & Muzaffarpur district. (12 No)	348 (29*12)	6	6	-	-
2	Establishment of hi-tech protected cultivation system set up for vegetables and flowers for development of SoP. (2 No.)	94 (47*2)	1.5	1.5	1.5	1.5
Grand Total		442	7.5	7.5	1.5	1.5
DPR 6: Development of sensor based (AI and IoT based) farm equipment for operations and post-harvest technology						
A. Non-recurring: Infrastructure						
1	Research and development for creation of AI and IoT based spraying, irrigation and fertigation, storage of fruits and grains (IoT	80				



	Research and development for creation of AI and IoT based spraying, irrigation and fertigation, storage of fruits and grains (IoT					
2	Computer, printer, Online UPS	10				
3	Miscellaneous (Wire, Switch, Plugs, Roter, Port, Internet wire, Air condition, etc.)	6.5				
Total A Recurring (Amount in Rs. Lakhs)		96.5				

B. Recurring: Resource

1	Laboratory Assistant/Technician @20000/- + HRA - 2 Nos.(RCPAU-1 BAU-1)	5.18	5.18	5.18	5.18	5.18
2	Contingency (Maintenance cost of the equipments/servers/computers, publication, stationeries, hard drives, etc.)	6	6	6	6	6
3	TA, DA, Fuel, , Exposure Visits, etc.	4	4	4	4	4
4	Overhead charges @10%	1.52	1.52	1.52	1.52	1.52
Total B		16.7	16.7	16.7	16.7	16.7
Grand total (A +B)		113.2	16.7	16.7	16.7	16.7

DPR 7: Standardization of UAV for crop production management and monitoring

1	Equipment (Drone with accessories) (2 no. each for RPCAU and BAU)	50	-	-	-	-
2	DSS development	-	-	50	-	-





3	Contingency + manpower (SRF and Technical) (1 for each RPCAU and BAU)	20	15	15	15	-
Grand Total		70	15	65	15	-
DPR 8: Establishment of Bioinformatics and Computational Biology Lab						
A. Non-recurring: Infrastructure						
1	Establishment of Main Server, Web/database server	45.65				
2	Computer, printer, Online UPS	15				
3	Miscellaneous (Wire, Switch, Plugs, Roter, Port, Internet wire, Air condition, etc.)	10				
Total A		70.65				
B. Recurring (Amount in Rs. Lakhs)						
1	Research Associate RA @ 54000 + 8% HRA per month	6.91	6.91	6.91	6.91	6.91
2	Laboratory Assistant/Technician @20000/- + HRA	2.52	2.52	2.52	2.52	2.52
3	Contingency (Maintenance cost of the equipments/servers/computers, publication, stationaries, hard drives, etc.)	2.5	2.5	2.5	2.5	2.5
4	Cost of training of faculty and students including Tour, Travel, Exposure Visits, etc.	2.5	2.5	2.5	2.5	2.5
5	Overhead charges @10%	1.44	1.44	1.44	1.44	1.44
Total B		15.87	15.87	15.87	15.87	15.87





Budget for BAU, Sabour						
A. Non-recurring: Infrastructure						
1	Establishment of Main Server, Web/database server	45.65				
2	Computer, printer, Online UPS	15				
3	Miscellaneous (Wire, Switch, Plugs, Roter, Port, Internet wire, Air condition, etc.)	10				
Total A		70.65				
B. Recurring (Amount in Rs. Lakhs)						
1	Research Associate RA @ 54000 + 8% HRA per month	6.91	6.91	6.91	6.91	6.91
2	Laboratory Assistant/ Technician @20000/- + HRA	2.52	2.52	2.52	2.52	2.52
3	Contingency (Maintenance cost of the equipments/ servers/computers, publication, stationaries, hard drives, etc.)	2.5	2.5	2.5	2.5	2.5
4	Cost of training of faculty and students including Tour, Travel, Exposure Visits, etc.	2.5	2.5	2.5	2.5	2.5
5	Overhead charges @10%	1.44	1.44	1.44	1.44	1.44
Total B		15.87	15.87	15.87	15.87	15.87





DPR 9: Protocol for smart dairy and aquaculture system						
To establish sensor-based herd management system including estrus detection in cattle's						
1.	Equipment (Pedometer; Electrical Resistant estrus detector; Heat Mount Detector; RFID Tags; RFID Antenna; RFID Reader; Weighing Platform (5 Tonnes); Digital Mastitis detector device; Digital Infrared Thermometer; Computer, peripherals and accessories	86	-	-	-	-
2.	Capacity Building	15	-	-	-	-
Sub Total		101	-	-	-	-
To develop a sensor based indoor aquaculture system (RAS and Biofloc) on pilot basis in Patna district						
1	Procurement & Installation of equipments in the selected indoor aquaculture system of stakeholder	57	-	-	-	-
	Contingency	0.5	0.5	0.5	0.5	-
Sub Total		57.5	0.5	0.5	0.5	-
Development of SoP for smart aquaculture management for feed dispensing, management of dissolved oxygen, ammonia, and estimation of production						
1	Procurement & Installation of equipments in the selected indoor aquaculture system of stakeholder	57	30		-	-
2	Contingency	3	5	5	5	2
Sub Total		60	35	5	5	2



DPR 10 : Capacity building programme through skill development courses

Proposal for Diploma in Agricultural Drone Technology

Operating cost (Expenditure on contractual faculty, technical staff, & other related expenditure)	20	20	20	20	20
--	----	----	----	----	----

Post graduate Diploma in Artificial Intelligence and Robotics in Agriculture

Operating cost (Expenditure on contractual faculty, technical staff, & other related expenditure)	20	20	20	20	20
--	----	----	----	----	----

Post graduate Diploma in Micro-Irrigation System Management

Establishment of Micro irrigation Hydraulics Laboratory	20	-	-	-	-
Establishment of Sprinkler Irrigated Farms for practicals (Overhead Sprinkler, Raingun, mini and micro sprinklers)	5	-	-	-	-
Establishment of micro irrigated orchards	5	-	-	-	-
Other operating costs	15	15	15	15	10
Sub Total	45	15	15	15	10

Post Graduate Diploma Programme in Digital Marketing

Non-recurring

Digital marketing lab and accessories	15	2	-	-	-
---------------------------------------	----	---	---	---	---

Recurring

Manpower (guest faculty/personnel)	6.60	6.60	6.60	6.60	6.60
Contingency	10	10	10	10	10
Sub - Total	31.6	18.6	16.6	16.6	16.6





Post Graduate Diploma Programme in Data Science					
Non-recurring					
Digital science lab and accessories	15	2	-	-	-
Recurring					
Manpower (guest faculty/personnel)	6.60	6.60	6.60	6.60	6.60
Contingency	10	10	10	10	10
Sub - Total	31.6	18.6	16.6	16.6	16.6
Establishment of an incubation centre for smart agriculture					
Non-recurring					
Renovation/furnishing of space for Incubation Cubicles and Spaces/workstations	30				
Recurring					
Manpower* (Core Management Team/Mentors and Tech Support Persons/Business Development Professionals)/ Consultant	10.00	10.0	10.0	10.0	10.0
Travel	1.0	1.0	1.0	1.0	1.0
Marketing, networking & publicity	1.00	0.5	0.5	0.5	0.5
Training programmes, ADPs, Events and Seminar, workshops, start-up meets, awareness camps etc.	2.00	2.00	2.00	2.0	2.00
Miscellaneous and Contingencies	1.00	1.00			
Sub-Total	45	14.5	13.5	13.5	13.5
Grand Total	2199.94	903.14	868.14	732.14	698.64



Fourth Agriculture Roadmap 2023-28



Ongoing scheme

Human resources working for the strengthening of DBT across the state, which includes Data Entry Operators posted at Block and District Agriculture Office and the technical manpower at HQ, remunerations of the HR funded through the State Plan has been considered under ongoing scheme component.

Financial outlay under Ongoing scheme:

(Rs. In Lakh)

Sr.No.	Item	2023-24	2024-25	2025-26	2026-27	2027-28
1	Manpower Budget for Consulting resource, Programming resource and Operators across the State and Filed Staffs under State Plan	1296.24	1366.92	1503.61	1653.97	1819.37

Consolidated Financial Target (DPR + Ongoing scheme Component):

(Rs. In Lakh)

Sr. No	Item	2023-24	2024-25	2025-26	2026-27	2027-28	Total
1	DPR	2199.94	903.14	868.14	732.14	698.64	5402.00
2	Ongoing Schemes	1296.24	1366.92	1503.61	1653.97	1819.37	7640.11
Total		3496.18	2270.06	2371.75	2386.11	2518.01	13042.11





1.12 Agriculture Education

Introduction:-

Bihar is an agricultural state, where more than 80% of the population is dependent on agriculture. Bihar is expected to have a population of 14.50 crores by 2030 based on the trends of the last 20 years. Moreover, the per capita net income of Bihar is low. Thus, there is a need to pay special attention towards making the human resource more productive. Human resource is considered to be one of the most important resource for production and service delivery in any economy, which affects the pace of development of the economy. This can be achieved by imparting necessary skills to the people, and by modern research for sustainability in priority sectors including oilseeds, pulses, nutri-cereals and food processing. Agriculture University will play an important role in promoting entrepreneurship and creating skilled human resources, along with due attention to agro-semantics, connectivity and technological convergence in these areas. Some of the emerging subjects like food science and technology, agri-business management, biotechnology and agro-engineering are increasing the participation of the students of Bihar, which can contribute significantly to the development of the state in the future and on these need special attention.

Achievements of the last three agricultural road maps:-

The state of Bihar has been a pioneer in the field of agricultural education and research since ancient times. Agricultural research was born in the year 1905 in Pusa, Samastipur. Rajendra Agricultural University, Pusa was converted into Dr. Rajendra Prasad Central Agricultural University in the year 2016 with the continuous efforts of the state government. The Barlaug Institute for South Asia was established in the year 2011 at Pusa as the first international agricultural research institute in the state. Many institutes of agricultural education and research were established by the state government. In the period from 2005 to 2022, more institutes were established than the number of agricultural education and research institutes since independence till 2005. Colleges of Agriculture and allied subjects established during the period of Agriculture Road Map are as follows,

1. Horticulture College, Noorsarai, Nalanda.
2. Mandan Bharti Agriculture College, Saharsa.
3. Veer Kunwar Singh Agriculture College, Dumraon.
4. Bhola Paswan Shastri Agriculture College, Purnia.
5. Dr. Kalam Agriculture College, Kishanganj.
6. College of Forestry, Munger.
7. College of Agricultural Engineering, Arrah.
8. College of Agricultural Biotechnology, Sabour.





9. College of Agricultural Business Management, Patna.
10. College of Forestry and Horticulture, Motihari.
11. Fisheries College, Kishanganj.
12. Veterinary College, Kishanganj.

The universities of agriculture and allied subjects established during the period of agricultural road map are as follows,

1. Bihar Agricultural University, Sabour.
2. Bihar Animal Sciences University, Patna.

Not only college and university level agriculture education, for the first time in the state, from the year 2015, agriculture education was started at the high school level. Bihar is the first state which provides 50% reservation in admission in BSc. Agriculture/Horticulture to students who have passed ISc with Agriculture. In order to attract rural meritorious students towards agriculture education, stipend was started for all agri and allied graduate students.

Ongoing expenditure on construction, land-based structure and establishment of three new agriculture and allied colleges is as below:-

Financial target of ongoing scheme related to agriculture education

S. No.	Ongoing Scheme components	Budget for 5 years					Total (in Lakh)
		2023-24	2024-25	2025-26	2026-27	2027-28	
1.	Development of infrastructure of the newly established college	7000	17800	18200	19000	20000	82000
2.	Establishment expenditure (salary and non-salary, laboratory equipment, etc.)	10000	16000	21800	23200	24000	95000
Total							177000

DPR Objective:-

- The trained manpower (about 56,000) will help in improving value creation in agriculture sector by application of advanced knowledge/skills





in various activities related to agriculture and allied sector including entrepreneurship development.

- To promote knowledge acquisition by PG/PhD students in Oilseeds, Pulses, Nutri-Cereals and other priority sectors of Bihar with focus on agro-economics, complementarity and technological convergence in these sectors.
- Capacity building of faculty members / scientists in important areas related to the state of Bihar including oilseeds, pulses and cereals.
- To promote innovation and entrepreneurship among students/faculty in priority/marginal areas of agricultural education.
- Teaching, research and extension in the field of secondary agriculture.
- To provide qualified trained manpower for high level processing and entrepreneurship development for agro production, pilot plants and high value production.
- Sanjay Gandhi Institute of Dairy Technology, Patna is being transformed to provide quality education to students to build their capacity and enhance their skills and make them globally competitive in Dairy and Food Technology.
- To develop state-of-the-art research facilities and a supportive environment in food technology.

DPR related to agriculture education :-

Several initiatives have been taken by the state government for the all-round development of agriculture education. However, certain areas still need focused attention. Such areas have been identified as the DPR areas. The list of the DPRs covered under the fourth agriculture roadmap is as below:-

1. Human Capital Augmentation in the Agriculture Sector of Bihar through Need-Based Capacity Building Programmes.
2. Flexi-Fund for Agriculture Education and Promotion of Innovation in Oilseeds, Pulses and Millets (Nutri-Cereals) and other Priority Areas of Bihar.
3. Establishment of College of Secondary Agriculture in Bihar.
4. Conversion of Sanjay Gandhi Institute of Dairy Technology, Patna into Sanjay Gandhi Institute of Dairy and Food Technology, Patna under Bihar Animal Sciences University, Patna.
5. Formation of Bihar Academy of Agriculture Science- The formation of the academy will be considered.

Brief description of DPR

Component 1: Human Capital Augmentation in the Agriculture Sector of Bihar through Need-Based Capacity Building Programmes





Fourth Agriculture Roadmap 2023-28



Purpose

- a) To provide trained manpower by imparting necessary knowledge and skills through need based training in agriculture and allied sector.
- b) To promote entrepreneurship among the participants on the basis of training imparted in agriculture and allied sector.

Activities

Need based training in different areas and on different subjects as per the needs/priorities of the State will be conducted in multiple ways involving both classroom and experiential learning components depending on the specific goals of each training programme. Some indicative subjects are mentioned below:-

- Digital Agriculture (including AI and sensor based technology)
- Food Processing
- Poultry Production Technology
- Animal feed
- Sustainable Agroforestry
- Medicinal and aromatic plants
- Market access and export competitiveness
- Improved Dairy Farming Practices
- Management of Clusters/FPOs/Micro Enterprises
- Integrated Nutrient and Pest Management
- Food Preservation and Storage
- Secondary Agriculture
- Mushroom cultivation
- Marketing and Supply Chain
- Commercial, Goat, Pig etc. production
- Fisheries/Dairy Management
- Seed production including hybrid seeds
- Development of quality planting material
- Need based training as decided by the committee of Secretary, Agriculture Department and Vice Chancellors of all the three universities of Bihar.
- A total of 1860 training programs (56,000 participants) of different duration are proposed to be organized in 5 years.

Outcome

This trained manpower (about 56,000) will help in improving value creation in agriculture sector by application of advanced knowledge/skills in various activities related to agriculture and allied sector including entrepreneurship development.

Budget – Rs. 6709 lakh





Component 2: Flexi-Fund for Agriculture Education and Promotion of Innovation in Oilseeds, Pulses and Millets (Nutri-Cereals) and other Priority Areas of Bihar

Purpose

- A. To promote knowledge acquisition by PG/PhD students in Oilseeds, Pulses, Nutri-Cereals and other priority sectors of Bihar with focus on agro-economics, complementarity and technological convergence in these sectors.
- B. Capacity building of faculty members / scientists in important areas for Bihar including oilseeds, pulses and cereals.
- C. To promote innovation and entrepreneurship among students/faculty in priority/marginal areas of agricultural education.

Activities

1. Research through top-up funding of Rs.10,000/- per month in priority areas including oilseeds, pulses, Nutri-Cereals and food processing during the academic program on the basis of past work done by students/scholars/scientists of the concerned university attachment of PG/PhD students to work. While carrying out such activities, due attention shall be given to semantics, complementarity and technical convergence.
2. Capacity building of faculty members/scientists of all three universities through state-of-the-art training in priority areas of Bihar
3. To promote innovation and entrepreneurship among students/faculty in priority areas of agricultural science

Achievement

- a) State-of-the art research that can help in research based integrated/holistic solution to problems in identified priority sectors of Bihar including oilseeds, pulses, millets and food processing.
- b) Development of expertise in priority areas resulting in better research, teaching and extension outcomes.
- c) Development of entrepreneurial culture resulting in self-employment, employment generation and contribution to self-reliant Bihar and India.

Budget - 7500 Lakh

Component 3 of Project: Establishment of College of Secondary Agriculture in Bihar

Purpose

- Teaching, research and extension in the field of secondary agriculture.
- To provide qualified trained manpower for high level processing and entrepreneurship development for agro production, pilot plants and high value production.





Fourth Agriculture Roadmap 2023-28



Activities

- To undertake all the activities related to the establishment of Secondary Agricultural College in Bihar Agricultural University, Sabour.
- Initiation of teaching, research and extension in the field of secondary agriculture.

Outcome

- Establishment of Secondary Agriculture College in Bihar Agricultural University, Sabour.
- Trained manpower to perform various activities related to secondary agriculture including food/agro processing.
- Novel ideas generation through research in the field of secondary agriculture.

Budget - 16400 Lakh

Component 4 of Project: Conversion of Sanjay Gandhi Institute of Dairy Technology, Patna into Sanjay Gandhi Institute of Dairy and Food Technology, Patna under Bihar Animal Sciences University, Patna.

Purpose

- Sanjay Gandhi Transforming provides quality education to students to build their capacity and enhance their skills and make them globally competitive in dairy and food technology.
- To develop state-of-the-art research facilities and a supportive environment in food technology.

Activities

- To undertake all activities relating to establishment of the Faculty of Food Technology.
- Initiation of teaching, research and extension in the field of food technology
- To undertake graduate and post graduate academic programs and research activity in dairy technology and food technology.
- Establishment of NABL accredited food testing laboratory.

Outcome

- Establishment of new Faculty of Food Technology at Bihar Animal Science University, Patna
- Trained human resource in the field of food science and technology.
- New knowledge generation through research in the field of food science/technology.
- NABL Accredited Food Testing Laboratory.

Budget - 12428 Lakh





Financial target of DPR related to agriculture education.

S. No.	DPR Components	Budget for 5 years					Total (in lakh)
		2023-24	2024-25	2025-26	2026-27	2027-28	
1	Augmentation of human resource in agriculture sector of Bihar through need based capacity building programs	800	1000	1300	1700	1909	6709
2	Flexi Fund for Agricultural Education and Innovation in Bihar's Oilseeds, Pulses, Nutri-Cereals, Food Processing and Other Priority Sectors	1000	1200	1400	1800	2100	7500
3	Establishment of Secondary Agricultural College in Bihar	2000	2400	3200	3900	4900	16400
4	Conversion of Sanjay Gandhi Institute of Dairy Technology, Patna into Sanjay Gandhi Institute of Dairy and Food Technology, Patna under Bihar University of Animal Sciences, Patna	1500	2000	2500	3000	3428	12428
Total							43037

The total financial target related to agricultural education under the fourth agricultural road map is as follows: -

S.No.	Topic	Budget for 5 years (in Lakh)
1	DPR	43037
2	Ongoing Schemes	102000
	Total	145037



1.13 Agricultural Research

Component - Frontier Science in Gene Editing, Genomics, Crop Breeding and Seed Science

Introduction:-

There is a need to develop climate-resilient, high-yielding varieties of oilseeds and pulses crops suitable for cultivation in Bihar. Bihar needs to develop and use advanced crop improvement techniques as well as gene editing, genomics, phenomics and speed breeding facilities to foster a culture of innovation and create new varieties of oilseeds and pulses crops suitable for Bihar. Excellent trained human resource will be developed for development. The objective of this DPR is to provide advanced R&D services for trait improvement, transfer in breeding programmes, line selection and reduction in breeding cycle duration to develop eco-smart varieties to ensure food and nutrition. To promote is to have adequate infrastructure with quality human resources. To protect people and promote their farming by ensuring timely availability of quality seeds through efficient digitized seed system developed in this DPR. The objective of this DPR is to create adequate infrastructure along with the development of quality human resource so as to reduce the breeding cycle by precise trait improvement, breeding programme, selection of lines and development of eco-smart varieties by which the food and nutritional needs of the people can be met.

Interventions/Activities:

- Development of phenomics, gene editing and genomics facilities in R.P.C.A.U. and B.A.U.
- Gene editing for targeted traits in Lentil, Sesame, Pigeon pea and Chickpea by BAU and RPCAU. Capacity building of scientists in the field of gene editing.
- To identify donors of useful traits from gene bank accessions and use them in breeding to develop pre-breeding lines for genetic improvement of selected pulse and oilseed crops.
- Modernization of breeding programs of pulses and oilseeds crops in Bihar.
- To ensure timely availability of quality seeds of selected pulses and oilseeds crops in Bihar, there is a need to strengthen the seed system for pulses and oilseeds crops.

Result:

- Development of improved breeding lines of chickpea, pigeon pea, lentil and sesame using gene editing for Bihar.
- Reduced pod borer damage, optimized architecture for increased yield, reduced crop damage due to heat stress.





Fourth Agriculture Roadmap 2023-28



- Train and employ new people for crop improvement in Bihar and capacity building to solve complex crop problems through new tools.
- Development of improved breeding lines and 20 varieties of oilseeds and pulses for Bihar.
- To increase awareness towards new varieties developed by farmers through varietal cafeteria.
- Increased market access for 200,000 farmers through improved seeds from 15 quality sources.
- Enhanced market access for 500 women SHGs by developing entrepreneurial skills among the SHGs.
- Enhanced outreach to 5000 farmers for quality seed production and participation in income generation.
- Use of digital media for quality seed production and distribution.

Total Budget:

Three projects on gene editing, crop improvement and seed systems for three institutes - BAU, Sabour RPCAU, Pusa and ICRISAT Hyderabad for five years: Rs 13173 lakh

Financial Summary of Agricultural Research.

Component	financial (in lakh)
Frontier Science in Gene Editing, Genomics, Crop Breeding and Seed Science	13173.00





1.14. Extension

Introduction -

To provide technical knowledge of research and information regarding government schemes to the farmers there are three agriculture and allied sector universities, 20 agricultural and allied subjects colleges, 44 Krishi Vigyan Kendras and under the Department of Agriculture, Government of Bihar, BAMETI at state level and ATMA in all districts. Animal Health Centres are functioning under Department of Animal and Fisheries Resources. To facilitate the reach of extension functionaries to villages there are functional Panchayat Krishi Karyalaya at Panchayat level and e-Kisan Bhavan at block level. In addition to officers at the headquarter and district level, a large workforce of Block Agriculture Officer and Block Technology Manager and Assistant Technology Manager (ATM) at block level; Agriculture Coordinator (AC) at two panchayat level and Kisan Salahkar (KS) at panchayat level are providing extension related services to the farmers.

Achievements of last three Agriculture Road Maps - Two new agricultural universities Bihar Agricultural University, Sabour, Bhagalpur and Bihar Animal Science University, Patna along with 12 new agricultural and allied subject colleges are established during the period of first, second and third road map (2008-2023) to give impetus to the training need of farmers of the state. During the Road Map period, 17.57 lakh farmers were trained through BAMETI and ATMA with the help of Agricultural Universities, Colleges and KVKs, 1.18 lakh demonstrations were organized, 7.66 lakh farmers were taken to important agriculture and allied sector institutions across the country, more than 21000 farmer interest groups have been formed in which 4 lakh 66 thousand farmers are members, 5337 food security groups of women have been formed in which there are 1 lakh 32 thousand women members. 18572 Kisan Pathshalas were organized by which 3 lakh 13 thousand farmers were benefitted. Skill training was provided to 9529 youths and 8160 input dealers were trained.

Priorities of Fourth Agriculture Road Map:

Enhancing farmers' easy access to extension services is imperative for ensuring holistic development of the farming community of the state, divided across the socio-economic strata. The fourth agriculture road map aims at bringing about transformative change in the extension services delivery mechanism by strengthening the ICT infrastructure of e-Kisan Bhawan, KVKs, SAUs so that infrastructure for real time information dissemination can be developed. Further, it has been envisaged to build the capacity of extension functionaries for improving their effectiveness and efficiency in delivery of farm information and advisory. The extension program of the Fourth Agriculture Road Map will lay emphasis on increasing this model further, under which trained youth are made entrepreneurs.

The major initiatives in this direction include-

- (i) Transformation of e-Kisan Bhawan into Single Window Agricultural Service Terminals and Hubs (SWASTH)
- (ii) Strengthening the ICT infrastructure of Universities and KVKs





Fourth Agriculture Roadmap 2023-28



- (iii) Introduction of *Gyaan Vaahan* for doorstep delivery of extension services
- (iv) Capacity building of one million farmers
- (v) Implementation of skill development programmes
- (vi) Strengthening of Extension Training Centre Mushari, Muzaffarpur

Budget Summary (in lakh Rupees)

Sl.	Programme	2023-24	2024-25	2025-26	2026-27	2027-28	Total
1	Transformation of e-Kisan Bhawan into Single Window Agricultural Service Terminal & Hub (SWASTH)	1300.7	1566.07	1907.82	2299.47	2753.02	9827.08
2	Strengthening the ICT infrastructure of Universities and KVKs	500.00	80.00	88.00	97.00	107.00	872.00
3	Deployment of <i>Gyan Vahan</i> for dissemination of Agricultural technology and information	591.00	110.60	120.80	128.40	136.60	1087.40
4	Capacity building of one million farmers	30083.32	31592.45	34172.16	38066.08	41943.26	175857.30
5	Skill development	1284.21	1575.07	1865.94	2156.81	2447.69	9329.72
6	Strengthening of ETI, Mushari, Muzaffarpur	2760.20	323.92	1793.40	392.62	431.66	5701.80
Total		36519.43	35248.11	39948.12	43140.38	47819.23	202675.30

Ongoing schemes-

Along with above mentioned DPR schemes some ongoing schemes like Salary for Kisan Salahkar, expenditure related with offices at different levels, Expenditure on Agriculture fair, expenditure related with vehicle and on other miscellaneous extension activities are as follows-

Programme	2023-24	2024-25	2025-26	2026-27	2027-28	Total
Agriculture extension related activities	19226.17	22416.72	22436.65	22436.65	22545	109061.19





1.15 Risk Mitigation/Management

Introduction

Bihar is an agricultural state, the economy here depends on agriculture and agro-based industry. Unique climatic conditions, fertile soil, abundant underground water and the agricultural skills of the farmers open the door to the possibilities of agricultural development in the state. But it is ironic that despite all these specialties, the state of Bihar is economically backward. The main reason for this is erratic monsoon due to which the state has to face conflicting calamities like unexpected floods and drought simultaneously.

The State Government, Department of Agriculture stands firm with its farmers in the event of natural calamity and provides agricultural input subsidy according to the norms of the Disaster Management in case of crop damage. Apart from this, seeds of alternative crops are supplied free of cost under the Contingent Crop Scheme for crop coverage in fallow land after flood and drought.

To mitigate the impact of disaster and to stabilize the economic condition of the farmers, following schemes are being implemented by the Department of Agriculture:-

- 1. Contingent Crop Plan:** Under this scheme, seeds of short duration varieties of alternative crops are made available to the affected farmers on 100 percent subsidy in Kharif season. As a result, farmers could cultivate the otherwise uncovered land. This also helps in compensating for the damage. In effect it helps in increasing the income of the farmers. In the interest of farmers, and to mitigate the impact of the adverse monsoon conditions this scheme will be continued in the coming years as well.
- 2 Diesel Subsidy Scheme:** Diesel Subsidy Scheme has proved to be very important in case of reduced crop coverage due to drought and to save standing crops from drought. On account of assured irrigation by implementation of diesel subsidy scheme, the effect of drought is reduced and it also helps in protecting the standing crops. In case of situation of drought in the coming years, the effect of the natural calamity will be mitigated by implementing diesel subsidy scheme in the interest of farmers.
- 3. Agriculture Input Subsidy Scheme:** Due to untimely and excessive rainfall, irregular monsoon, floods and in the event of scanty rainfall, drought and natural calamities such as storms, hailstorms etc. there is heavy loss of crops to farmers. This adversely affects the economic condition of the farmers. In such situations, the Agriculture Input Subsidy Scheme is implemented by the Agriculture Department as per the norms prescribed by Disaster Management Department. This provides economic support to the farmers and helps the farmers to purchase agricultural inputs for the coming season.





4. The important achievements of the programs implemented in the past years are as follows,

Seed distribution under contingency crop scheme in previous years

Year	Amount of seed (in Quintals))	Amount (Rs Lakh)	Comment
2018-19	14665	1950	Drought
2019-20	22829	2941	Flood and drought
2020-21	17904	1980	Flood
2021-22	16266	1488	Flood and fallow land
2022-23	17125	2177.51	Drought

Diesel Subsidy Scheme

Amount (in Rs Lakhs)

Year	Allocated amount	Distributed amount	Number of farmers	Comment
2018-19	30000	37716	30,39,431	Over allotment
2019-20	30000	8325.83	6,37,779	Payment of 2019-20 done by allocation
2022-23	18995	15117	10,02,276	

5. Subsidy amount disbursed to farmers in case of crop damage since 2007-08 is as follows:-

Year	Amount spent (Rs in Lakh)
2007-08 (Flood)	13184.23
2008-09 (Flood)	5749.00
	9725.30
2008-09 Koshi Flood to remove sand silt from the land	3413.34
2009-10 (Drought)	485.31
2010-11 (Hailstorm)	1136.36



Year	Amount spent (Rs in Lakh)
2011-12 (Drought)	419.59
2011-12 (Hailstorm and flood)	403.57
2013-14 (Cyclone Phailin)	5277.25
2015-16 (Hailstorm)	85225.58
2015-16 (Cyclone)	7385.52
2017-18 (Hailstorm)	56136.31
2018-19 (Drought)	93540.38
2019-20 (Flood and fallow land)	65313.47
2019-20 (Hailstorm)	57500.04
2020-21 (Flood)	65039.00
2021-22 (Yas Storm)	8250.00
2021-22 (Flood)	51404.00
2021-22 (Fallow Land)	
Total	529588.25

A standard procedure needs to be prescribed for assessment of crop damage on real-time basis, so that timely assistance from the state government can be made available to the affected farmers in case of crop damage.

Present Scenario: At present, the process of distribution of agricultural input subsidy is as follows: -

In case of damage to crops due to natural calamities, the initial estimation of crop damage is made available by the District Magistrates in Form I and II as well as report of fallow land in form III prepared by Disaster Management Department. Information about the estimated amount of damage is sent by the Agriculture Department to the Disaster Management Department and after the approval of the plan and receipt of the allotment of fund from the Disaster Management Department, applications are invited from affected farmers from the Blocks / Panchayats of the affected districts within the prescribed period by issuing advertisements in Daily News paper by the Agriculture Department. After verification of the received application, the amount of agricultural input subsidy is transferred in the NPCI linked account of the affected farmers through DBT.

Damage Assessment on Real Time Basis

In the current verification process, verification of actual affected farmers is a big challenge. Farmer-wise/plot-wise assessment of crop damage along with



Fourth Agriculture Roadmap 2023-28



photographs on real-time basis would make it easier to provide benefits to the affected farmers. Therefore, in the event of crop damage due to natural calamity, it is necessary to have the standard operating procedure (SOP) for assessing the damage so that the benefits could be delivered to the affected farmers with transparency.

Potential expenditure on risk mitigation management in the fourth agriculture roadmap:

(Amount in rupees lakhs)

Sl no.	Scheme Name	2023-24	2024-25	2025-26	2026-27	2027-28	Total
1	Contingency crop plan	5000	5000	5000	5000	5000	25000
2	Diesel Subsidy Scheme	20000	20000	20000	20000	20000	100000
3	Agriculture Input Subsidy	50000	50000	50000	50000	50000	250000

Note-

1. The expenditure of Contingent Crop Scheme will be done from the expenditure received in the head.
2. The amount under the Diesel Grant Scheme will be received from the State Disaster Mitigation Head (S.D.M.F.)
3. Agriculture Input Subsidy Scheme amount will be received from State Disaster Management department.

1.16 Soil, Seed, Fertilizer Pesticide Testing Laboratory Laboratory has been established at different levels to ensure the quality of agricultural inputs in the state. The operational cost of these laboratories is indicated below -
(Ongoing Schemes)

Amount (in Lakh)

Year	2023-24	2024-25	2025-26	2026-27	2027-28	Total
Seed testing	795	800	805	810	816	4026.00
Soil testing	969.84	996.84	1023.84	1050.84	1077.84	5119.20
Fertilizer Pesticide Testing Lab	300	300	300	300	300	1500.00
Total						10645.20





1.17 Establishment of concurrent monitoring, evaluation and learning (MEL) cell for Fourth Krishi Road Map:-

Background

- The Government of Bihar is implementing fourth Agriculture Roadmap, which outlines various activities to be undertaken by the Agriculture and allied departments for the improvement of agriculture in the state.
- In order to facilitate the smooth implementation and concurrent monitoring of these activities, concurrent monitoring, evaluation and learning (MEL) cell will be established at the Department of Agriculture.
- Some of the key benefits of setting up a concurrent monitoring, evaluation and learning (MEL) cell as an integral part of fourth Agriculture Roadmap are as follows:
 - **Early detection of challenges:** Concurrent monitoring will allow Department of Agriculture to detect problems at an early stage to minimize the impact of the problem and prevent it from escalating into a more significant problems that could significantly impact the achievement of goals enshrined in fourth Agriculture Roadmap.
 - **Mid-course correction:** With concurrent fourth Agriculture Roadmap monitoring, Agriculture and allied departments can take timely mid-course corrective action in the design and implementation of the schemes based on ground level feedback. This can help to keep the progress of activities of fourth Agriculture Roadmap on track and prevent delays.
 - **Improved communication:** Concurrent project monitoring will allow Agriculture and allied departments to communicate more effectively with stakeholders. This improved communication can help ensure that everyone is on the same page and working towards the same goals in a timely manner.
 - **Increased accountability:** Concurrent project monitoring will help in increasing accountability among Agriculture and allied department functionaries making the activities more focused towards the proposed plan.
 - **Better resource management:** Concurrent project monitoring will allow Agriculture and allied departments better manage resources, including time, money, and personnel. This can help to ensure that resources are allocated effectively and efficiently, which can ultimately lead to cost savings and improved project outcomes.



- **Improved learning outcomes and knowledge management:** The concurrent monitoring and learning cell will assist the Agriculture and allied departments in documenting the best practices and learnings. This will assist in better cross learning within department as well as through best practices across the globe.

Objectives of concurrent monitoring and learning cell

- The primary objective of the fourth Agriculture Roadmap concurrent monitoring and learning cell will be to facilitate the successful implementation of Fourth Krishi Roadmap as per the guidelines issued by the Government of Bihar.
- It will be responsible for monitoring, review and supervision of various activities being executed under fourth Agriculture Roadmap.
- It will create awareness among potential beneficiaries and also identify the various challenges being faced by fourth Agriculture Roadmap and agriculture and allied department officials in successful implementation of the various activities/schemes proposed under fourth Agriculture Roadmap.
- The fourth Agriculture Roadmap concurrent monitoring and learning cell will also enhance the effectiveness and efficiency of policy-making processes by promoting innovations, evidence-based decision-making, fostering collaboration and stakeholder engagement, and facilitating the exchange of knowledge and best practices.

Key proposed activities

- The importance of concurrent monitoring and the relevance of learning/knowledge management for the successful implementation of the Fourth Krishi Roadmap.
- The fourth Agriculture Roadmap concurrent monitoring cell will undertake the following tasks to achieve the abovementioned objectives:

i. Concurrent Monitoring

- Design and implement concurrent monitoring plans for successful implementation of activities proposed under fourth Agriculture Roadmap.
- Provide technical assistance and coordinate with different directorates/divisions/ scheme owners for monitoring, identifying challenges in implementation of the various activities proposed under fourth Agriculture Roadmap.



- Design data collection formats and periodically collect relevant data from the directorates on the progress of implementation.
- Conduct data analysis/ presentations and share progress reports before the competent authorities for appraising the departments.
- Regularly apprise senior officials of Agriculture and allied departments on the implementation status, challenges, best practices and recommendations for taking appropriate course correction decisions.
- The monitoring plan will also be periodically reviewed and improvements will be made based on feedbacks and lessons learned. This will help to ensure that the monitoring process remains effective and relevant over time.

ii. Evaluation and mid-course corrections

- Develop scheme specific reports, assessments to identify implementation challenges, barriers in successful implementation on the basis of field visits, interactions with beneficiaries, district/ block/ panchayat level Agriculture and allied department functionaries
- Recommend scheme/ activity specific mid-course correction measures and suggest ways to tweak policies/schemes/ activities to achieve the objectives of fourth Agriculture Roadmap.

iii. Knowledge management and learning

- Develop scheme specific awareness/ dissemination communication plans to spread information about key programs/ initiatives of fourth Agriculture Roadmap and promote their uptake.
 - Document best practices within Agriculture and allied departments and develop:
 - Case Studies
 - Learning Notes
- Recommend policy innovations through benchmarking of schemes/ activities with other states and countries.
- Facilitate engagement with private sector, scientists, practitioners, sector experts and international organizations for bridging knowledge gaps with industry.

Institutional arrangement of MEL cell

- MEL cell will be created at Department of Agriculture level under the close supervision of Secretary/Joint Secretary, Dept. of Agriculture.



- It will work closely with the Director, PPM and other directorates within the Agriculture department.
- Apart from this, the MEL cell will also coordinate with other line departments for the successful implementation of the fourth Agriculture Roadmap.
- A dedicated IT platform will be created for online reporting and monitoring of the Agriculture Road Map activities, sub activities.
- A fully empowered team of professionals will man the MEL cell.

4. Financial

- The tentative financial requirements for the establishment and operation of the MEL cell with requisite manpower would be Rs. 2 crore per annum. The cost of the MEL cell will be borne either from state scheme or in collaboration with BMGF under the framework of existing MOU between the State Government and BMGF, for supporting the technical manpower requirements in the MEL cell.

Budget requirement for Agriculture-crop and horticulture development (Amount in lakh Rs)

Name of Schemes	DPR	Ongoing schemes	Total
1.1 Seed Development	42353.66	38909.2	81262.86
1.2 Crop diversification	30690.77	0	30690.77
1.3 Pulses and Oilseeds Mission	65177.27	0	65177.27
1.4 Plant Protection	54786.48	0	54786.48
1.5 Bihar Organic Farming Promotion Program	27225	16762.85	43987.85
1.6 Agricultural Market System Reforms	270368.5	0	270368.5
1.7 Soil and Water Conservation Program	91885.93	0	91885.93
1.8 Agricultural Mechanization	181459	0	181459
1.9 Climate Resilient Agriculture Program	52606	0	52606
1.10 Horticulture Development	82967	336793	419760
1.11 Use of Modern Technology In Agriculture	5402	7640.11	13042.11



Name of Schemes	DPR	Ongoing schemes	Total
1.12 Agricultural Education	43037	177000	220037
1.13 Agricultural Research	13173	0	13173
1.14 Agricultural Extension	202675.3	109061.19	311736.49
1.15 Risk / Mitigation / Management	0	375000	375000
1.16 Soil, Seed, Fertilizer Pesticide Testing Laboratory	0	10645.2	10645.2
1.17 Establishment of MEL cell for monitoring and evaluation	1000	0	1000
Total	1164806.91	1071811.55	2236618.46

Milestone of Agriculture Crop and Horticulture development

(Production – In thousand metric tons / Productivity - kg / hectare)

Sr No.	Crops	Current Production (2021-22)	Current Productivity (2021-22)	Targeted Production (2027-28)	Targeted Productivity (2027-28)
1	Rice	7717.30	2496.41	9377.17	3162.12
2	Wheat	6889.83	3077.51	7739.71	3396.88
3	Maize	3470.90	5236.33	4339.62	6529.34
4	Nutri cereals	20.90	1382.28	26.67	1596.36
5	Pulses	387.94	891.06	495.12	920.47
6	Oilseeds	121.50	1048.05	155.07	1060.06
7	Fruits	4986.70	13707.26	5809.02	14657.18
8	Vegetables	17845.00	19584.06	19427.04	20565.26



02

Animal and Fisheries
Resources





Animal and Fisheries Resources

Animal Husbandry Sector

Vision

The animal husbandry sector has got an important place in the economic development and employment generation in the state. 88.01% population of the state lives in villages (2nd largest in the country), the population density of which is the highest (1102 persons/square Km) in the country. The multifaceted programmes of animal husbandry play an important role in the poverty alleviation of rural population, self employment generation, development of rural economy and to check the movement of population to other states in search of employment and to reduce the load of urban areas. Animal husbandry is an alternative in view of the scarcity of land based economy. The national economic policy can be sustained and the concept of holistic development may be turned into reality by involving the youth force of the state with animal husbandry, dairy and fisheries.

There is a target to enhance the milk production of the state to 15990 thousand MT per year by the year 2028, which is presently 12118.50 thousand MT per year. There is a target to enhance the egg production of the state to 62025 lakh per year by the year 2028, which is presently 30665.62 lakh per year. There is a target to enhance the meat production of the state to 494 thousand MT per year by the year 2028, which is presently 392.44 thousand MT per year.

Hindrances in achievement of targets of Agriculture Road Map 2017-23:-

- Inadequacy of funds as per target.
- Fund available Rs. 1616.6501 crore against requirement of Rs. 3183.7342 crore.
- Lack of skilled (trained) human resource.
- Insufficient infrastructure facility of veterinary services.
- Scarcity of infrastructure facilities and trained man power for artificial insemination.
- Untimely receipt of funds and vaccine from central government.
- Impact of the COVID-19 pandemic.
- Lack of society associated to Directorate of Animal Husbandry for smooth implementation of schemes.

Measures to be taken for achievement of targets of Agriculture Road Map 2023-28-

- Provision for timely implementation of vaccination programmes under state scheme in case of late release of fund under centrally sponsored schemes.



Fourth Agriculture Roadmap 2023-28



- Due to the shortage of artificial insemination personnel in the department, arrangement to achieve the target of artificial insemination by imparting training to private artificial insemination workers.
- Provision of training for skilled (trained) human resource for animal husbandry. Apart from it, provision of trained/efficient human resource through outsourcing and establishment of Project Management Unit.
- Establishment of goat farms (20+1 capacity, 40+2 capacity, 100+5 capacity and 500+25 capacity) by provision of subsidy in private sector as well as scheme of goat distribution on large scale for enhancement in availability of goat meat.
- Establishment of layer farms of 5000 and 10000 capacity, Broiler breeding-cum-hatchery of 10000 capacity and infrastructure development of broiler farms (3000 capacity) by provision of subsidy in private sector along with scheme of poultry distribution on large scale for enhancement in availability of poultry egg, broiler chicks and meat.
- Establishment of pig farms (10+1 capacity and 100+10 capacity) by provision of subsidy in private sector as well as scheme of free of cost pig distribution for enhancement in availability of pig meat.

Status of major livestock products in the state:

Sl. No.	Livestock Products	Current Production (2021-22)	Current Availability at State Level (per person)	Recommendation of ICMR (per person)	Current Availability at National Level (per person)	Total requirement as per National average		Proposed till 2028 under ARM
						Current	Estimated by 2028	
1	Milk	12118.50 TMT	270 Gram/day	220 Gram /day	444 Gram /day	20000 TMT	21068 TMT	15990 TMT
2	Eggs	30665.62 Lakh	25 Eggs /Year	180 Eggs /Year	95 Eggs /Year	116660 Lakh	123500 Lakh	62025 Lakh
3	Meat	392.44 Thousand Tonnes	3.19 Kg /Year	10.95 Kg /Year	6.82 Kg /Year	837 Thousand Tonnes	886.60 Thousand Tonnes	494 Thousand Tonnes

Fourth Agriculture Roadmap 2023-28





Strategy

Special attention is being given by the state government on enhancement in milk production capacity of milch animals of the state. Priority is being given to breed improvement of livestock for enhancement in milk production. For this, Livestock breeding policy, 2011 has been implemented. Implementation of Artificial insemination protocol is being done on the basis of Livestock breeding policy, 2011. "Bovine Breeding Regulation Act" will be implemented for the control of breeding activities including storage, sale, distribution and artificial insemination service of frozen semen straw. This will result in breed improvement and enhancement of milk productivity of livestock of the state. For this, participation of Comfed will be ensured.

Special attention will be given on vaccination of livestock against contagious diseases, balance diet for the livestock and artificial insemination of breedable animals under animal husbandry sector. Programmes related to Poultry farming, Goat-husbandry and Pig farming will be implemented. Establishment of layer farm, broiler breeding-cum-hatchery farm, Broiler farm, Goat farm and Pig farms in private sector will be done for large scale production of eggs, chicks and meat. Apart from it, implementation of poultry distribution, goat distribution and pig distribution programmes will be implemented to improve livelihood and nutritional security and employment to marginal and disadvantage poor families.

Mobile veterinary unit will be operationalize to provide veterinary service, artificial insemination facility through mobile app, call center, telemedicine at the doorstep of the animal owners of the state. 24x7 and indoor veterinary service and pathological examination facility will be made available in the sub divisional level veterinary hospitals. Establishment and strengthening of various laboratories (Bio Safety Level 2 Laboratory, Advance Disease Diagnostic Laboratory, Emerging Diseases surveillance unit, Feed Testing Laboratory) will be done for quick diagnosis of diseases of high risk zoonotic importance and diagnosis of sick animals of animal owners. A training center will be established for veterinarians/paravets to provide knowledge about advance/latest techniques in the field of animal disease diagnosis/veterinary medicine.

New varieties of fodder production and demonstration will be done on the land of departmental fodder nursery, fodder seed distribution, silage making, balanced animal diet awareness camp, training, publicity and regulatory mechanism for feed quality and production will be implemented.

State and district level resources and training centres will be established for livestock farmers training, animal husbandry extension, training under skill development, veterinary officer, parvet, training of other departmental employees.

Bihar Society for Animal Health Management and Training (B-SAHMAT) will be constituted in the Animal and Fisheries Resources Department (Animal Husbandry Directorate), Bihar under the Societies Registration Act, 1860, to ensure smooth implementation of schemes/programs and continuous availability of funds.





Pig Development Scheme

Introduction

Pig farming is done in the traditional way in the state. Majority of the desi pigs (about 3 lakh 17 thousand) contribute to the pig population of the state, while the population of exotic/cross/improved pigs is very less (about 26 thousand). In order to increase the production of pork-meat in the state and popularize pig rearing for meat production, establishment of small pig farms and free distribution of pig units is necessary.

There is a need to set up large pig breeding farms in the state to meet the requirement of improved breed pigs. Pig research and training centre needs to be established for genetic improvement/up gradation of local pig breeds and development of new pig breeds with high genetic quality with the availability of improved breed pigs.

In the above perspective, the following components are proposed under the Pig Development Scheme:-

- 1. Pig Breeding Farm:-** It is proposed to incentivize farmers for establishment of Pig Breeding Farms of improved breed with a capacity of 100 female pigs + 10 male pigs in the private sector. For the purpose of ensuring the availability of germplasm of improved breed, there will be establishment of 100 female pigs + 10 male pigs capacity pig breeding farm in the private sector, by providing 50-60% subsidy to the beneficiaries. Establishment of 5 units every year i.e. 25 units of pig breeding farm in a total of five years. The proposed total project cost of five years for the implementation of this scheme is Rs 793.50 lakh, in which a total grant of Rs 454.00 lakh and others will be provided by the state government. The balance amount of Rs 339.50 lakh will be completed through the contribution of the beneficiaries through self-financing/bank loan.
- 2. Pig Farm:-** In private sector, it is proposed to incentivize farmers for establishment of Pig farms of improved breed with a capacity of 10 female pigs + 1 male pig, by providing 50-60% subsidy to the beneficiaries. Along with this, it is proposed to encourage pig farming by giving training to the selected beneficiaries. 25 units every year i.e. establishment of 125 units pig farm in total five years. The proposed total project cost of five years for the implementation of this scheme is Rs 393.65 lakh, in which a total grant of Rs 222.00 lakh and others will be provided by the state government. The remaining amount of Rs 171.65 lakh will be completed through the contribution of the beneficiaries through self-financing / bank loan.
- 3. Free pig distribution:-** Free distribution of improved breed 2 female + 1 male pig per unit for improving livelihood and nutritional security to marginal and





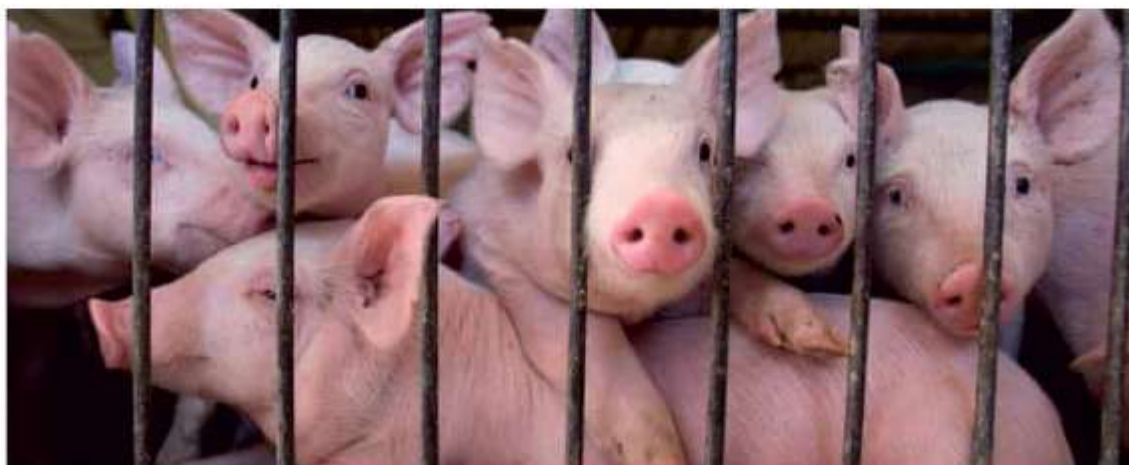
poor families. Pig farming will also be encouraged by giving training to the selected beneficiaries. Free distribution of 2 female + 1 male pig of improved breed per unit per beneficiary (member of SC/ ST) in total 10,000 families in 5 years. Training on pig farming to selected beneficiaries. The proposed total project cost of five years for the implementation of this scheme is Rs 2414.00 lakh.

4. **Swine Research and Training Centre (SR&TC):-** Swine Research and Training Centre will be established and run by Bihar Animal Sciences University, Patna, in which the farm will be established for two different high quality breeds Tamworth x desi (Jharsuk) and Middle White Yorkshire pigs. The proposed total project cost of five years for the implementation of this scheme is Rs.3988.00 lakhs.

Under Pig development scheme, an expenditure of Rs 7078.00 lakh is proposed to be made in five years for the above works.

Summary:- With the implementation of the above scheme, a total of 3,51,000 piglets will be born in five years, due to which the production of pig meat will increase by an estimated 21.06 metric tons, the income of pig farmers will increase, 10,375 families will get direct employment in five years. Genetically improved pig breeds will be available for growth and productivity and pig research and training will be encouraged in Bihar.

Ongoing Schemes:- Under the Centrally Sponsored Scheme National Livestock Mission, assistance is being provided for the establishment of a breeder farm with a minimum of 100 female pigs and 10 male pigs capable of breeding high genetic quality. The Central Government is providing 50% capital subsidy up to Rs.30 lakh towards the capital cost of the project. The total project cost of one unit of this scheme is Rs 50.29 lakh.





Strengthening & Development of Goat Sector in Bihar

Introduction

In Bihar economy, Animal Husbandry along with Agriculture is the main source of income, employment generation, economic continuity, regulation of foreign exchange in rural areas. Along with agriculture, animal husbandry is fully helpful in the action plan of the Fourth Agriculture Road Map (2023-28) in realizing the resolve to double the income of the farmers.

Despite being 4th in goat population in India, there is less population of improved breed goats in Bihar. Bihar lacks organised goat research and farming which is needed to be developed in an organized way. Per capita availability of animal protein is less in Bihar (3.71 kg Vs 11 kg as per ICMR). As a result, there is a need for other sources of income along with agriculture. The number of nondescript goats in Bihar is 70.88 lakh. As a result, there is less gain in animal products per animal and per capita less income. For genetical improvement of nondescript goats, availability of superior male germplasm is needed. There is need of availability of improved breed Buck /Doe in Bihar and training to goat farmers for scientific rearing of goats to get more production in less input.

Achievement in Third Agriculture Road Map (2017-2023)

Scheme Name	Target fixed in 3rd Agriculture Road Map	Target fixed as per amount received	Achievement
Establishment of goat farm in private sector.	5,500	2,915	959
Free distribution of three breedable goat through Jeevika	4,00,000 families	32,929 families	Distribution of 87,105 goats to 29,035 families

Proposed Schemes under fourth Agricultural Road Map.

- Under Scheme for Incentivizing private entrepreneurs/Farmers for establishment of pure bred farm for breed multiplication**, 50 farms each of 500 Doe + 25 Buck capacity and 500 farms each of 100 Doe +05 Buck capacity will be established with proposed subsidy @50% and 60%(for SC/ST). A total sum of Rs. 6277 lakh for subsidy, training and advertisement-extension will be borne by the state Government and a total sum of Rs. 5625.87 lakh will be borne by farmers through self finance or bank loan for 550 farms at the project cost of Rs.85.00 lakh and Rs.13.04 lakh per farm respectively in five years.





2. **Under Scheme for Incentivizing for establishment of goat farm by interested farmers or traditional goat rearers in the private sector**, 2250 Farms each of 20 Doe +01 Buck capacity and 2250 farms each of 40 Doe +02 Buck capacity goat farms will be established with proposed subsidy @50% and 60%(for SC/ST). A total sum of Rs. 10520 lakh for subsidy, training and advertisement-extension will be borne by state Government and a total sum of Rs. 9070.20 lakh will be borne by farmers through self finance or bank loan for 4500 farms at the project cost of Rs.2.42 lakh and Rs. 5.32 lakh per farm respectively in five years.
3. **Under Scheme for Improving livelihood and nutritional security of marginal and disadvantaged poor families**, three breedable goats will be distributed to 04 lakh families with proposed subsidy @80% and 90%(for SC/ST). A total sum of Rs. 53500 lakh for subsidy and training will be borne by state Government and a total sum of Rs. 11555 lakh will be borne by farmers for 04 lakh families at the project cost of Rs.15000 per family in five years.
4. **Scheme for establishment of Goat Research and Training Center at Tekuna, Gaya** with a total project cost of Rs 3881.79 lakh for pure breed farm, goat nutrition, health and management related research and artificial insemination, training, which will be implemented by Bihar Animal Sciences University, Patna.

A total expenditure of Rs 74178.79 lakh is proposed during financial year 2023-28 on various schemes for the strengthening and development of goat sector in the state of Bihar. The availability of funds for the scheme will be ensured under cent percent state scheme /“Atmanirbhar Bihar Ke Saat Nischay-2”.

Ongoing Schemes-

- To promote entrepreneurship in the private sector under the National Livestock Mission under central sector scheme for establishment of 500 goats and 25 goat farms for the availability of improved breeds of goats is implemented in the state of Bihar. Provision of 50 percentage subsidy to the beneficiaries has been made by Govt. Of India.
- Against the target of 800 goat farms, a total of 373 goat farms have been established in Saharsa, Supaul, Madhepura, Purnia and Araria districts at a project cost of Rs. 2 lakh /goat farm, under Bihar Koshi Basin Development Project, assisted through World Bank and 425 goat farms are under construction. 50 percent subsidy is given to the beneficiaries per goat farm.





Summary-

Through above schemes, the germplasm of pure breeds (Buck-8.05 lakh) and (Doe - 8.85 lakh) will be available in five years. Along with this, there will be an additional production of 16.74 lakh in the total number of breedable goats of improved breed and an increase of 103.949 thousand metric tons in total goat meat production. Goat rearing business will directly provide employment to 6000 people improving their social and economic condition and four lakh marginal and poor farmers/goat rearers will get employment and opportunities for economic empowerment through three breedable goat distribution scheme. Through training in goat rearing, goat rearers will get more income in less input doing goat rearing in technical way.





Poultry Development in Bihar

Introduction:

Chicken meat and eggs are good sources of high-quality digestible proteins, minerals and vitamins to balance the human diet. To ensure the availability of low-cost animal protein for human consumption, it is necessary to increase the production of chicken, meat and eggs by promoting layer/broiler poultry farming. About 160 to 180 eggs can be obtained in a year from the hen of low input species (Chebro, Vanaraja, Grampriya, Carry Nirbhik etc.), as well as the male chick gains 2 to 3 kg weight in a short time. The chickens of this species get food from the kitchen waste, due to which it can be reared with less expenditure and less arrangement.

Under the third agricultural road map, schemes for promotion of layer and broiler chicken farms and chick distribution were implemented, in which about four hundred layer / broiler farms were established in private sectors. Subsidy on farm establishment and operation of the scheme for distribution of low input variety chicken has a positive impact on the growth rate of chicken meat and egg production.

At present about 3.06 billion eggs and 97.34 thousand tons of chicken meat are being produced in the state. The state average of egg availability per person per year is 25 eggs and the national average is 90 eggs. The state average and national average of chicken meat availability is 0.77 kg and 3.2 kg per person per year respectively. Keeping in view the target of achieving parity with the national average of availability of eggs and poultry meat per person per year and in the light of ensuring the availability of low cost good quality broiler chicks for broiler farms, it is needful to encourage the establishment of layer farms, broiler farms and broiler breeding farm-cum-hatchery, in the private sector. For this the following schemes are proposed under poultry development in the fourth agriculture roadmap:

(1) Incentivising private entrepreneurs for establishment of different types of farms

- (a) **Establishment of Layer Farm** - Establishment of 700 units of 10000 capacity and 1000 units of 5000 capacity, (total 1700 units) in private sectors, on which 30 percent (SC/ST- 40 percent) subsidy on project cost will be provided to the farm founders. 50 percent subsidy on bank interest for four years will also be provided to the farm owners.
- (b) **Establishment of Broiler Farm** - Establishment of 500 units of 3000 capacity broiler farm in private sectors, on which 30 percent (SC/ST - 50 percent) subsidy of the project cost will be given to the farm founders.
- (c) **Establishment of broiler breeding farm cum hatchery**- Establishment of 50 units of 10000 parent stock capacity broiler breeding farm cum





hatchery in private sectors, on which 30 percent subsidy of project cost will be given to the farm founders.

(2). Strengthening backyard poultry for livelihood and nutritional security of marginal / disadvantaged farmers.

(a) Chick distribution to 2.5 lakh families - Under this scheme, 28-day-old low input variety chicks (45 per family) will be made available to eligible families at subsidized rate, along with a subsidy of Rs.1000 will also be provided for cage/night shelter construction.

(3) Establishment of Poultry Research and Training Centre (PR&TC).

A total expenditure of Rs 164800 lakh is estimated for the implementation of the above proposed schemes, in which a provision of Rs 78300 lakh for grant and other expenditure will be made from the State Scheme/Saat Nischay-2 and the remaining amount will be made available through beneficiary contribution/bank loan.

Ongoing schemes:-

For production and distribution of low input variety chicks, Schemes for strengthening and operation of regional poultry farms and sero-surveillance for avian influenza in poultry will also be implemented, on which an estimated expenditure of Rs 900 lakh is expected.

The following benefits are expected from the implementation of the schemes.

- Additional production of 3.13 billion eggs, 10.5 thousand metric tons of chicken meat and 675 lakh broiler chicks.
- The availability of eggs per person per year in the state will increase from 25 to 50.
- Able to meet about 85 percent of the total demand for broiler chicks.
- Availability of low-cost animal protein in the form of chicken meat and eggs along with an additional source of income will be ensured to the weaker sections of the society.
- Development and propagation of new strain/line of poultry.
- Need based research and training of poultry farmers/officials in the field of poultry.

DPR Title: Road map for Poultry Development in Bihar

Goal: From import to export of poultry meat and egg to other state, and nutritional and economic security of poor and marginal families.

Strategy: Incentivizing private sector to bridge demand supply gap and build their capacity for export.





Interventions:

1. **Incentivising private entrepreneurs/poultry farmers for establishment of different types of farms**
 - a. Layer farms (700 units of 10000 capacity and 1000 units of 5000 capacity total 1700 units).
 - b. Broiler farms (500 units each of 3000 capacity).
 - c. Broiler breeding cum hatchery farms (50 unit each of 10000 parent stock).
2. **Strengthening backyard poultry for livelihood and nutritional security of marginal / disadvantaged farmers.**
 - a. 2.5 lakh families each with a unit of 45 chicks.
3. **Establishment of Poultry Research and Training Centre(PR&TC).**

Output / Outcomes:

1. Additional production of 2.97 billion egg and 10.5 thousand metric ton broiler meat and 675 lakh DOCs.
2. Per capita egg availability in state will increase from 25 to 50.
3. We can fulfil nearly 85% of day-old chick demand of the state (presently only 18%).
4. Development, propagation and dissemination of new strain/lines of poultry.

Financial Target:

Sl no.	Activities	Total units	Unit cost	Total (in lakh Rs.)
1	Layer farm 5000 bird capacity.	1000	48.5 lakhs	56100
	Layer farm 10000 bird capacity.	700	100 lakhs	
2	Broiler farm 3000 bird capacity.	500	10 lakhs	2000
3	Breeding farms,10000 parent bird capacity.	10	350 lakhs	5900
4	Chick Distribution.	2.5 lakh families	Rs.4716/ family	11800
5	Poultry Research and Training Centre (PR&TC)	1	2500 lakh	2500
Total (in lakh Rs)				78300
(Rupees Seven Hundred Eighty Three Crore)				





Strengthening and Development of Infrastructure for improved Veterinary Services

Introduction :- At present, Animal and Fisheries Resources Department, Bihar is providing treatment of animals, vaccination, promotion of departmental schemes and implementation of other schemes etc. through 1137 veterinary hospitals and mobile veterinary hospitals. There is wide ratio of 22000 Livestock unit per veterinary hospital against recommendation of 5000 Livestock unit per Hospital by the National Farmers Commission (Rashtriya Kisaan Aayog). Treatment facilities are made available to animals by organizing camps in disaster like flood/drought and in remote rural areas through 58 mobile ambulatory clinics by the department. At present, only vaccination work is made available at the doorsteps of the farmers by the department. At present, 24x7 treatment facilities are being provided in only 40 sub-division level veterinary hospitals/dispensaries in the state. In the present situation, animal owners have to face the problems (transportation, additional expenses etc.) in bringing their animals to veterinary hospitals.

Institute of Animal Health and Production, Bihar, Patna is the only institute in the state for the diagnosis of animal diseases. At present disease diagnosis at this institute are being carried out by traditional techniques which are time consuming and less specific. At present, for identification of high risk/ zoonotic animal diseases, samples are collected and sent to high level Disease Diagnostic Laboratories in other states.

Status of the Scheme in Third Krishi Road Map (2017-23) :-

In third Agriculture Road Map, Rs. 1000.00 Lakh was proposed for Strengthening of Institute of Animal Health and Production, Bihar, Patna. But due to non-availability of fund, the Scheme could not be executed.

Scheme Proposed under Fourth Krishi Road Map (2023-28) :-

- Operationalization of 534 mobile veterinary units (One MVU per Block) with One Vet., One Veterinary Assistant and One Driver-cum-Attendant. (Arrangement of one mobile veterinary unit for every 08 to 10 panchayats by increasing the number of mobile veterinary units in a phased manner as per the requirement.)
- Services of Para vet at Panchayat level@ one Paravet per Panchayat through outsourcing – 8500 Para vets.
- 24x7 and indoor veterinary services in 101 subdivision level veterinary hospitals.
- Establishment of pathological labs in all 38 district level hospitals. (Establishment of pathological labs at 101 sub-division veterinary hospitals by increasing the number of pathological labs in a phased manner as per the requirement.)





- Provision of mobile app, call center, telemedicine and monitoring at district level.
- Establishment of BSL-2 Lab – For identification/ confirmation of high risk / diseases of zoonotic importance.
- Establishment of advanced disease diagnostic laboratories and strengthening of existing laboratories – For rapid and accurate diagnosis of animal diseases and Surveillance of various animal diseases/ vaccinations possible at the State level.
- Establishment of Emerging Diseases Surveillance Unit – For Surveillance and control of Emerging Disease at the State level.
- Strengthening/ Establishment of animal nutrition laboratory (Feed Testing Laboratory) – For Faster analysis of animal feed with more no of parameters.
- Establishment of training centre – To increase in technical knowledge of veterinarians/para-vets

Budget:-

- For Operationalization of 534 mobile veterinary units. Rs. 60201 Lakhs will be spent in five years.
- For Provision of mobile app, call center, telemedicine and monitoring at district level. Rs. 2641.00 lakh will be spent in five years.
- For arrangements of paravets at panchayat level. Rs. 37710 Lakhs will be spent in five years.
- For training of Paravets and Veterinary Assistants Rs. 6536 Lakhs will be spent in five years.
- For subdivision level veterinary hospitals, indoor treatment facilities etc. Rs. 31132 Lakhs will be spent in five years.
- For Establishment of pathological labs at district level hospitals Rs. 2316 Lakhs will be spent in five years.
- For Establishment of BSL-2 Lab – Rs. 1240.32 Lakhs will be spent in five years.
- For Establishment of Advanced Disease Diagnostic Laboratories and strengthening of existing laboratories – Rs. 1196.84 Lakhs will be spent in five years.
- For Establishment of Emerging Diseases Surveillance Unit –Rs. 181.13 Lakhs will be spent in five years.
- For Strengthening of Animal Nutrition Laboratory (Feed Testing Laboratory) – Rs. 154.82 Lakhs will be spent in five years.
- For Establishment of training centre – Rs. 360.00 Lakhs will be spent in five years.





Fourth Agriculture Roadmap 2023-28



- An amount of Rs. 4912.00 Lakhs has been provided by the Government of India for the purchase of 307 mobile veterinary units in ESVHD under National Livestock Health and Disease Control Programme. For operation of 307 mobile veterinary units the amount of recurring expenditure will be made available in ratio of 60 (Central Share) : 40 (State Share).
- For strengthening of Disease Diagnostic Laboratories at Institute of Animal Health & Production, Bihar, Patna Government of India has provided under ASCAD Scheme administrative approval of an amount of Rs. 27.00 Lakhs as Central Share in ratio of 60 (Central Share) : 40 (State Share) for instrument etc. and amount of Rs. 13.00 Lakhs as central Share (100 percent) for chemicals etc.

Summary :-

- Better availability of veterinary services in the state.
- Treatment facility for additional 310 Lakhs Animals per annum.
- Mortality rate, cost of treatment, production loss and economic loss of farmers will be reduced.
- Emergency veterinary services available nearer to farmer's place.
- Immediate control and containment of Disease during outbreak/epidemics due to proper and timely disease diagnosis.
- Serological and molecular surveillance of high risk / diseases of Zoonotic importance will be done at the state level itself.
- Regular training to veterinary doctors and paravets.





Strengthening Bovine Breed Improvement Program

Background and Introduction

Based on the 20th livestock census, there are 131.35 lakh breedable cattle in the state including 24.98 lakh crossbred cattle, which is 19.10 percent of total breedable cattle in the state. Average milk production through exotic/cross breed cows in state is 5.5 kg per day against the total national milk production of 10 kg per day. To increase the productivity, it is necessary to provide high quality semen and trained artificial insemination services at the doorstep of farmers through artificial insemination workers to improve the breeds of animals. There is need to conserve and development of pure indigenous breed (Bachhaur, Red Purnea, Gir, Sahiwal and Red Sindhi) and to produce progeny of high productivity using quality semen for artificial insemination in indigenous cow of low productivity in the state. All institution related to bovine breeding such as semen station, embryo transplant laboratories, artificial insemination training institute, are not being regulated as a result there is difficulty in implementing activities related to bovine breeding. Private players are doing irregular AI activities, violating Bihar breeding policy 2011. In order to implement Artificial Insemination and Breed Improvement Programme properly in state, strengthening of Bihar Livestock Development Agency (B.L.D.A.), Patna is needed.

Present Status :-

According to the criteria prescribed in the MAITRI (Multi-Purpose Artificial Insemination Technicians in Rural India - MAITRI) scheme of the Government of India, one artificial insemination center should be available per 1000 artificial inseminations. On this basis, a total of 17,199 artificial insemination centers should be initiated in the state of Bihar, against which, only 5,925 centers are operated (viz., COMFED-4168, BAIF-1002 & AHD-755) and there is a need to operate 11,274 more artificial insemination centers against which additional 10,274 new artificial insemination centers with 1,000 trained artificial insemination workers. The coverage of artificial insemination in the state is 19 percent, which requires to be increased. Gokul Gram is established in Haryana cattle breeding Farm, Dumraon under Rashtriya Gokul Mission, GoI for conservation and development of pure indigenous breeds. Presently, Bihar Livestock Development Agency, is working in government quarter.

Necessity :-

- Less AI coverage in Bihar (19%). Vs national (30%)
- Low cross breed population (less than 20%)
- Low milk productivity 5.5 kg Vs National 10 kg per animal per day.
- No organised indigenous bovine conservation and improvement program.
- Unregulated AI services by private players.





Status of Project during Krishi Road Map (2017-2023):-

- 211.74 lakh AI had been done against targeted 205 lakh AI works during Krishi Road Map (2017-2022)

Following four interventions are proposed under fourth Agriculture Road Map (2023-2028):-

- 1. Establishment of self-sustainable mobile artificial insemination centres: -**
 - Training of Artificial insemination workers
 - Increasing the number of AI centres
 - Providing AI services at farmer's doorstep
 - Development of App and call centres for AI service and online supervision.
 - Under this intervention, Rs 22000 lakh is proposed for expenditure in five years
- 2. Conservation and genetic improvement of indigenous breeds: -**
 - Conservation and development of breeding stock of pure indigenous breeds
 - Use of sex sorted semen & IVF technology for breed improvement
 - Open Nucleus breeding scheme for genetic improvement and prevention of Inbreeding.
 - Development of "Management Inventory System" (MIS) for better management of farm activities.
 - Under this intervention, Rs 6400 lakh is proposed for expenditure in five years.
- 3. Enacting Bihar Bovine Breeding Act-2022**
 - Registration, renewal and regulations of Semen Station, Embryo Transfer Lab, AI service provider, AI training institute as per provision.
- 4. Strengthening of Bihar Livestock Development Agency, Patna.**
 - Strengthening of departmental AI centers
 - Construction of new office buildings and Godown
 - Under this intervention, Rs 6200 lakh is proposed for expenditure in five years.
- 5. Establishment of Buffalo Research and Training Centre by BASU, Patna.**
 - Under this intervention, Rs. 5116 lakh is proposed for five years.

Outcomes under DPR:-

- AI coverage increased from 19.0 to 64.0 %.
- 88.98 lakh calves will be produced through 254.24 lakh AI
- 133.47 lakh tons' additional milk may be produced and increase of Rs 40041 crore in rural economy.





Fourth Agriculture Roadmap 2023-28



- 11,274 educated rural youth will get self-employment as an AI Workers.
- App-based AI services ensure easy access to farmer for better animal husbandry services.
- Strengthening of 1312 departmental AI centres
- Establishment of 250 elite breeding stock of five indigenous breeds

(Bachhaur, Red Purnea, Sahiwal, Gir and Red Sindhi).

- Uniformity and quality of breeding services and entities can be standardized.
- Regulating AI services in Bovines as per Bihar Breeding Policy-2011

Budget:-

Sl. No.	Intervention	Financial (In Lakh Rs)		Grand Total
		Central Share	State Share	
1	Establishment of self-sustainable mobile artificial insemination centres	8300	22000	30300
2	Conservation and genetic improvement of indigenous breeds	0	6400	6400
3	Strengthening of Bihar Livestock Development Agency, Patna	0	6200	6200
Total		8300	34600	42900

Constitution of a state level society - Bihar Society for Animal Health Management and Training (B-SAHMAT)

Name of DPR	CONSTITUTION OF A STATE LEVEL SOCIETY - BIHAR SOCIETY FOR ANIMAL HEALTH MANAGEMENT AND TRAINING (B-SAHMAT)
Problem definition and Purpose	• Presently there is a lack of society for smooth implementation of various Schemes/Programmes and capacity building of departmental personnel and livestock rearers. • Lack of Domain experts for implementation, execution and monitoring of schemes. • Delay in implementation of different programmes/schemes due to delayed plan approvals. • Timely implementation of livestock vaccination and continuous availability of medicines in veterinary hospitals is essential.





Name of DPR	CONSTITUTION OF A STATE LEVEL SOCIETY - BIHAR SOCIETY FOR ANIMAL HEALTH MANAGEMENT AND TRAINING (B-SAHMAT)
Problem definition and Purpose	• Implementation of programmes/schemes gets affected due to delay in scheme sanction and release of funds from State/Gol. • Non-availability of funds in time affects timely response to emergencies • Continuous availability of funds and Corpus Fund is essential • Other departments like health already have this arrangement
Intervention	• Constitution of a state level society - Bihar Society for Animal Health Management and Training (B-SAHMAT) in the Animal and Fisheries Resources Department (Animal Husbandry Directorate), Bihar under the Societies Registration Act, 1860, for smooth implementation of schemes/programmes.
Outcome	• Timely initiation and implementation of schemes and smooth fund flow. • Provision of trained manpower, domain experts and Services of reputed consultants as per requirement in the course of formulation of important Acts/Rules/ Policy/ Schemes. • Timely procurement of veterinary medicines/ machines/ equipments, management and maintenance of veterinary hospitals. • Employment of personnel on contractual basis as per requirement for Doorstep Delivery of Veterinary Services and against vacant posts in the department. • Time bound implementation of livestock vaccination programmes as per the vaccination calendar.
Budget	As per decision of Governing body after formation of the society.



Animal Husbandry Information, Extension and Training Schemes

Introduction

Animal Husbandry Information, Dissemination and Training is a key component of the Fourth Agriculture Roadmap which aims to improve animal husbandry dissemination services, enhance farmers' skills and promote technology adoption. In the last 3 agriculture road maps, information and dissemination has not been the focus point for the animal husbandry sector and has been done under non-planning. Skill development has been placed in the third agriculture road map and its achievement has been only 7.1 per cent due to non-availability of training centers. Due to non-setting calendar for training of officers and employees, their capacity development work could not be done as per the target. In the 4th KRM training for livestock farmers has also been proposed by KVK's. After analyzing the issues, an improved implementation strategy is being proposed for the Fourth Agriculture Road Map.

Aim.

The Animal Husbandry Information, Extension and Training Scheme under the Fourth Agriculture Road Map of the Government of Bihar aims to ensure that livestock farmers get timely, relevant and accurate information on modern animal husbandry techniques, information and technologies. There are four major components in these topics:

1. **Awareness generation using Information, Teaching and Communication (IEC) activities, and livestock training** - Use of modern animal husbandry techniques such as Gram-Chaupal, cycle rallies, street plays, lessons for primary and higher school students, farmers' seminars in veterinary colleges, painting on the walls of the department, to promote awareness among livestock farmers through programmes such as animal husbandry competition. The expenditure for the year 2023-24 is Rs 525.61 lakh and Rs. 2628.05 lakh in the next 5 years 2023-2028.
2. **Skilling farmers for livestock entrepreneurship**- The scheme aims to promote entrepreneurship among livestock farmers and youth by imparting skills related to dairy and poultry farming, livestock breeding, artificial insemination and livestock products. This will help farmers to diversify their sources of income and increase their income from self-employment. Bihar Skill Development Mission will play a major role in this scheme. For the year 2023-24, for 3350 trainees Rs 577.22 lakh expenditure and in the next 5 years (2023-2028) for 21750 trainees Rs 4086.10 expenditure are proposed.





3. **Training and capacity building of officers and staff-** The objective of this scheme is to enhance the skills of officers and employees engaged in animal husbandry services. This will be achieved through various training programmes, exposure visits and workshops. The focus will be on improving their knowledge and skills related to modern animal husbandry techniques, disease prevention and control and ICT-based extension services. An expenditure of Rs 95.00 lakh has been proposed for 800 trainees in the year 2023-24 and Rs 475.00 lakh for 4000 trainees in the next 5 years in 2023-2028.
4. **Use of Information and Dissemination Technology (ICT) for seamless communication with livestock farmers-** The objective of the scheme is to leverage Information and Communication Technologies (ICT) to improve the dissemination of animal husbandry extension services. Under this, a media cell will be set up at the state level, mobile app for farmers, use of audio-video and digital media to provide real-time information to the farmer on animal husbandry techniques, disease prevention and control and market prices. This will enable farmers to take appropriate decisions and improve their productivity and profitability. The expenditure for the year 2023-24 is Rs 231.60 lakh and Rs. 437.80 lakh for the next 5 years 2023-2028.

The Animal Husbandry Information, Extension and Training Scheme for the Fourth Agricultural Road Map of the Government of Bihar is a comprehensive programme aimed at improving the livelihood of livestock farmers in Bihar. This scheme will not only provide timely and accurate information to the farmers but, it will also boost their skills and entrepreneurship. The use of information and communication technology will enable seamless communication between farmers and extension officers and improve the expansion of dissemination services. Overall, this scheme will contribute to the sustainable development of animal husbandry sector in Bihar.





Feed and Fodder Development for Livestock in Bihar

Introduction

Based on their traditional knowledge that they have received from generation to generation and one or two food items available in the local area like bran, cake, chunni, grains Green fodder and crop residues like straw, farmers feed their animals according to the season. The amount of fodder and diet given to animals is mostly less or more than their requirements and there is an imbalance of protein, energy or minerals in their diet. Very few farmers feed mineral mixture and salt to their animals on daily basis. Animal gives less milk due to unbalanced diet, production cost is high and health and fertility of the animal are also affected. Therefore, it is necessary to give information about the importance of feeding green fodder to animal owners, the utility of silage in emergency and the importance of ration balancing, as well as checking the quality of animal feed available in the market so that quality animal feed can be available to animal owners.

Achievement of previous Agricultural Road Map -

Under the third agricultural road map, out of total selected 11 fodder nurseries, the work of fodder production and demonstration is being done in 4 fodder nurseries and work is in progress in 7 fodder nurseries.

In the above perspective, the following components are proposed under feed and fodder development for livestock in Bihar:-

1. Farmers plan to make silage.
 2. Availability of fodder seed.
 3. Awareness Generation of balancing feed and fodder.
 4. Regulatory System for Feed Quality and Production (Regulatory Mechanism).
-
1. **Silage:-** Due to limited cultivable land and limited fodder, the health and milking capacity of the animals is getting affected. The requirement of quality fodder is not available throughout the year, especially in drought and floods. The state is producing 6296 MT of silage per year. Under this scheme, 180,000 metric tonnes of silage will be manufactured in five years by distribution of 456,000 silage bags to farmers at 50 percent subsidized rate and 22.80 thousand tonnes of silage will be manufactured in the fifth year by distribution of 200 silage machines. Along with this, 45600 cattle owners will also be given training to make silage. A total of Rs 2728 lakh will be spent in five years for the implementation of this scheme.
 2. **Fodder seed:** - Due to the lack of green fodder and ignorance of the cattle owners about its benefits, expected production of milk is not possible. Along with this, the health of the animals and their productivity period also decreases.





There is a need to reduce the gap between requirement and availability of green fodder in the state. Green fodder seeds will be distributed to 100 farmers per block per year on 80 percent subsidy and cattle owners will be trained and made aware of green fodder. Under this scheme, 2.23 lakh metric tonnes of green fodder will be produced per year. A total of Rs 435 lakh will be spent in five years for the implementation of this scheme.

3. **Awareness Generation of balancing feed and fodder:** - Animal gives less milk due to unbalanced diet, production cost is high and animal's health and reproductive capacity are also affected. Therefore information about ration balancing is essential for farmers, So that by balancing the ration animal owners can feed a balanced diet. Under this scheme, training and encouragement related to green fodder production, silage production and ration balancing will be given to veterinarians and cattle owners at the state level, along with the work of publicity of all the schemes will also be done. As a result the health and productivity of animals will improve and the problem of infertility can be reduced. A total of Rs 381.22 lakh will be spent in five years for the implementation of this scheme.
4. **Regulatory System for Feed Quality and Production (Regulatory Mechanism):-** In order to maintain the production in livestock and the quality of livestock products, it is necessary to give proper quantity and quality feed to the animals. It is necessary to check the quality of animal feed available in the market so that quality animal feed can be available to the animal owners. For this work, regulatory mechanism will be developed at the state level.

Summary: - With the implementation of these schemes, the gap between the lack of green fodder and silage in the state can be reduced and the livestock farmers will be able to get information related to balanced diet and fodder.

Ongoing Scheme: - Fodder Production and Demonstration plan:-

Under this scheme, new varieties of fodder production and demonstration will be done in different fodder nursery at the block level. Animal owners will get information about new varieties of animal fodder. Under this component, there is also a proposal of wire fencing of fodder nursery available in the blocks and to take the services of watchman on contract basis. Under the third agricultural road map, the work of fodder production and demonstration is being done in 4 fodder nurseries. A total of Rs 564.00 lakh will be spent in five years for the implementation of this scheme.

DPR:- Feed and fodder development for livestock in Bihar

(A) Problem Definition and Purpose :-

- Deficit in Silage Requirement by 95%





- Deficit of Green Fodder by 82.8%
- The quality fodder requirement are not available through out the year, specially in drought and flood conditions and only limited production of silage is there in the state.
- Availability of quality fodder seed is a major issue.
- Farmers are not aware of ration balancing.
- No regulatory mechanism to check the quality of animal feed.

(B) Interventions/Activities

S. No.	Intervention	Major Activity
1	1. Scheme for Silage Making by the Farmers (a) Distribution of Silage Making Bags (b) Providing Silage Making Machine	• Distribution of Silage Bag at Subsidized rates • Silage Making Training to farmers • Installation of silage machines on Subsidised rate • Silage machine operation training to farmers
2	Fodder Seed Availability	• Distribution of Green Fodder seed on 80% subsidy to 100 farmers per block per year
3	Awareness generation on balancing feed and fodder	• Trainer's Training • Silage Making Training • Green Fodder Production Training • Ration Balancing Training
4	Regulatory Mechanism for Feed Quality and Production	• Standardization of feed. • Ban on sub-standard animal feed. • Maintenance of feed quality as per BIS standard

(C) Outcome

- 40560 MT of silage will be produced per year.
- Improved health, fertility and productivity of animals
- Reduced Input cost of animal production.
- 53,400 Fodder Seed kits/yr
- 53,400 Farmers/yr will be benefited
- Green Fodder production per year -2.23 lakh MT.
- 53,400 Farmers trained/yr in Fodder production and Ration Balancing.





(D) Budget

A. Scheme for Silage making by the Farmers	2728.00 Lakh
B. Fodder seed Distribution	435.20 Lakh
C. Awareness generation of balancing feed and fodder	381.22 Lakh
Total-	3544.42 Lakh

Ongoing Schemes under Agriculture Road Map in the year 2023-28

1. Livestock Health Protection Programme.

Vaccination programmes are being conducted under different components of centrally sponsored scheme National Livestock Health and Disease Control Programme (on the basis of central share 100% central share 60%: state share 40%), under which vaccination drives are being carried out every year for protection of livestock against various contagious diseases like - HS, BQ, FMD, PPR, Brucellosis etc. under "Pashu Swasthya Raksha Pakhwara". Vaccination of 3551.85 lakh livestock will be done under Livestock Health Protection Programme for the protection of livestock health under Agriculture Road Map (20123-28). Expenditure of Rs. 18440.00 lakh will be done as (central share 100%, central share 60%:state share 40%) and for honorarium of private vaccinators under Livestock Health Protection Programme. For better health and production of animals under Agriculture Road Map (20123-28), deworming will be done twice every year. A total of Rs 34083.00 lakh will be Expenditure on internal deworming of 960.00 lakh animals. To prevent infertility in animals under Agriculture Road Map (20123-28), A total of Rs 1950.00 lakh will be Expenditure on organizing a total of 11370 animal infertility prevention camps.

2. Construction and strengthening of veterinary hospitals - The buildings of working veterinary hospitals are being constructed and strengthened. A total of Rs 57816.00 lakh will be expenditure on the construction and strengthening of new buildings of 460 veterinary hospitals during the period of Agriculture Road Map (2023-28).

3. Scheme of Veterinary Services and Animal Health -

Under this scheme expenditure will be done for payment of monthly honorarium to already employed and to be employed Touring Veterinary Officers (on contractual basis), provision of life saving veterinary medicines (which is to be distributed free of cost), equipments and instruments in all the Veterinary dispensaries and hospitals in the state, Ring Vaccination programme of livestock as per requirement, payment of monthly honorarium to 589 Data entry operators working in the department through outsourcing from Beltron alongwith strengthening of National Animal Disease Reporting System (NADRS), provision for fuel and maintenance, honorarium to drivers &





medicines for Ambulatory vans, provision for fuel for private motorcycles and recharge coupons for private mobiles of veterinary doctors posted in veterinary dispensaries with a view to strengthen veterinary services and to provide veterinary services at the door-step of livestock owner. Expenditure of Rs. 78445.00 lakh will be done for implementation of the abovementioned components under Scheme of Veterinary Services and Animal Health.

4. Goshala Development Scheme -

There are 86 registered goshalas in the state, out of which maintenance and propagation of more than 10 helpless cattle is being done by 50 goshalas. Grant-in-aid will be provided to goshalas of the state for their strengthening and development as model goshala. The grant-in-aid will be utilized for modernization of goshalas, purchase, conservation and propagation of indigenous cattle, infrastructure development, establishment of bio-gas plant, vermi compost production and development of fodder production centre. Grant-in-aid @ Rs. 50.00 lakh each goshala will be provided to functional goshalas of the state under Agriculture Road Map (2023-28). Expenditure of Rs. 2500.00 lakh will be done under Goshala Development Scheme.

5. Fodder production and demonstration scheme -

Production and demonstration of new varieties of fodder will be done under this scheme on the land of departmental fodder nursery situated at block level. As a result livestock rearers will get knowledge about new varieties of fodder crops. Fodder production and demonstration will be done on 198 acre land, expenditure of Rs. 564.00 lakh will be done for the above purpose under Agriculture Road Map (2023-28).





Fourth Agriculture Roadmap 2023-28



Agriculture Road Map 2023-28 - Physical and Financial Targets

Sl. No.	Name of the Scheme/component	Physical (in units) and Financial (in lakh Rs.) Targets					
		2023-24		2024-25		2025-26	
		Physical	Financial	Physical	Financial	Physical	Financial
1	Strengthening and development of veterinary services and disease diagnostic laboratories.						
(A)	Mobile Veterinary Unit	534	13,791.00	-	11,068.00	-	11,068.00
(B)	Provision of Mobile app, Call Centre, Telemedicine, monitoring at District Level	1	563.00	-	478.00	-	478.00
(C)	Para vet at Panchayat level	8,500	7,800.00	-	6,755.00	-	6,755.00
(D)	Training of Para-vets & Veterinary Assistant	9337	5,132.00	600	335.00	600	335.00
(E)	24x7 Treatment facilities, Indoor, etc at Sub-division Level Veterinary Hospitals	101	10,118.00	-	4,991.00	-	4,991.00
(F)	Facility for Pathological Examination at District Level	38	714.00	-	384.00	-	384.00
(G)	Establishment and Strengthening of development of BSL-2 Laboratory, Advance Disease Diagnostic Laboratory, Feed Testing Laboratory, Emerging Diseases Surveillance Unit	1	1,333.00	-	405.00	-	305.00

Fourth Agriculture Roadmap 2023-28





Fourth Agriculture Roadmap 2023-28



Sl. No.	Name of the Scheme / component	Physical (in units) and Financial (in lakh Rs.) Targets					
		2026-27		2027-28		Total 2023-28	
		Physical	Financial	Physical	Financial	Physical	Financial
1	Strengthening and development of veterinary services and disease diagnostic laboratories.						
(A)	Mobile Veterinary Unit	-	12,137.00	-	12,137.00	534	60,201.00
(B)	Provision of Mobile app, Call Centre, Telemedicine, monitoring at District Level	-	561.00	-	561.00	1	2,641.00
(C)	Para vet at Panchayat level	-	8,200.00	-	8,200.00	8,500	37,710.00
(D)	Training of Para-vets & Veterinary Assistant	600	367.00	600	367.00	11737	6,536.00
(E)	24x7 Treatment facilities, Indoor, etc at Sub-division Level Veterinary Hospitals	-	5,516.00	-	5,516.00	101	31,132.00
(F)	Facility for Pathological Examination at District Level	-	417.00	-	417.00	38	2316.00
(G)	Establishment and Strengthening of development of BSL-2 Laboratory, Advance Disease Diagnostic Laboratory, Feed Testing Laboratory, Emerging Diseases Surveillance Unit	-	349.00	-	381.00	1	2,773.00



Fourth Agriculture Roadmap 2023-28



Sl. No.	Name of the Scheme/component	Physical (in units) and Financial (in lakh Rs.) Targets					
		2023-24		2024-25		2025-26	
		Physical	Financial	Physical	Financial	Physical	Financial
(H)	Establishment of Training Centre for Veterinarians/Para-vets	1	160.00	-	58.00	-	42.00
	Total		39,611.00		24,474.00		24,358.00
2	Strengthening Bovine Breed Improvement Program						
(A)	Artificial insemination in Livestock	50 lakh		62 lakh		80 lakh	
(B)	Establishment of self-Sustainable mobile artificial insemination centers	4774	2,975.00	5500	5,635.00	-	4,665.00
(C)	Strengthening and Functional operations of Gokul Gram, Dumraon	1	2,500.00	-	1,800.00	-	825.00
(D)	Implementation of Bovine breeding Regulation Act-2022	1	-	-	-	-	-





Fourth Agriculture Roadmap 2023-28



Sl. No.	Name of the Scheme/component	Physical (in units) and Financial (in lakh Rs.) Targets					
		2026-27		2027-28		Total 2023-28	
		Physical	Financial	Physical	Financial	Physical	Financial
(H)	Establishment of Training Centre for Veterinarians/Para-vets	-	48.00	-	52.00	1	360.00
	Total		27,595.00		27,631.00	1	1,43,669.00
2	Strengthening Bovine Breed Improvement Program						
(A)	Artificial insemination in Livestock	104 lakh		130 lakh		426 lakh	
(B)	Establishment of self-Sustainable mobile artificial insemination centers	-	4,263.00	-	4,488.00	10274	22,026.00
(C)	Strengthening and Functional operations of Gokul Gram, Dumraon	-	622.00	-	653.00	1	6,400.00
(D)	Implementation of Bovine breeding Regulation Act-2022	-	-	-	-	1	-



Fourth Agriculture Roadmap 2023-28



Sl. No.	Name of the Scheme/component	Physical (in units) and Financial (in lakh Rs.) Targets					
		2023-24		2024-25		2025-26	
		Physical	Financial	Physical	Financial	Physical	Financial
(E)	Strengthening of Bihar Livestock Development Agency	1	1,612.00	-	1,508.00	-	984.00
	Total (Bovine Breed Improvement Program)		7,087.00	-	8,943.00	-	6,474.00
3	Poultry Development Scheme						
(A)	Establishment of Layer Poultry Farm (5000 capacity)	200	3,923.00	200	3,923.00	200	4,315.00
(B)	Establishment of Layer Poultry Farm (10000 capacity)	140	5,664.00	140	5,664.00	140	6,230.00
(C)	Establishment of Broiler breeding -cum- hatchery Farm	10	1,095.00	10	1,095.00	10	1,200.00
(D)	Chicks distribution	50,000 Family	2,180.00	50,000 Family	2,180.00	50,000 Family	2,398.00
(E)	Construction of infrastructure of Broiler Poultry Farm (3000 capacity)	100	370.00	100	370.00	100	406.00
(F)	Establishment of Centre of Excellence for Poultry Research and Training.	1	553.00	-	596.00	-	411.00
(G)	Training, Human resources etc.	-	782.00	-	782.00	-	863.00
	Total(Poultry Development Scheme)		14,567.00	-	14,610.00		15,823.00

Fourth Agriculture Roadmap 2023-28





Sl. No.	Name of the Scheme/component	Physical (in units) and Financial (in lakh Rs.) Targets					
		2026-27		2027-28		Total 2023-28	
		Physical	Financial	Physical	Financial	Physical	Financial
(E)	Strengthening of Bihar Livestock Development Agency	-	1,028.00	-	1,025.00	1	6,157.00
	Total (Bovine Breed Improvement Program)	-	5,913.00	-	6,166.00		34,583.00
3	Poultry Development Scheme						
(A)	Establishment of Layer Poultry Farm (5000 capacity)	200	4,315.00	200	4,746.00	1000	21,222.00
(B)	Establishment of Layer Poultry Farm (10000 capacity)	140	6,230.00	140	6,853.00	700	30,641.00
(C)	Establishment of Broiler breeding -cum- hatchery Farm	10	1,200.00	10	1,310.00	50	5,900.00
(D)	Chicks distribution	50,000 Family	2,398.00	50,000 Family	2,644.00	2,50,000 Family	11,800.00
(E)	Construction of infrastructure of Broiler Poultry Farm (3000 capacity)	100	406.00	100	448.00	500	2,000.00
(F)	Establishment of Centre of Excellence for Poultry Research and Training.	-	452.00	-	459.00	1	2,471.00
(G)	Training , Human resources etc.	-	863.00	-	947.00	-	4,237.00
	Total(Poultry Development Scheme)		15,864.00		17,407.00	-	78,271.00



Fourth Agriculture Roadmap 2023-28



Sl. No.	Name of the Scheme/component	Physical (in units) and Financial (in lakh Rs.) Targets					
		2023-24		2024-25		2025-26	
		Physical	Financial	Physical	Financial	Physical	Financial
4	Goat Development Scheme						
(A)	Establishment of Goat farm (20+1 capacity)	450	630.00	450	630.00	450	693.00
(B)	Establishment of Goat farm (40+2 capacity)	450	1,315.00	450	1,315.00	450	1,447.00
(C)	Establishment of Goat farm (100+5 capacity)	100	717.00	100	717.00	100	788.00
(D)	Establishment of Goat farm (500+25 capacity)	10	444.00	10	444.00	10	488.00
(E)	Goat distribution scheme	60,000 Family	7,543.00	70,000 Family	8,784.00	80,000 Family	11,026.00
(F)	Establishment of Goat Breeding, Research and Training Institute	1	1,161.00	-	1,266.00	-	506.00
	Total(Goat Development Scheme)		11,810.00		13,156.00		14,948.00
5	Pig Development Scheme						
(A)	Establishment of Pig Breeding farm (100Female(Sow) +10Male(Boar) capacity)	05	85.00	05	85.00	05	92.00
(B)	Establishment of Pig farm (10Female(Sow) +1Male(Boar) capacity)	25	41.00	25	41.00	25	45.00

Fourth Agriculture Roadmap 2023-28





Fourth Agriculture Roadmap 2023-28



Sl. No.	Name of the Scheme/component	Physical (in units) and Financial (in lakh Rs.) Targets					
		2026-27		2027-28		Total 2023-28	
		Physical	Financial	Physical	Financial	Physical	Financial
4	Goat Development Scheme						
(A)	Establishment of Goat farm (20+1 capacity)	450	693.00	450	760.00	2250	3,406.00
(B)	Establishment of Goat farm (40+2 capacity)	450	1447.00	450	1,590.00	2250	7,114.00
(C)	Establishment of Goat farm (100+5 capacity)	100	789.00	100	864.00	500	3,875.00
(D)	Establishment of Goat farm (500+25 capacity)	10	488.00	10	538.00	50	2,402.00
(E)	Goat distribution scheme	90,000 Family	12,391.00	1,00,000 Family	13,756.00	4,00,000 Family	53,500.00
(F)	Establishment of Goat Breeding, Research and Training Institute	-	465.00	-	484.00	1	3,882.00
	Total(Goat Development Scheme)		16,273.00		17,992.00		74,179.00
5	Pig Development Scheme						
(A)	Establishment of Pig Breeding farm (100Female(Sow) +10Male(Boar) capacity)	05	92.00	05	100.00	25	454.00
(B)	Establishment of Pig farm (10Female(Sow) +1Male(Boar) capacity)	25	45.00	25	50.00	125	222.00



Fourth Agriculture Roadmap 2023-28



Sl. No.	Name of the Scheme/component	Physical (in units) and Financial (in lakh Rs.) Targets					
		2023-24		2024-25		2025-26	
		Physical	Financial	Physical	Financial	Physical	Financial
(C)	Free distribution of Pig (2Female(Sow) + 1Male(Boar))	2,000	446.00	2,000	446.00	2,000	491.00
(D)	Establishment of Pig Breeding, Research and Training Institute	01	1,217.00	-	1,294.00	-	517.00
	Total(Pig Development Scheme)		1,789.00		1,866.00		1,145.00
6	Training and Extension Scheme						
(A)	Information, Education and Communication (IEC) activities, Awareness Generation, and Training of Farmer	-	525.61	-	525.61		525.61
(B)	Skilling farmers for Livestock Entrepreneurship Development	3,350	577.22	3,850	679.22	4350	817.22
(C)	Training and Capacity Building of Officers and Staff of the Department.	800	95.00	800	95.00	800	95.00
(D)	ICT in Livestock Extension System for Seamless Communication with Livestock farmers		231.60		51.30		51.30
	Total(Training and Extension Scheme)		1,429.43		1,369.13		1,489.13

Fourth Agriculture Roadmap 2023-28





Fourth Agriculture Roadmap 2023-28



Sl. No.	Name of the Scheme/component	Physical (in units) and Financial (in lakh Rs.) Targets					
		2026-27		2027-28		Total 2023-28	
		Physical	Financial	Physical	Financial	Physical	Financial
(C)	Free distribution of Pig (2Female(Sow) + 1Male(Boar))	2,000	491.00	2,000	540.00	10,000	2,414.00
(D)	Establishment of Pig Breeding, Research and Training Institute	-	469.00	-	491.00	01	3,988.00
	Total(Pig Development Scheme)		1,097.00		1,181.00		7,078.00
6	Training and Extension Scheme						
(A)	Information, Education and Communication (IEC) activities, Awareness Generation, and Training of Farmer		525.61		525.61		2,628.05
(B)	Skilling farmers for Livestock Entrepreneurship Development	4,850	937.22	5,350	1,057.22	21,750	4,086.10
(C)	Training and Capacity Building of Officers and Staff of the Department.	800	95.00	800	95.00	4,000	475.00
(D)	ICT in Livestock Extension System for Seamless Communication with Livestock farmers		51.30		52.30	-	437.80
	Total(Training and Extension Scheme)		1,609.13		1,730.13	-	7,626.95



Sl. No.	Name of the Scheme/component	Physical (in units) and Financial (in lakh Rs.) Targets					
		2023-24		2024-25		2025-26	
		Physical	Financial	Physical	Financial	Physical	Financial
7	Scheme for Feed and fodder development for livestock						
(A)	Silage Making	91,240	546.00	91,240	546.00	91,240	546.00
(B)	Fodder Seed Distribution	106.8 Ton	87.00	106.8 Ton	87.00	106.8 Ton	87.00
(C)	Awareness Generation of balancing feed and fodder	1107	82.00	1068	73.00	1107	82.00
	Total(Feed and fodder development Scheme)		715.00		706.00		715.00
8.	CONSTITUTION OF A STATE LEVEL SOCIETY						
(A)	Bihar Society of Animal Health Management and Training (B-SAHMAT)	1	-	-	-	-	-
	Grand Total (1+2+3+4+5+6+7+8)		77,008.43		65,124.13		64,952.13
	Regular Scheme						
1	Livestock Health Protection Programme						
(A)	HS & BQ Combined Vaccination	192 lakh	2,300.00	192 lakh	2,300.00	192 lakh	2,530.00
(B)	FMD Vaccination - First Phase	192 lakh	384.00	192 lakh	384.00	192 lakh	422.00



Fourth Agriculture Roadmap 2023-28



Sl. No.	Name of the Scheme/component	Physical (in units) and Financial (in lakh Rs.) Targets					
		2026-27		2027-28		Total 2023-28	
		Physical	Financial	Physical	Financial	Physical	Financial
7	Scheme for Feed and fodder development for livestock						
(A)	Silage Making	91,240	546.00	91,240	546.00	4,56,200	2,730.00
(B)	Fodder Seed Distribution	106.8 Ton	87.00	106.8 Ton	87.00	534	435.00
(C)	Awareness Generation of balancing feed and fodder	1068	73.00	1068	73.00	5418	383.00
	Total(Feed and fodder development Scheme)		706.00		706.00	-	3,548.00
8.	CONSTITUTION OF A STATE LEVEL SOCIETY						
(A)	Bihar Society of Animal Health Management and Training (B-SAHMAT)	-	-	-	-	1	-
	Grand Total (1+2+3+4+5+6+7+8)		69,057.13		72,813.13		3,48,954.95
Regular Scheme							
1	Livestock Health Protection Programme						
(A)	HS & BQ Combined Vaccination	192 lakh	2,530.00	192 lakh	2,780.00	960 lakh	12,440.00
(B)	FMD Vaccination - First Phase	192 lakh	422.00	192 lakh	460.00	960 lakh	2,072.00



Fourth Agriculture Roadmap 2023-28



Sl. No.	Name of the Scheme/component	Physical (in units) and Financial (in lakh Rs.) Targets					
		2023-24		2024-25		2025-26	
		Physical	Financial	Physical	Financial	Physical	Financial
(C)	FMD Vaccination - Second Phase	192 lakh	384.00	192 lakh	384.00	192 lakh	422.00
(D)	PPR Vaccination	110 lakh	220.00	110 lakh	220.00	110 lakh	242.00
(E)	Brucellosis Vaccination	24.37 lakh	122.00	24.37 lakh	122.00	24.37 lakh	134.00
(F)	Deworming in Animals (two times in a year)	192 lakh	6,300.00	192 lakh	6,300.00	192 lakh	6,930.00
(G)	Infertility Prevention camp	2274	350.00	2274	350.00	2274	400.00
	Total(Livestock Health Protection Programme)	902.37 lakh	10,060.00	902.37 lakh	10,060.00	902.37 lakh	11,080.00
2	Construction and strengthening of veterinary hospitals	90	9,900.00	90	9,900.00	90	11,880.00
3	Scheme of Veterinary Services and Animal Health	-	14,500.00	-	14,500.00	-	15,950.00
4	Scheme for strengthening & operation of Regional poultry farms and Avian Influenza Sero Surveillance	-	180.00	-	180.00	-	180.00
5	Goshala Development Scheme	10	500.00	10	500.00	10	500.00
6	Fodder production and demonstration scheme	28 Acre	92.00	34 Acre	104.00	40 Acre	116.00
	Grand Total		1,12,240.43		1,00,368.13		1,04,658.13

Fourth Agriculture Roadmap 2023-28





Fourth Agriculture Roadmap 2023-28



Sl. No.	Name of the Scheme/component	Physical (in units) and Financial (in lakh Rs.) Targets					
		2026-27		2027-28		Total 2023-28	
		Physical	Financial	Physical	Financial	Physical	Financial
(C)	FMD Vaccination - Second Phase	192 lakh	422.00	192 lakh	460.00	960 lakh	2,072.00
(D)	PPR Vaccination	110 lakh	242.00	110 lakh	270.00	550 lakh	1,194.00
(E)	Brucellosis Vaccination	24.37 lakh	134.00	24.37 lakh	150.00	121.85 lakh	662.00
(F)	Deworming in Animals (two times in a year)	192 lakh	6,930.00	192 lakh	7,623.00	960 lakh	34,083.00
(G)	Infertility Prevention camp	2274	400.00	2274	450.00	11,370	1,950.00
	Total(Livestock Health Protection Programme)	902.37 lakh	11,080.00	902.37 lakh	12,193.00	4511.85 lakh	54,473.00
2	Construction and strengthening of veterinary hospitals	90	11,880.00	100	14,256.00	460	57,816.00
3	Scheme of Veterinary Services and Animal Health	-	15,950.00	-	17,545.00	-	78,445.00
4	Scheme for strengthening & operation of Regional poultry farms and Avian Influenza Sero Surveillance	-	180.00	-	180.00	-	900.00
5	Goshala Development Scheme	10	500.00	10	500.00	50	2,500.00
6	Fodder production and demonstration scheme	46 Acre	128.00	50 Acre	124.00	198 Acre	564.00
	Grand Total		1,08,775.13		1,17,611.13		5,43,652.95



Dairy Sector

Background:-

Dairy is an important component of rural economy in Bihar. The State Government, during last Road Map had made arrangements for animal health, vaccination, increasing the numbers of milch cattle and simultaneously to pay better price to milk producers, made provisions for enhancing the number of dairy plants so that all the milk coming in the co-operative sector is processed and made available to consumers. In spite of flood and Corona, the total milk production of the State which was 87.10 lakh tonnes in 2016-17, reached 115.02 lakh tonnes in 2020-21. During this period the average national growth in milk production was 26.94% whereas in Bihar it was 32.04%. This growth in milk production is also evident in per capita availability of milk which reached 300 gms per person per day in 2020-21 from 229 gms just before the period of third Agriculture Road Map. To continue this growth, Road Map for 2023-28 has to play an important role. Bihar was at 9th position amongst States in milk production and as per 2020-21, now it is at 8th position.

Co-operative sector is playing an important role in the growth of dairy sector. Establishment of co-operative societies in the villages for the sale of milk and remunerative prices, good quality cattlefeed for the milch cattle, mineral mixture, artificial insemination services, fodder seed production and distribution, supply of hygienic milk as per standards and supply of milk products are the key activities of cooperative network.

Achievements of previous Road Maps:-

Particulars	Road Map				
	Before (2007-08)	First (2008-12)	Second (2012-17)	Third (2017-23)	
	Achiev.	Achiev.	Achiev.	Target	Achiev.
Dairy Co-operatives (Nos.)	6585	11000	20691	28191	27816
Women Dairy Co-operatives(Nos)	870	1196	2163	4788	4495
Milk Procurement(Lakh kg/day)	4.79	11.00	15.36	25.98	16.05
Milk Sale (Lakh ltr/day)	5.25	8.25	13.45	21.66	17.77
Dairy Plant Capacity(Lakh ltr/day)	8.45	10.60	25.60	50.70	40.55

*upto February,2023





Constraints in achieving targets of 2017-23 Road Map:

- Funds not available as per target
- Shortage of skilled manpower for dairy development
- Availability of land for establishment of dairy plants/multiple tenders
- Non cooperation of banks in achieving targets of Samagra Gavya Vikas Yojna
- Flood and Corona pandemic

Vision

1. Making dairy cooperatives as choice of milk producers for sale of milk and reaching among top 5 milk federations of the country
2. Round the year availability of fodder for milch cattle, reducing ration cost of milch cattle to increase productivity keeping health of milch cattle intact so that dairy farming can be profitable.
3. Reach of marketing network of Sudha to village level, establishing Sudha at national level by expanding it to other states apart from Bihar and Jharkhand and, export of Sudha products
4. Ensuring quality milk production, establishing structured marketing network and regular upgrade, making milk producers financially self sufficient and to provide quality milk products at reasonable price to consumers, upgrading plant infrastructure along with technology
5. Increasing milk cattle population of the State, special scheme for indigenous breed of milch animals and trainings

Strategy

For the economic development of rural milk producer's of Bihar as well as health of consumers, development of different streams for income generation will be done under Fourth Agriculture Road Map in the dairy sector by inclusion of following which will increase the comparative GDP of the State:-

- (a) Establishment of dairy co-operatives in villages which have not yet been covered in dairy cooperative network for marketing of milk and making technical inputs available to the milk producers in the village itself and training of milk producer's and functionaries
- (b) Establishment of Feed and Fodder Research Station, development of fodder varieties suitable for the Agro-climate of Bihar, arrangement of dry fodder for the milch cattle, green fodder production and conservation, reduction of cost of feeding through Ration Balancing Programme
- (c) Making milk and milk products available in all the blocks and panchayats of the State, improvement in packaging, establishment of cold chain and export of Sudha products





- (d) Establishment of new dairy plant, Strengthening of dairy plants, establishment of new packing machines and establishing automatic milk product manufacturing units.
- (e) Increase in number of milch cattle and training of farmers

Convergence

To cover the entire state alongwith covering all groups of milk producers under the schemes of dairy development directorates and department will work to implement the proposed schemes. The following organisations will mainly implement the schemes proposed under fourth Krishi Road Map:-

- Bihar Animal Sciences University
- Animal Husbandry Directorate
- Dairy Development Directorate
- Bihar State Milk Co-operative Federation Ltd.

Apart from the proposed schemes, the dairy sector will get benefits of animal health, vaccination, AI program of of the Animal Husbandry Directorate by which animals will remain healthy and will give better production

Activity, Output and Outcome

Under the scheme of expansion of dairy cooperative network avenue for sale of milk and availability of inputs, improving health and productivity of bovines by implementation of animal nutrition programs which helps in timely conception, ensuring sale of milk and milk products by market access, processing of milk and production of milk products as per demands of markets has been taken up. Summary of DPR is as below:

D.P.R. Components	Activities	Output	Outcome
Milk Procurement	• Establishment of dairy Co-operatives, establishment of automatic milk collection units, subsidy on milk during summer months	• Establishment of 5750 new dairy co-operatives in the State • Establishment of 31000 automatic milk collection units • 25 centers for collection of A-2 Cow Milk	• Avenue in the village itself for sale of milk to about 1.75 lakh milk producers • Testing of milk and computation of milk value in the presence of milk producer • Support by subsidy in summer months when milk production is affected • About double rate for A-2 cow milk



D.P.R. Components	Activities	Output	Outcome
		• Training of 64900 milk producers • Revival of 4500 dairy co-operatives	• Awareness of milk producer's about scientific techniques of milk production and enhancement of management skills
Animal Nutrition	• Establishment of Feed and Fodder Research Centre • Arrangement of dry fodder in fodder deficit areas • Production of green fodder seed in the State • Increase in production of green fodder • Fodder conservation in form of Silage	• Development of fodder varieties suitable for Bihar • Collection and storage of 19000 MTs of dry fodder • Distribution of 12000 MTs of fodder seed • Distribution of 267000 Mini Kits • Construction of 218 Silage production centres	• Control of dry fodder rate and availability • Increase in income of farmers • Reduction in cost of feeding cattle, increase in productivity • Availability of green fodder in summer months
Milk Marketing	• Strengthening of Retail marketing network • Establishment of Export Cell • Business consultancy and market survey • Marketing Management Software • Capacity expansion of manpower	• Increase in sale of packaged milk from 17.5 lakh lts to 27 lakh lts • Increase in sale of milk products from 60 thousand MTs to 180 thousand MTs • Increase in number of retailers from 28000 to 56500 • Increase in turnover from 4500 cr to 8600 cr	• Availability of milk and milk products upto Panchyat level • Expansion of Sudha marketing network in other States • Export of COMFED's products • Direct and indirect employment to 30000 persons





Fourth Agriculture Roadmap 2023-28



D.P.R. Components	Activities	Output	Outcome
Milk Processing	- Establishment of new dairy plant - Establishment of automatic milk product plants - Strengthening of old dairy plants	- Availability of milk processing facility to a large geographical area - Production of quality milk products - Reduction in operational costs - Reduction in production cost due to Parali based Boiler	- Support to milk procurement - Direct and indirect employment generation - Consistent quality of milk products - Bonus to milk producers on profit - Reduction in processing cost - Timely supply of increased demand - Increase in shelf life - Help in preserving climate
Establishment of Dairy Farms and Training	- Subsidy on establishment of dairy farms of milch cattle/heifer on bank loan/own fund - Arrangement of Free of cost training to all catagories of farmers/cattle owners/women in dairy science of dairy business dairy in reputed training institutes within and outside State	- Increase of 1,44,632 in cattle population of State out of which 23642 cattle will of indigenous breed - In 4th Krishi Road Map during 2023-28, free of cost training will be provided to 25896 cattle owners within the State and to 6840 cattle owners outside the State i.e. free of cost training to 32736 cattle owners.	- Increase in milk production of the State. - Additional employment will be generated - Meeting minimum requirement of nutritional requirements in the form of milk and milk products - Knowledge about better management of milch cattle and enhancing milk production





Fourth Agriculture Roadmap 2023-28



Physical Targets:-

Particulars	Third Road Map (2017-23)	4th Road Map
	Achievement	Target
Dairy Co-operatives (Nos.)	27816	33566
Women Dairy Co-operatives(Nos)	4495	6220
Milk Procurement(Lakh kg/day)	16.05	27.00
Milk Sale (Lakh ltr/day)	17.77	27.00
Dairy Plant Capacity(Lakh ltr/day)	40.55	51.00

*upto February, 2023

Financial Target:-

No.	Particulars	Total Budget (in lakh Rs)	State Expenditure (in lakh Rs)
01	Milk Procurement	85802	79860
02	Animal Nutrition	26005	17165
03	Milk Marketing	58760	49573
04	Milk Processing	41980	41980
05	Establishment of Dairy Farms and Training	199836	86298
	Total	412383	274876





Fisheries Sector

Background

Bihar has abundance of various types of large waterbodies like rivers, canals, reservoirs, Oxbow lakes, wetlands (chaurs) and ponds/tanks. Fishing is a traditional occupation in rural areas involving skilled and unskilled human resources. In spite of having vast water resources with huge potential, the difference between present demand and production reflects the contradiction of fisheries production potential. The annual demand of fish production in the State is 8.02 lakh metric tonnes, against which the current fish production is 7.62 lakh metric tonnes (2021-22).

Traditional fish farming, lack of skilled and professional manpower, lack of production and utilization of fish seed and feed, weak extension system, calamities like flood and drought, multi-ownership of water-bodies, social differences (such as ownership and partnership disputes, poaching of fish, poisoning), siltation in water bodies, etc. are the major obstacles to the fisheries development. Many advanced techniques are available for the expansion of aquaculture through scientific and modern management, through which increase in production and productivity is possible. With improved fisheries, along with increase in fish production and increase in the income of farmers, additional gainful employment for the fishermen community and cheap protein will be available. Development of fisheries will ensure livelihood and income security in rural areas. In the above perspective, technology-based management of the fisheries sector under the proposed Agricultural Road Map, through ecosystem based and Community Participatory Management, the income of fish farmers can be increased two times by increasing the fish production and productivity. The contribution of Fisheries Sector in the State's GDP will increase more than the present 1.7%, as a result of which the State will be able to move ahead towards self-sufficiency in fish production and productivity.

Bottleneck in implementation of the 3rd Agricultural Road Map:-

- i. There has been acute shortage of manpower at various levels under the Directorate of Fisheries, due to which there was an adverse impact on the successful implementation of the schemes, thus faced difficulty in achieving fish production target.
- ii. New posts were not sanctioned below the District-level (Subdivision, Block, Panchayat level) as a result of less manpower/work force for publicity, extension and implementation of the schemes.
- iii. In spite of the order of Department of Energy for tariff in concurrence with Agriculture; the entrepreneurs and fish farmers practicing latest technology (such as Biofloc, RAS, Feed Mill, Hatchery) had to pay commercial rate.





- iv. The facility of stamp duty/registration fee at par with Agriculture sector is not being given to fish farmers on leased land which has affected implementation of the schemes.
- v. Due to lack of connectivity of fish farmers' ponds/hatcheries/farms with metalled road and lack of electricity supply, there is inconvenience in fish/fish seed transportation which decreases their income due to increase in the cost of production.
- vi. Shortage of budget outlay as per the schemes under the Agricultural Road Map.
- vii. Non-cooperation of Financial Institutions and Banks in loan sanctioning and disbursement has negative impact on the implementation of the schemes.

Impact:-

- i. A large number of fish farmers were imparted training inside as well as outside the State, as a result awareness has been created in the field of fisheries.
- ii. As 40 new fish seed hatcheries were constructed under the previous Agricultural Road Map, as a result the production and availability of advanced fish seed was ensured, along with input (feed, medicine, seeds etc.) was ensured to the farmers under the sanctioned scheme and motivated farmers towards fisheries and other related activities.
- iii. After the implementation of the 3rd Agricultural Road Map, there has been a qualitative increase in the introduction of new species and the use of fish feed, enhanced fish production and productivity has been recorded every year. This has enhanced the level of self-confidence in fish farmers and has motivated them to adopt commercial aquaculture.

Vision

"Fish Surplus" State.

Mission

Pisciculture is an important activity for rural economic development and new employment generation. The State has a population of more than 6 million fishermen (as per Census 2003). Keeping in view of the growing population, to provide employment to the youth in fisheries sector, ensure food and nutritional security in the rural economy and for the sustainable development of livelihood the latest technology (such as Biofloc, RAS, PEN/RFF, Cage etc.,) has been introduced, which will increase avenues of employment, fish production as well as productivity. With this mission and vision, the State will be fish surplus by 2028 which will increase contribution in the GDP of Agriculture and Allied Sectors.





Monitorable Standards

- i. Fish production.
- ii. Capacity building.
- iii. Production of fish fingerlings.
- iv. Creation of new water resources.

Strategy

- i. Formulation of comprehensive and development-oriented fisheries policies.
- ii. Creation of new water bodies and renovation of old water bodies.
- iii. Registration of FFPO/development of Centre of Excellence.
- iv. Organisational strengthening of Block Fishermen Cooperative Societies and to provide social and economic security to fishing communities.
- v. Pond level demonstration and organising exhibition-based short-term farmers' training, along with capacity building and training of fish farmer/officers.
- vi. To provide insurance coverage to fish crop & fishermen.
- vii. Sanction of Matsya Kisan Credit Card to farmers to meet operational cost.
- viii. To promote fisheries activities without intervening the ecology of Reservoirs and Wetlands.
- ix. Reorganisation of human resources from Directorate of Fisheries to district level, sanction of new posts for subdivision, block & Panchayat level and strengthening Fisheries Extension System.
- x. Empowerment of women will be promoted through promotion of ornamental fisheries and distribution of fish selling kit and promote and extend fish diversity.
- xi. Capacity building and enhancement of technical powers of the Engineering Cell, will expedite the construction of basic infrastructures.
- xii. Construction of new infrastructures such as fish market, Matsya Vikas Bhawan, Bihar Aquarium etc.
- xiii. Project Management Unit (PMU) working under the Directorate of Fisheries will be strengthened and to develop MIS portal, construct user friendly app, online portal, construction of Performance of Objective Parameters (POP) for evaluation of work executed, develop various ICT materials etc., for effective implementation and monitoring of schemes.
- xiv. The services of dedicated agency will be hired for preparation of scientific database of various statistics of fish and fisheries production.
- xv. For various innovative technology inclusion, the service of technical experts and agencies will be outsourced to provide technical support to farmers which will assist in the construction of infrastructure under technical inclusion (such as fish feed mill, hatchery, ice-plant, RAS, Biofloc etc.,) value addition of fish products (value addition) and fish market.





Fourth Agriculture Roadmap 2023-28



Thus, after the successful implementation and monitoring of the Agricultural Road Map 2023-2028, the target of 12.70 lakh MT fish production & 3500 million fish seed (fry) production will be achieved and State will become self-sufficient in fish production and seed production and thus Bihar will become a leading state in Inland fish production in the country.

Year wise Fish Demand, Fish Production Target & Yearly Total Potential Production of Fish Seed

Sl. no.	Financial Year	Fish Demand (Lakh MT)	Fish Production Target (Lakh MT)	Total Potential Production of Fish Seed (Fry) In Million
1	2023-24	9.56	8.89	1800
2	2024-25	9.67	9.50	2100
3	2025-26	9.76	10.20	3000
4	2026-27	9.84	11.60	3332
5	2027-28	9.91	12.70	3500

Note:- Demand of fish of the State has been estimated on the basis of 60 percent fish eating population (year-wise) and ICMR recommendation of per head annual fish requirement @12 kg/head/annum





Achievement of major schemes during First, Second and Third Agricultural Road Map:-

Achievement of Agricultural Road Map (2008-23)									
Agricultural Road Map		First (2008-12)		Second (2012-17)		Third (2017-23)		Total Phy. Target	Total Achieve. ment
Schemes	Unit	Phy. Target	Achieve.	Phy. Target	Achieve.	Phy. Target	Achieve.		
Annual Fish Production	LMT/Yr	-	3.44	8.86	5.09	8.02	7.62	8.02	7.62
Fish seed Production	Lakh	4594	938.06	11649	772.56	20245	64792.31	36488	66502.93
Nursery/ Rearing Pond const.	Ha.	-	1827	754.44	1827				754.44
Wetland Development /New Pond const.	Ha.	-	5000	1446.45	3000	1952.11	8000		3398.56
Fish Seed Hatchery const.	Nos.	550	52	260	77	119	40	929	169
Training	Nos.	12000	2877	65000	22039	25000	19422	102000	44338



Schemes for the fourth Agricultural Road Map:-

Proposed Detailed Project Report based schemes under fourth Agricultural Road Map are as follows:

- I. Wetland Fisheries Development
- II. Pond Aquaculture Development
- III. Self-sufficiency in Quality Fish Seed
- IV. Institutional Strengthening

I. Wetland Fisheries Development

The following components are under Wetland Fisheries Development Scheme:-

- a) Integrated Chaur Development Scheme
- b) Reservoir Fisheries Development Scheme
- c) Fisheries Development in Open Water Bodies Scheme

a) Integrated Chaur Development Scheme

The State has abundance of Chaur land in the form of wetlands. The State has 9.41 lakh hectare of wetlands, out of which 2.5 lakh hectare is perennial water resource suitable for fisheries. At present, farmers can grow only one crop in seasonal wetlands. Hence, for the development of fisheries in unutilized Chaur and perennial Government Chaur-land "Integrated Chaur Fisheries Development Scheme" has been proposed under fourth Agricultural Road Map. Under this scheme there is target of developing 25000 hectares of private and Government chaur in the next five years. There is liberty to choose one or more models amongst the proposed models (3 models) based chaur development. In integrated component, there is provision of voluntary selection of agriculture, agro-forestry, and horticulture crops however, it is not binding.

For the successful implementation of this scheme, new ponds will be constructed with 15,000 hectare water area it is estimated to have additional fish production of 50,000 tonnes alongwith other agricultural products.

b) Reservoir Fisheries Development Scheme

Presently there are 37 large/medium reservoirs in the State, accruing total water area is about 26,000 hectares, which is very important from fish and fisheries point of view. The average fish productivity in the Reservoir of Bihar is less than 1 kg/ha/year which is the lowest in the country. Reservoir Fisheries Development Scheme is proposed with an aim to increase its productivity through technical integration and scientific





management under a separate "Development Model" keeping in view its ecological condition without affecting the basic purpose of the Reservoir. Under the Fisheries Reservoir Policy 2022 of the State, the Reservoir Fisheries Development Scheme will be implemented in all the reservoirs of the State entitled for fisheries rights. For further increase in fish production and productivity of the reservoir, fish shall be cultured by installing PEN/RFF (Riverine Fish farming) and Cage. With the successful implementation of Reservoir Fisheries Scheme, an additional fish production of 10 thousand tonnes is estimated in the next five years.

c) Fisheries Development in Open Water Bodies Scheme

In the state of Bihar, vast wetland water sources (Oxbow lake, Chaur and Lake etc.) are available. Based on the preliminary data received from the districts, the State has 1125.07 hectares of Government chaur, 618.83 hectares of lakes and 2010.91 hectares of Oxbow lakes suitable for fisheries. Presently, these water bodies are used for only capture fisheries or are lying unutilised, due to which production from these water resources is not as per their potential. For all such Government wetland water bodies (Oxbow lakes, Chaur and Lakes) "Fisheries Development Scheme in Open Waterbodies" is proposed. In the next five years, 1000 units of PEN/ RFF, 2000 units of Cages will be installed and 100 lakh of fish fingerlings will be stocked in 5000 hectares of Open water bodies. With the successful implementation of the scheme, an additional 15,000 tonnes of fish will be produced from 1200-2020 hectares (3-5 acres per PEN) in the next five years.

Under the Wetland Fisheries Development Scheme, a total sum of Rs. 1900.04 (One Thousand Nine Hundred Crores and Four Lakh Only) Crores is estimated to be spent on all the above-mentioned components.

Name of DPR	Wetland Fisheries Development
Purpose	Development of water-logged area into holistic economic activity.
Intervention	Activity
1. Integrated Chaur Development Scheme	i. Integrated Chaur Development - 25000 Ha.
2. Reservoir Fisheries Development Scheme	i. Stocking of fish fingerling, ii. Installation of Cage/Pens
3. Open Water Fisheries Development Scheme	i. Stocking of fish fingerling, ii. Installation of Cage/Pens



Name of DPR	Wetland Fisheries Development
Output	• Additional creation of 15000 ha water bodies • Pen – 1350 unit Installation • Cage – 4000 unit Installation • Stocking- 31000 ha water area • Additional Fish Production– 75000 tons • Direct Employment (Nos.)– 53500 • Indirect Employment (Nos.) – 80000
Intervention	Financial Outlay (In Lakh Rs.)
1.Integrated Chaur Development	₹165339
2.Reservior Fisheries Development Scheme	₹9595
3. Open Water Fisheries Development Scheme	₹15070
Total	₹190004
(Project Cost : ₹309625 Lakh, State Share : ₹190004 Lakh & Beneficiary Contribution : ₹119621 Lakh)	

II. Pond Aquaculture Development

In view of the increasing demand of fish in the State, horizontal expansion in aquaculture and the target of fish production can be achieved through construction of ponds (new ponds/rearing ponds) on prevailing unsuitable land and by renovating silted and damaged ponds constructed earlier. For sustainable fisheries development in the State, **Pond Fisheries Development Scheme** is proposed. Under this scheme, 900 hectares of new pond construction, 1000 hectares of old ponds renovation, 5000 hectare of Advanced Input, 5000 Units of Mechanical Aerators distribution, 2500 units of Tube-well & Pump-set and 5000 Units of Solar Pump-set will be installed in private sector **on which a total amount of Rs. 29069 (Two Hundred Ninety Crores and Sixty-Nine Lakhs Only) Lakh is estimated to be spent** in the next five years. In pond renovation 30-40% amount of the unit cost and in remaining components 50-70% amount of the unit cost is proposed as subsidy amount for beneficiaries. With the successful implementation of the scheme, there is a possibility of additional fish production of 11200 metric ton in the next five years.





Name of DPR	Pond Aquaculture Development
Purpose	Enhancement of fish production and productivity to meet the demand.
Intervention	Activity
1. Construction of New Pond	i. Construction of New Pond – 900 Ha
2. Renovation of old Private Ponds	i. Renovation of old Private Ponds – 1000 Ha
3. Inputs & Logistics	i. Advanced Input-5000 Ha. ii. Aerator- 5000 Nos. iii. Solar pump- 1000 Nos. iv. Boring & Pump set- 2500 Nos.
Output	• Additional Water Area Created – 900 Ha • Renovation of old Ponds – 1000 Ha (To increase water holding area) • Critical input supply • Input, Aerator, Solar pump, Boring & Pump set • Additional Fish Production – 11200 tons • Direct Employment (Nos.)– 9700 • Indirect Employment (Nos.)- 7500
Intervention	Financial Outlay (In Lakh Rs.)
1. Construction of New Pond	₹4710
2. Renovation of old Private Ponds	₹2582
3. Inputs & Logistics	₹21777
Total	₹29069
(Project Cost : ₹51704 Lakh, State Share : ₹29069 Lakh & Beneficiary Contribution : ₹22635 Lakh)	

III. Self-sufficiency in Quality Fish Seed

Self-sufficiency in quality fish seed has following components:-

- Scheme for Diversification of Fish Species
- Quality Fish seed production scheme





a) Scheme for Diversification of Fish Species

With the increasing population of the state, the demand for nutritious protein foods has also increased. Fish and fish products have an important role in nutrition and protein security. Due to State's abundant water resources and fisheries bio-diversity, there are immense possibilities of fish production through "culture fisheries". A scheme for diversification of fish species is proposed to increase fish production and productivity as well as to increase the income of farmers by including indigenous minor/medium carp, monoculture fish farming, mixed farming or rearing through inter-cropping of fish species. Under the scheme, there is a proposal to establish 27 hatcheries of Minor Carp and Cat Fish and to promote "Culture Fisheries" of these fish species in 1275 acres in the next 5 years. In addition to Minor Carp and Cat Fish farming, Freshwater Prawn will also be cultured in 75 hectares. With the successful implementation of the scheme, 180 lakh of Minor Carp seed, 45 Lakh Cat Fish seed and more than 1550 tonnes of Minor carp, Cat fish and Giant-prawn will be produced in the next five years.

b) Quality Fish seed Production

The demand of nutritious protein rich food is growing in proportion to the increasing population. Fish have an important role in nutrition and protein security. Due to availability of vast and varied water resources and fisheries bio-diversity, there is immense potential of fish production through "culture fisheries". Availability of Quality fish seed is a primary requirement of farming. For the implementation of the 4th Agricultural Road Map, 1800 lakh of fish fingerlings is needed in the next five years, for which this scheme has been proposed. Under this scheme, nursery and rearing pond will be constructed in 100 hectare and 900 hectare water area respectively, 180 million Quality fish seed (fingerling) of IMC will be produced in 1500 hectares and 50 fish seed hatcheries will be renovated.

Under the Self Sufficiency in Quality Fish seed Production scheme a total sum of Rs. 129.43 Crores (One Hundred Twenty-Nine Crores and Forty-Three Lakhs Only) is estimated to be spent on both the components mentioned above.

Name of DPR	Self Sufficiency in Seed Production
Purpose	Ensure availability of quality and quantity inputs.
Intervention	Activity
1. Diversification of Fish species Scheme	i. Diversification of Fish species- minor carp, catfish & prawn



Name of DPR	Self Sufficiency in Seed Production
2. Construction of Nursery & Rearing pond Scheme	i. Construction of Nursery – 100 Ha ii. Construction of Rearing pond – 900 Ha
3. Renovation of Fish Hatchery Scheme	i. Renovation of Fish Hatchery- 50 no.
4. Quality fish fingerling production Scheme	i. Quality fish fingerling production- 180 million
Output	• Minor Carp Seed Production- 180 lakh • Catfish Seed Production - 45 lakh • Construction of Minor & Catfish Hatchery - 27 • Culture of Minor & Catfish - 1275 Acres • Freshwater Prawn culture – 75 hectare. • Additional Minor/Catfish Production- 1550 tons • Creation of Additional Water Area- 1000 Ha • Additional IMC Fish fingerlings Production-180 million • Additional carp fish fry production (Hatchery)- 500 million • Direct Employment (Nos.): -12000 • Indirect Employment (Nos.): -25000
Intervention	Financial Outlay (In Lakh Rs.)
1. Diversification of Fish species Scheme	₹2658
2. Construction of Nursery & Rearing pond Scheme	₹5485
3. Renovation of Fish Hatchery Scheme	₹188
4. Quality fish fingerling production Scheme	₹4612
Total	₹12943
(Project Cost : ₹21361 Lakh, State Share : ₹12943 Lakh & Beneficiary Contribution : ₹8418 Lakh)	



IV. Institutional Strengthening

The Directorate of Fisheries was established in the year 1964 and since then works of Directorate of Fisheries has increased. Therefore, it is imperative to strengthen Fisheries Directorate institutionally so that transparency is maintained in implementation, monitoring and evaluation of the schemes. For this, capacity enhancement of previously and newly appointed officers is necessary from time to time so that officers/fish farmers to get avail training (40,000 fish farmers for next 05 years) to be aware of the new technology and the knowledge of the latest scientific technique is percolated to the beneficiaries.

There is a need of a PMU for the smooth functioning of the Directorate so that comprehensive development and data-base of fish resources can be created. Strong web-based GIS and MIS is to be established for monitoring. At present, there is no such Institution associated with the fisheries division, due to which desired progress is not being achieved in the implementation of various fisheries schemes. Therefore, Fisheries Corporation and/Federation needs to be established for smooth execution of fisheries activities and for the welfare of the fishermen.

After the formation of Fisheries Corporation, development works like strengthening of fish market, departmental operation of fish seed farms and installation of cage/pen in wetlands, fingerling harvesting etc. will gain momentum. Similarly, after the formation of Fisheries Federation, fishermen's welfare scheme like Savings -cum- Relief Scheme, Insurance Scheme, strengthening of Fishermen Co-operative Societies etc. will be executed in organized way. An amount of Rs 1000 lakh is estimated to be spent on the establishment of the said corporation and federation.

Wetland Fisheries Development Division and Reservoir Fisheries Development Division will be set up at Muzaffarpur and Munger respectively for holistic wetland and reservoir fisheries development. A new Fisheries Development Building will be constructed in place of the old building located in the Fisheries Research and Extension Complex, Mithapur under the Directorate of Fisheries. Approval for the construction of the said building has been received from the State Government, whose detailed project report is being prepared by the Building Construction Corporation, Bihar, Patna. According to the preliminary estimate, an expenditure of Rs 6882 lakh has been estimated for the construction of the said building. With the construction of the said building, Fisheries Training, Research, Corporation, Federation, Hostel, Library and Administrative Building etc. will be under one umbrella, which will make it easier for the common people to access it and the implementation of the schemes will be accelerated.





All the components mentioned above are proposed under the 4th Agricultural Road Map, on which an amount of **Rs. 45337 (Four Hundred Fifty Three Crore and Thirty Seven Lakh Only) lakh** is estimated to be spent.

(Detailed Project Report is annexed in Book-II).

Name of DPR	Institutional Strengthening
Purpose	Institutional & Extension System strengthening of fisheries sector.
Intervention	Activity
1. Monitoring, Responsible evaluation, Training, Departmental Operation of Fish Seed Farm & Extension support (Fisheries Extension Officer)	Monitoring, Responsible evaluation & Extension support to new selected beneficiaries
2. Supply of Fish Input at the Pond level, Training & Extension support (Fisheries Assistant)	Extension support (disease identification, diagnosis, treatment etc) to fish farmers at pond level and transfer of fish farming techniques.
3. Capacity Building & Fish Training	Capacity Building of Personnel
4. Project Management Unit at Directorate level	GIS data base, MIS, Development of Web based monitoring system, Project Implementation, etc.
Output	Effective, accountable and management of sustainable development. Transfer of better management practices & latest fish farming techniques.
Intervention	Financial Outlay (In Lakh Rs.)
1. Monitoring, Responsible evaluation, Training (40,000 fish farmer will be trained in next 05 years), Departmental Operation of Fish Seed Farm & Extension support (Fisheries Extension Officer)	₹11340



Fourth Agriculture Roadmap 2023-28



Name of DPR	Institutional Strengthening
2. Supply of Fish Input at the Pond level, Training & Extension support (Fisheries Assistant)	₹22000
3. Capacity Building & Fish Training	₹214
4. Project Management Unit at Directorate level	₹1855
5. Wetland and Reservoir Division	₹2046
6. Construction of Matasya Vikas Bhawan/Bihar Aquarium	₹6882
7. Fisheries Development Corporation/Federation	₹1000
Total	₹45337
(Project Cost : ₹45337 Lakh & State Share : ₹45337 Lakh)	





Amount in Lakh Rs.

Details of expenditure of DPR based schemes under fourth Agricultural Road Map							
Sl	Name of Scheme	Beneficiary/Non-beneficiary based	Subsidy Amount	Administrative Expenses	Total Expenditure Amount	Beneficiary Contribution	Total Project cost
I.	Wetland Fisheries Development	Beneficiary based	185370	4634	190004	119621	309625
II.	Pond Aquaculture Development	Beneficiary based	28360	709	29069	22635	51704
III.	Self-sufficiency in seed production	Beneficiary based	12627	316	12943	8418	21361
IV.	Institutional Strengthening	Non-beneficiary based	---	---	453-37	---	453-37
Total			226357	5659	277353	150674	428027



Ongoing Schemes for fourth Agricultural Road Map:-

The components of Ongoing Schemes are as follows:-

- I. Fish Marketing and Value Addition
- II. Aquatic Animal Health Laboratory

I. Fish Marketing and Value Addition

Components under the Fish Marketing and Value Addition schemes are as follows:-

- a) Construction of market shed at Block and Panchayat level.
- b) Installation of Ready to eat and Ready to cook Fish unit.
- c) Installation of Fish waste to wealth unit.

a) Construction of market shed at Block and Panchayat level.

Fish market is operational in every District headquarter and block of the state but are unorganised. Due to unorganised operation of the markets, problem in availability of electricity and water is prominent and also the unavailability of pucca construction and drainage facility leads to compromise in quality of the fishes produced from the ponds. By construction of fish markets at Block and panchayat fish farmers will be able to access fish markets at local level and availability of fresh and hygienic fishes to the consumers can be assured. Under the scheme, 255 and 850 fish market shed will be constructed in Government Sector at Block and Panchayat level respectively. Fish markets will be locally available to the fish farmers and availability of fresh and hygienic fishes to the consumers can be ensured. Construction of fish market will also help fish farmers in fetching appropriate price of the fishes.

b) Installation of Ready to eat and Ready to cook Fish unit.

There is no fish processing and value addition plant established in the state. Ice Plant and Cold Storage Units are being constructed under Pradhan Mantri Matsya Sampda Yojana. Processing and value addition of fish will help in increasing the shelf life of fish products and availability of fish products can be easily ensured in the market. In this regard development of skilled manpower, commercial handholding and launching of Ready to Eat and Ready to Cook fish products is essential. Fishes produced in the state can be sold alive and fresh at local level and other markets. Whereas, processing and Value addition of fish will help the fish farmers in getting better price for their fishes and availability of various fish products for the consumers can be ensured. Skill development of entrepreneurs and human resources can be done by first hand training. Processed products like frozen/fresh fish, steak, fish fillets and beheaded





and degutted fish can be made available. Under this scheme, there is a target of establishing five Fish Processing Units in private sector. Availability of the value-added fish products like Fish pickle, fish balls, fish cutlet and fish curry in Alu Alu pack, etc. could be ensured and it will also lead to development of trained human resource.

c) Installation of Fish waste to wealth unit

Various useful products can be made from fish waste viz. Chitin can be extracted from dried fish scale and chitin gauge can be prepared from it. Chitin is also used in production of various cosmetic products. Initially fish scales will be collected from the different fish markets and will be dried after proper washing and sold to the different cosmetic producers. 2.4 Lakh MT of fish waste is produced from the different fish markets of the state from which 500 MT dried fish scale and 1 Lakh MT of fish silage can be produced. Rest of the fish waste may be used as organic manure or as an ingredient to animal feed. Under this scheme, there is a target of establishing five Fish Waste Processing Units in private sector.

Under the Fish Market and Value Addition Scheme, a total sum of Rs. 19994.00 (One Hundred Ninety Nine Crores Ninety-Four Lakhs Only) Lakh is estimated to be spent on all the components mentioned above.

II. Aquatic Animal Health Laboratory

There is a need to establish an Aquatic Animal Health Laboratory for timely diagnosis, identification and treatment of fish diseases so that proper advice can be given to fish farmers. Also, due to extensive use of pelleted feed in intensive fish farming, there has been considerable increase in the demand for commercial feed. In view of this, there is a need to set up a feed testing laboratory to check the quality of fish feed. Two units of Aquatic Animal Health Laboratory in Government Sector will be established at College of Fisheries (Dr. Rajendra Prasad Central Agricultural University, Pusa) Dholi and Fisheries Research Centre under Fisheries Sector of Animal and Fisheries Resources Department on which a sum of Rs. 902 Lakh is estimated to be spent. This scheme will be implemented by College of Fisheries, Dholi and Animal and Fisheries Resources Department, Bihar. 100 percent expenditure incurred on this scheme will be borne by the Government.





Fourth Agriculture Roadmap 2023-28



Amount in Lakh

Details of expenditure of ongoing schemes under Fourth Agricultural Road Map							
Sl.	Name of Scheme	Beneficiary/Non-beneficiary based	Subsidy Amount	Administrative Expenses	Total Expenditure Amount	Beneficiary Contribution	Total Project cost
I.	Fish Marketing and Value Addition	Beneficiary based	381.50	10.00	391.50	381.50	773
		Non-beneficiary based	---	---	23633	---	23633
II.	Aquatic Animal Health Lab	Non-beneficiary based	---	---	902	---	902
Total			381.50	10.00	24926.50	381.50	25308.00

Amount in Lakh Rs.

Details of expenditure of DPR & Ongoing schemes under Fourth Agricultural Road Map							
Sl.	Name of Scheme	Beneficiary /Non-beneficiary based	Subsidy Amount	Administrative Expenses	Total Expenditure Amount	Beneficiary Contribution	Total Project Cost
I.	DPR Based Schemes	Beneficiary based	226357	5659	232016	150674	382690
		Non-beneficiary based	---	---	45337	---	45337
II.	Non-DPR Based Schemes	Beneficiary based	381.5	10	391.5	381.5	773
		Non-beneficiary based	---	---	24535	---	24535
Total			226739	5669	302279.5	151056	453335



ANIMAL AND FISHERIES RESOURCE DEPARTMENT
Fourth Agricultural Road Map Proposed Scheme

Name of Scheme/Component	Unit Cost (In Lakh)	Target of Fin. Year 2023-24		Target of Fin. Year 2024-25		Target of Fin. Year 2025-26	
		Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
DPR BASED 1. Construction of New Water resources and their development							
Programme: 1. Wetland Fisheries Development							
1. Integrated Chaur Development Scheme	8.70/Ha (Including Average Input)	4000	20706.00	4500	25647.60	5000	31370.46
2. Reservoir Fisheries Development Scheme (i) Stocking of fish fingerling @1000/HA	0.00006/ Fingerling	5200	218.40	5200	218.40	5200	218.40
(ii) Installation of Cage (Nos)	3.00/ Cage	400	840.000	400	924.00	400	1016.40
(iii) Installation of Pens (Nos)	10.50/Pen (Including Input)	70	514.500	70	565.95	70	622.54
3. Open Water Fisheries Development Scheme (i) Stocking of fish fingerling @1000/HA	0.12/Ha	1000	84.000	1000	84.00	1000	84.00
(ii) Installation of Cage (Nos)	3.00/ Cage	250	525.000	250	577.50	500	1270.50
(iii) Installation of Pens (Nis)	10.50/ Pen (Including Input)	200	1470.000	200	1617.00	200	1778.70
Total (1) :-			24357.900		29634.450		36361.000



Fourth Agriculture Roadmap 2023-28



Name of Scheme/Component	Unit Cost (In Lakh)	Target of Fin. Year 2026-27		Target of Fin. Year 2027-28		Target of Fin. Year 2023-28	
		Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
DPR BASED 1. Construction of New Water resources and their development							
Programme: 1. Wetland Fisheries Development							
1. Integrated Chaur Development Scheme	8.70/Ha (Including Avarage Input)	5500	37981.42	6000	45600.86	25000 Ha	161306.340
2. Reservoir Fisheries Development Scheme (i) Stocking of fish fingerling @1000/HA	0.00006/ Fingerling	5200	218.40	5200	218.40	26000 Ha (260.00 Lakh Finger Ling)	1092.00
(ii) Installation of Cage (Nos)	3.00/ Cage	400	1118.04	400	1229.84	2000 Nos	5128.28
(iii) Installation of Pens (Nos)	10.50/Pen (Including Input)	70	684.80	70	753.28	350 Nos	3141.07
3. Open Water Fisheries Development Scheme (i) Stocking of fish fingerling @1000/HA	0.12/Ha	1000	84.00	1000	84.00	100 Lakh (5000 Ha)	420.00
(ii) Installation of Cage (Nos)	3.00/ Cage	500	1397.55	500	1537.31	2000 Nos	5307.86
(iii) Installation of Pens (Nis)	10.50/ Pen (Including Input)	200	1956.57	200	2152.22	1000 Nos	8974.49
Total (1) :-			43440.780		51575.908		185370.038



Name of Scheme/Component	Unit Cost (In Lakh)	Administrative Expenditure (2.5%)	Total Expenditure of Fin. Year 2023-28	Beneficiary Contribution	Total Project Cost
DPR BASED 1. Construction of New Water resources and their development					
Programme: 1. Wetland Fisheries Development					
1. Integrated Chaur Development Scheme	8.70/Ha (Including Average Input)	4032.659	165338.999	109308.035	274647.034
2. Reservoir Fisheries Development Scheme (i) Stocking of fish fingerling @1000/HA	0.00006/ Fingerling	27.300	1119.30	468.000	1587.300
(ii) Installation of Cage (Nos)	3.00/ Cage	128.207	5256.49	2197.836	7454.327
(iii) Installation of Pens (Nos)	10.50/Pen (Including Input)	78.527	3219.60	1346.170	4565.766
3. Open Water Fisheries Development Scheme (i) Stocking of fish fingerling @1000/HA	0.12/Ha	10.500	430.50	180.000	610.500
(ii) Installation of Cage (Nos)	3.00/ Cage	132.696	5440.55	2274.795	7715.346
(iii) Installation of Pens (Nis)	10.50/ Pen (Including Input)	224.362	9198.85	3846.213	13045.065
Total (1) :-		4634.251	190004.289	119621.049	309625.338



Fourth Agriculture Roadmap 2023-28



Name of Scheme/Component	Unit Cost (In Lakh)	Target of Fin. Year 2023-24		Target of Fin. Year 2024-25		Target of Fin. Year 2025-26		Target of Fin. Year 2026-27	
		Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
DPR BASED 1. Construction of New Water resources and their development									
Programme: 2. Pond Aquaculture Development									
(i) Construction of New Pond (Ha)	7.00/ Ha	100	399.000	150	657.58	150	723.34	200	1062.14
(ii) Renovation of old Private Ponds (Ha)	6.00 / Ha	100	201.000	150	331.32	300	729.63	250	668.43
(iii) Inputs & Logistics (Ha)	4.00/ Ha	1000	2400.000	1000	2640.00	1000	2904.00	1000	3194.40
(iv) Aerator (Nos)	0.50/ Unit	1000	300.000	1000	330.00	1000	363.00	1000	399.30
(v) Tubewell Pumset (Nos)	1.20/ Unit	500	360.000	500	396.00	500	435.60	500	479.16
(vi) Solar Pumpset (Nos)	3.50/ Unit	200	420	200	462	200	508.2	200	559.02
Total (2) :-			4080.000		4816.900		5663.768		6362.446



Name of Scheme/ Component	Unit Cost (In Lakh)	Target of Fin. Year 2027-28		Target of Fin. Year 2023-28		Administrative Expenditure (2.5%)	Total Expenditure of Fin. Year 2023-28	Beneficiary Contribution	Total Project Cost
		Phy.	Fin.	Phy.	Fin.				
DPR BASED 1. Construction of New Water resources and their development									
Programme: 2. Pond Aquaculture Development									
(i) Construction of New Pond (Ha)	7.00/ Ha	300	1752.53	900 Ha	4594.58	114.865	4709.45	3468.926	8178.37
(ii) Renovation of old Private Ponds (Ha)	6.00 / Ha	200	588.57	1000 Ha	2518.95	62.974	2581.92	5002.474	7584.39
(iii) Inputs & Logistics (Ha)	4.00/ Ha	1000	3513.84	5000.00	14652.24	366.306	15018.55	9768.160	24786.71
(iv) Aerator (Nos)	0.50/ Unit	1000	439.23	5000.00	1831.53	45.788	1877.32	1221.020	3098.34
(v) Tubewell Pumset (Nos)	1.20/ Unit	500	527.08	2500.00	2197.84	54.946	2252.78	1465.224	3718.01
(vi) Solar Pumpset (Nos)	3.50/ Unit	200	614.992	1000	2564.21	64.105	2628.32	1709.428	4337.75
Total (2) :-			7436.233		28359.347	708.984	29068.331	22635.232	51703.563



Fourth Agriculture Roadmap 2023-28



Name of Scheme/Component	Unit Cost (In Lakh)	Target of Fin. Year 2023-24		Target of Fin. Year 2024-25		Target of Fin. Year 2025-26		Target of Fin. Year 2026-27		Target of Fin. Year 2027-28	
		Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
DPR BASED 2. Enhancement in Fish Production and Productivity											
Programme: 3. Self Sufficiency in Seed Production											
(i) Construction of Minor Carp Hatchery (Nos)	13.12/Unit	3	23.616	3	25.98	4	38.10	4	41.91	4	46.10
(ii) Construction of Cat fish Hatchery (Nos)	15.37/Unit	1	9.220	2	20.29	2	22.32	2	24.54	2	27.00
(iii) Minor Carp Culture (Ac.)	0.94/0.5/Ac	55	62.040	60	74.45	70	95.54	70	105.10	70	115.61
(iv) Cat Fish Culture (Ac.)	1.35/0.5/Ac	155	251.100	180	320.76	180	352.84	180	388.12	180	426.93
(v) Maha Jhinga Culture (Ac.)	1.10/0.5/Ac	10	13.200	20	29.04	15	23.96	15	26.35	15	28.99
(vi) Construction of Rearing pond	7.00/Ha	100	420.000	150	693.00	150	762.30	200	1118.04	300	1844.77
(vii) Construction of Nursery pond	7.00/Ha	20	84.000	20	92.40	20	101.64	20	111.80	20	122.98
(viii) Renovation of Fish Hatchery (Nos)	5.00/Ha	10	30.000	10	33.00	10	36.30	10	39.93	10	43.92
(ix) Quality fish fingerling production (Ha)	5.00/Ha	300	900.000	300	900.00	300	900.00	300	900.00	300	900.00
Total (3) :-			1793.176		2188.914		2332.993		2755.791		3556.301



Name of Scheme/Component	Unit Cost (In Lakh)	Target of Fin. Year 2023-28		Adminstrative Expenditure (2.5%)	Total Expenditure of Fin. Year 2023-28	Beneficiary Contribution	Total Project Cost
		Phy.	Fin.				
DPR BASED 2. Enhancement in Fish Porduction and Productivity							
Programme: 3. Self Sufficiency in Seed Production							
(i) Construction of Minor Carp Hatchery (Nos)	13.12/Unit	18 Nos	175.71	4.393	180.10	117.140	297.239675
(ii) Construction of Cat fish Hatchery (Nos)	15.37/Unit	9 (Nos)	103.37	2.584	105.95	68.920	174.869125
(iii) Minor Carp Culture (Ac.)	0.94/0.5/Ac	325 (Ac)	452.7310	11.318	464.05	301.820	765.869275
(iv) Cat Fish Culture (Ac.)	1.35/0.5/Ac	875 (Ac)	1739.7480	43.494	1783.24	1159.831	2943.072700
(v) Maha Jhinga Culture (Ac.)	1.10/0.5/Ac	75 (Ac)	121.5410	3.039	124.58	81.027	205.606525
(vi) Construction of Rearing pond	7.00/Ha	900 Ha	4838.11	120.953	4959.06	3225.404	8184.466750
(vii) Construction of Nursery pond	7.00/Ha	100 Ha	512.8200	12.821	525.64	341.886	867.526500
(viii) Renovation of Fish Hatchery (Nos)	5.00/Ha	50 (Nos)	183.15	4.579	187.73	122.102	309.833825
(ix) Quality fish fingerling production (Ha)	5.00/Ha	1500 Ha	4500.00	112.500	4612.50	3000.000	7612.500000
Total (3) :-			12627.175	315.679	12942.854	8418.130	21360.984



Name of Scheme/Component	Unit Cost (In Lakh)	Target of Fin. Year 2023-24		Target of Fin. Year 2024-25		Target of Fin. Year 2025-26		Target of Fin. Year 2026-27		Target of Fin. Year 2027-28	
		Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
DPR BASED 3. Strengthening and Capacity Building of Fisheries Extension system											
Programme: 4. Institutional Strengthening											
(i) Monitoring, Responsible evaluation & Extension support (Fisheries Extension Officer)			2268.000		2268.00		2268.00		2268.00		2268.00
(ii) Supply of Inputs & pond level Extension support (Fisheries Assistant)			4400.000		4400.00		4400.00		4400.00		4400.00
(iii) Capacity Building			42.740		42.74		42.74		42.74		42.74
(iv) Project Management Unit (at Directorate level)			371.000		371.00		371.00		371.00		371.00
(v) Wetland and Reservoir Division	1		2046.000		0.00		0.00		0.00		0.00
(vi) Construction of Matsya Vikash Bhawan	1		6882.000		0.00		0.00		0.00		0.00
(vii) Fish Corporation/ Fedration	1		1000.000		0.00		0.00		0.00		0.00
Total (4) :-			17009.740		7081.740		7081.740		7081.740		7081.740
TOTAL (1)+(2)+(3)+(4) BASED ON DPR :-											

TOTAL (1)+(2)+(3)+(4) BASED ON DPR :-



Fourth Agriculture Roadmap 2023-28



Name of Scheme/Component	Unit Cost (In Lakh)	Target of Fin. Year 2023-28		Adminstrative Expenditure (2.5%)	Total Expenditure of Fin. Year 2023-28	Beneficiary Contribution	Total Project Cost
		Phy.	Fin.				
DPR BASED 3. Strengthening and Capacity Building of Fisheries Extension system							
Programme: 4. Institutional Strengthening							
(i) Monitoring, Responsible evaluation & Extension support (Fisheries Extension Officer)		270.00	11340.0000	0.000	11340.00	0.000	11340.00
(ii) Supply of Inputs & pond level Extension support (Fisheries Assistant)		2000.00	22000.0000	0.000	22000.00	0.000	22000.00
(iii) Capacity Building		100.00	213.7000	0.000	213.70	0.000	213.70
(iv) Project Management Unit (at Directorate level)		1	1855.0000	0.000	1855.00	0.000	1855.00
(v) Wetland and Reservoir Division		1	2046.0000	0.000	2046.00	0.000	2046.00
(vi) Construction of Matsya Vikash Bhawan		1	6882.0000	0.000	6882.00	0.000	6882.00
(vii) Fish Corporation/ Fedration		1	1000.0000	0.000	1000.00	0.000	1000.00
Total (4) :-			45336.700	0.000	45336.700	0.000	45336.700
TOTAL (1)+(2)+(3)+(4) BASED ON DPR :-			271693.2600	5658.9140	277352.1740	150674.4110	428026.5850

Fourth Agriculture Roadmap 2023-28





Name of Scheme/Component	Unit Cost (In Lakh)	Target of Fin. Year 2023-24		Target of Fin. Year 2024-25		Target of Fin. Year 2025-26		Target of Fin. Year 2026-27		Target of Fin. Year 2027-28	
		Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
ON GOING SCHEMES BASED: 1. Enhancement in Fish Production and Productivity											
Programme: 1. Marketing & Value Addition											
(i) Construction of Fish Market Shed at Block Level	23.00/ Shed	51	1173.000	31	784.30	61	1697.63	61	1867.39	51	1717.39
(ii) Construction of Fish Market Shed at Panchayat Level	15.60/ Shed	170	2652.000	120	2059.20	180	3397.68	190	3945.08	190	4339.59
(iii) Ready to eat & ready to cook fish.	100.00/ Unit	1	50.000	1	55.00	1	60.50	1	66.55	1	73.21
(iv) Fish waste to wealth (Fish silage,Fish scales,Isinglass)	25.00/ Unit	1	12.500	1	13.75	1	15.13	1	16.64	1	18.30
Programme: 2. Aquatic Animal Health Lab											
(i) Installation of One Unit (DRPCAU)											
(ii) Installation of One Unit (Directorate)			548.000		212.00		50.00		50.00		42.00
TOTAL BASED ON GOING SCHEMES :-											
TOTAL OF DPR+ON GOING SCHEMES :-											



Name of Scheme/Component	Unit Cost (In Lakh)	Target of Fin. Year 2023-28		Administrative Expenditure (2.5%)	Total Expenditure of Fin. Year 2023-28	Beneficiary Contribution	Total Project Cost
		Phy.	Fin.				
ON GOING SCHEMES BASED: 1. Enhancement in Fish Production and Productivity							
Programme: 1. Marketing & Value Addition							
(i) Construction of Fish Market Shed at Block Level	23.00/ Shed	255 Unit	7239.71		7239.71	0.000	7239.71000
(ii) Construction of Fish Market Shed at Panchayat Level	15.60/ Shed	850 Unit	16393.55		16393.55	0.000	16393.55000
(iii) Ready to eat & ready to cook fish.	100.00/ Unit	5 Unit	305.26	7.631	312.89	305.260	618.14638
(iv) Fish waste to wealth (Fish silage,Fish scales,Isinglass)	25.00/ Unit	5 Unit	76.32	1.908	78.23	76.320	154.54800
Programme: 2. Aquatic Animal Health Lab							
(i) Installation of One Unit (DRPCAUI)		2 Unit	902.00		902.00	0.000	902.00000
(ii) Installation of One Unit (Directorate)							
TOTAL BASED ON GOING SCHEMES :-			24916.84	9.539	24926.37	381.58	25307.95
TOTAL OF DPR+ON GOING SCHEMES :-			296610.0950	5668.4534	302278.5484	151055.9910	453334.5394



Establishment of One Health Platform

Background	- About 60 percent of human diseases are zoonotic, and 75 percent of newly emerging infections in humans originate in domestic and wild animals. - The increasing demand for animal protein has resulted in the expansion of intensive animal husbandry, human-animal contact, and an increase in the risk of zoonosis. - Bihar currently lacks a platform to deal with emerging zoonotic pathogens and contaminants in food items.
Interventions	Activity
1. Development of "One Health Platform" through integration of environmental, plant, human and animal health expert groups.	Creation of "One Health Platform" by formation of Society of Multidisciplinary Professionals.
2. Monitoring of emerging and re-emerging infections of zoonotic nature and environmental pollutants/toxins.	- Standardization of rapid diagnostic tests for important zoonotic diseases - Surveillance of zoonotic TB, brucellosis, rabies etc. - Monitoring of antimicrobial resistance in livestock and its relation to humans. - Metagenomic analysis of sewage and environmental samples to trace pathogen sources. - Establishment of BSL-3 laboratory at Bihar Animal Science University, Patna. - Establishment of poison and residue analysis laboratory.
3. Public awareness about "One Health"	Awareness programs for farmers and other stakeholders.
Outcome	- Availability of a common platform to tackle the "one health" problem. - Capacity development to deal with high risk pathogen groups. - Ability to take action against zoonotic diseases at the time of outbreak. - Awareness about One Health and Antimicrobial Management.



Fourth Agriculture Roadmap 2023-28



Financial Target:

(Rs in lakh.)

Establishment of "One Health Platform" with BSL-3 laboratory facility at Bihar Animal Sciences University, Patna	1991.60
Standardization of rapid diagnostic tests for important zoonotic diseases.	112.00
Continuous surveillance of zoonotic tuberculosis, brucellosis, rabies etc.	269.00
Monitoring of antimicrobial resistance in livestock populations and its relation to humans.	112.00
Metagenomic analysis of sewage and environmental samples to find pathogen sources	182.00
Establishment of Toxin and Residue Analysis Laboratory	398.00
Total Budget	3064.60





03 | Rural Works





Rural Works

Introduction: Development of rural roads brings multiple socio-economic benefits to the rural areas which form a strong base of the national economy. The connectivity of rural habitations through good all weather roads has brought appreciable impact on Agriculture, Employment generation, Industry, Health, Education, transport facilities, Urbanization, Poverty alleviation. The government of Bihar is committed to an all-round social and economic development of the state. The main objective of the rural works department is to construct and develop high quality road network. The construction of rural roads (including bridges and culverts) is executed by the rural works department. The rural roads are built up according to the standards and specifications laid down by the ministry of rural development, Government of India in consultation with Indian Road Congress. The constructed roads are also maintained for five years from date of completion of the individual project.

Objective-

The main purpose of the Rural Works Department is to provide all weather single connectivity to all eligible habitations. The rural roads joins Other district road(ODR), State Highways(SH) and National Highways(NH) and thus helps in overall rural development.

Following programmes are run by rural works department for rural connectivity

1. Garin tola sampark nischay yojna (GTSNY)
2. Mukhyamantri gram sampark yojna (MMGSY)
3. Pradhanmantri gram sadak yojna (PMGSY)

Achievements of Rural Works Department-

The department has identified 121069 eligible habitations till date. Out of which 118237 habitations has been connected through all-weather roads by constructing 109968.91 km rural roads.

During Krishi Road Map -3 (2017-2023), connectivity has been provided to 29052 habitations out of total 31884 habitations. The work of providing connectivity to remaining 2832 habitations is in progress. For providing connectivity to 29052 habitations, 30189.03 km roads have been constructed. The construction of remaining 9757.75 km roads to provide connectivity to remaining 2832 habitations is in progress. Details are as follows

Numbers of habitations for total connectivity	Number of habitations connected before the year 2017	Target of connectivity of habitations under third Krishi Road map (2017-2023)	Achievement of connectivity of habitation from 2017 to 15-3-2023	Number of under construction habitations
121069	89185	31884	29052	2832





Fourth Agriculture Roadmap 2023-28



Length of Total Rural roads (in km)	Length of constructed roads before 2017 (in km)	Target of Road to be constructed during Krishi road map-3 (2017-23) (in km)	Length of completed Road during Krishi road map-3 (2017-23) (in km)	Length of Roads under construction (in km)
119726.66	79779.88	39864.08	30189.03	9757.75

Work Programme for Rural Works Department under fourth Krishi Road Map:-

The work programme of the rural works department during fourth Krishi road map (2023-2028) is as follows

1. To uplift the overall economic condition of rural areas by providing connectivity to unconnected eligible habitations under various schemes run by the department.
2. To construct additional cross drainage structures in rural roads to drain water from water logged areas and to make them arable
 - The committee formed at the district level under chairmanship of concerned district magistrate will assess the water logged area in the agricultural land.
 - On the recommendation of the aforesaid committee the department will construct additional cross drainage structures. These structure will be constructed from the budget provision of the state plan head (NABARD loan supported).

Financial Target

S.no	District	Works division	Total nos of scheme including CD works	Total estimated cost (in lakh Rs)
1	West champaran	Bagha 1	23	694
2	West champaran	Bagha 1	89	28149
3	West champaran	Bettiah	35	5803
4	West champaran	Narkatiaganj	42	1452.55
5	East champaran	Areraj	12	484
6	East champaran	Chakia	Nil	Nil
7	East champaran	Motihari	Nil	Nil
8	East champaran	Pakridayal	Nil	Nil
9	East champaran	Raxaul	Nil	Nil





Fourth Agriculture Roadmap 2023-28



S.no	District	Works division	Total nos of scheme including CD works	Total estimated cost (in lakh Rs)
10	East champaran	Sikharna Dhaka	Nil	Nil
11	Gopalganj	Gopalganj 1	5	241.09
12	Gopalganj	Gopalganj 2	17	375
13	Gopalganj	Hathua	9	460.5
14	Samastipur	Dalsingsarai	27	366
15	Samastipur	Patori	Nil	Nil
16	Samastipur	Rosera	29	1372.4
17	Samastipur	Samstipur	Nil	Nil
Total			288	39397.542

04 | Water Resources



कुंदर बराज



Water Resources

Introduction

Water is an important social and economic asset in the state of Bihar. Being an agriculture-based region, there is a need to develop better irrigation for livelihood as well as for overall prosperity. Also, due to its special geographical location, there is a challenge to protect life and property from the devastation of floods every year. The pressure on this resource is increasing continuously due to the increase in temperature of the earth, irregular rainfall, drought, rapid urbanization, continuous reduction in forest area, and growing demand for water in other sectors. Though Bihar receives an average annual rainfall more than 1100 mm. In this situation, proper conservation and management of water become very important. The suitable sites for reservoir are limited due to its unfavorable geographical location. Based on 75% dependability, 1,32,175 MCM surface water is available in Bihar, while the total storage capacity of present reservoirs here is only 949.77 MCM only. The per capita surface water availability in the year 2001 was 1594 cubic meters and it is estimated that the per capita water availability will decrease to 1055 cubic meters in the year 2023, 1006 cubic meters by the year 2025 and 635 cubic meters by the year 2050.

The total estimated requirement of water in the state for the year 2050 is 1, 45,048 MCM, which includes 1, 04,706 MCM for the agriculture sector and 40,342 MCM for the non-agriculture sector. This requirement is more than the present surface water available in the state which is 1,32,175 MCM. From this perspective, it is clear that Bihar is a state where the availability of water is critical and there is a need to take appropriate measures to deal with future water crisis.

The main work of the Water Resources Department, Bihar is related to the development, management, and operation of Major and Medium Irrigation projects. In addition to this, the implementation of flood control, drainage, and river linking schemes in the state is also done by the Water Resources Department, Bihar. Out of 55.63 lakh hectares the net cultivable land in the state, irrigation can be provided in 41.23 lakh hectares through major and medium irrigation projects. With this, Ultimate irrigation potential of 53.53 lakh hectares can be created.

Irrigation potential that may be created, cropwise is given in table A.

Table A

Kharif	30.13 Lakh Ha
Rabi	17.20 Lakh Ha
Hot Weather	6.20 Lakh Ha
Total	53.53 Lakh Ha





The created and presently utilized irrigation potential is shown in Table B

Table -B

Type of Irrigation	Financial Year	Ultimate Irrigation Potential (in Lakh Ha)	Irrigation Potential Created (in Lakh Ha)	Irrigation Potential Utilized (in Lakh Ha)
Major and Medium Irrigation	2017-18	53.53	36.5498	23.8002
	2018-19		36.6763	26.5654
	2019-20		36.8911	25.8241
	2020-21		37.1510	28.0234
	2021-22		37.2263	28.2253

By this table, it is evident that for the year 2021-22 total irrigation potential created through major and medium irrigation schemes is 37.2263 Lakh Ha out of which irrigation achievement is 28.2253 Lakh Ha.

Schedule for Operation of Canal System:-

Irrigation plays a major role in increasing agricultural productivity along with the use of new technological interventions, the use of hybrid seeds, and fertilizers. With the use of high yield variety seeds and by following the scientific ways of agriculture practice, it was felt that the earlier practices of operation of the canal system need modification. For this, with the consultations of local farmers, field officers of the agriculture and Water Resources Department and scientists of the Directorate of Water Management and Research (DWMR) of Patna, the Schedule of opening and closing of canals have been modified as per the requirement so that sufficient water may be available for irrigation purpose.

- a) For Kharif, Rabi, and Hot Weather crops, presently canal operation is done as per the following schedule:-

Sone Canal system-	(1) May 20 th to Oct 30 th	- Kharif
	(2) December 10 th to April 10 th	- Rabi
Kosi Canal system-	(1) April 25 th to Oct 25 th	- Hot weather and Kharif
	(2) December 10 th to March 25 th	- Rabi
Gandak Canal system-	(1) April 25 th to Oct 25 th	- Kharif
	(2) December 10 th to March 25 th	- Rabi

- (b) If water remains available in Chandan, Badua, and other Schemes then water will be made available as per the schedule of the Sone canal system.





Strategy

Under the Fourth Agriculture Road Map (2023-28), the Water Resources Department, Bihar will adopt the following strategy for water management and irrigation development:-

- (i) During the year 2023-28, a program to create/restoration an irrigation potential of 1.295 lakh hectares under the scheme 'Har Khet Tak Sinchai ka Pani'.
- (ii) Program to create/restore irrigation potential of 5.555 lakh hectares under on-going irrigation schemes such as barrage scheme, weir scheme, pump canal scheme, canal restoration/extension scheme, and water reservoir scheme during the year 2023-28.
- (iii) Program to create/restore 0.2608 lakh hectare irrigation potential under the proposed irrigation schemes such as pump canal scheme and reservoir scheme during the year 2023-28.
- (iv) Program to create/restore 3.358 lakh hectare irrigation potential under river linking scheme during the year 2023-28.
- (v). During the year 2023-28, under the Tal Development Scheme, the program to create/restore 0.196 lakh hectare irrigation potential.
- (vi) During the year 2023-28, a program to provide flood protection in 19.272 lakh hectares area by constructing 550.242 km of new embankments under the ongoing schemes of flood control.
- (vii) Under the proposed schemes of flood control during the year 2023-28, a program to provide flood protection in 4.31 lakh hectares area by constructing 168.26 km of new embankments.
- (viii) Under the ongoing scheme of water drainage during the year 2023-28, a program to free 0.60 lakh hectare area from water logging.
- (ix) Program to get rid of water logging by completing the proposed 95 schemes for water drainage in the coming year of 2023-28.
- (x) In addition to this, the program to deliver water to the tail end of the canals by implementing lining, construction of new channels, and restoration work as per the requirement of the canals.

A total of **Rs 1919617 Lakh** will be required for the implementation of works under the Agriculture Road Map 2023-28, which is shown in table C.

Table-(C)

No.	Schemes	Number of schemes	Amount (in lakh Rs.)					Total
			2023-24	2024-25	2025-26	2026-27	2027-28	
1	Ongoing Schemes	1165	326157	297469	209066	58900	32100	923692



No.	Schemes	Number of schemes	Amount (in lakh Rs.)					Total
			2023-24	2024-25	2025-26	2026-27	2027-28	
2	Proposed Schemes	107	89012	138113	266700	379700	122400	995925
	Total	1272	415169	435582	475766	438600	154500	1919617

Irrigation, Flood Control and Drainage **Irrigation and water management programs –**

'Har Khet Tak Sinchai ka Pani' scheme (2023-28)

Under 'Har Khet Tak Sinchai ka Pani' Program, during the year 2023-28, 1.295 lakh hectare irrigation potential is to be created/restored by implementing a total of 1127 schemes, including the schemes selected during technical survey and adding other new schemes. A total expenditure of Rs 70000 lakh is estimated for implementation of these schemes.

Under this program, during the year 2021-23, till now 266 schemes have been completed and irrigation potential of 60,616 hectares has been created / restored.

The physical and financial target set for these schemes are shown in **Table-1**.





Fourth Agriculture Roadmap 2023-28



Table – 1: Creation/restoration of irrigation potential under the scheme 'Har Khet Tak Sinchai ka Pani' (2023-28)

No.	Name of the scheme	No. of the scheme	Target of additional irrigation potential creation/ restoration (in lakh ha)					
			2023-24	2024-25	2025-26	2026-27	2027-28	Total
1	Field channel construction (Sugam Sinchai Sankarm)	149	0.03059	0.03000	-	-	-	0.06059
2	Canal restoration	117	0.06000	0.04900	-	-	-	0.10900
3	Extension of canals	16	0.03396	0.03350	-	-	-	0.06746
4	Construction of Weir / Check dam/ Other Schemes	845	0.53000	0.52795	-	-	-	1.05795
	Total	1127	0.65455	0.64045	-	-	-	1.29500

No.	Name of the scheme	No. of the scheme	Financial target (in lakh Rs.)					
			2023-24	2024-25	2025-26	2026-27	2027-28	Total
1	Field channel construction (Sugam Sinchai Sankarm)	149	1875	1400	-	-	-	3275
2	Canal restoration	117	3000	2892	-	-	-	5892
3	Extension of canals	16	1846	1800	-	-	-	3646
4	Construction of Weir / Check dam/ Other Schemes	845	28687	28500	-	-	-	57187
	Total	1127	35408	34592	-	-	-	70000





Irrigation potential Creation/Restoration Program (2023-28) under ongoing Irrigation Scheme-

- **Ongoing Barrage Scheme** - Under the ongoing irrigation scheme, 0.452 lakh hectare irrigation potential is to be created/restored by implementing a total of 04 schemes during the year 2023-28 under the Barrage scheme. A total expenditure of Rs 64310 lakh is estimated for its implementation.

The physical target and financial target set for these schemes are shown in **Table-2**.

Table-2: Ongoing Barrage Scheme

No.	Name of the Scheme	Target of Irrigation Potential Creation/ Restoration (in lakh ha)					
		2023-24	2024-25	2025-26	2026-27	2027-28	Total
1	Punpun Barrage Scheme	0.010	0.010	0.050	0.066	-	0.136
2	Construction work of Malai Barrage Scheme	-	0.056	-	-	-	0.056
	Balwaghat barrage-cum-irrigation scheme on Dhaus river.	0.066	-	-	-	-	0.066
4	Kamla Barrage Scheme	0.097	0.097	-	-	-	0.194
	Total	0.173	0.163	0.050	0.066	-	0.452

No.	Name of the Scheme	Financial target (in lakh Rs.)					
		2023-24	2024-25	2025-26	2026-27	2027-28	Total
1	Punpun Barrage Scheme	10000	10000	8200	-	-	28200
	Construction work of Malai Barrage Scheme	500	400	-	-	-	900
	Balwaghat barrage-cum-irrigation scheme on Dhaus river.	3500	-	-	-	-	3500
4	Kamla Barrage Scheme	25710	6000	-	-	-	31710
	Total	39710	16400	8200	-	-	64310



- **Ongoing Weir Scheme** - Under the ongoing irrigation scheme, 0.224 lakh hectare irrigation potential is to be created/restored during the year 2023-28 by implementing a total of 07 schemes under the Weir scheme. A total expenditure of Rs 13075 lakh is estimated for its implementation.

The physical target and financial target set for these schemes are shown in Table-3.

Table-3: Ongoing Weir Scheme

No.	Name of the Scheme	Target of Irrigation Potential Creation/ Restoration (in lakh ha)					
		2023-24	2024-25	2025-26	2026-27	2027-28	Total
1	Garaul Weir Irrigation Scheme located in Alinagar block of Darbhanga district.	0.018	-	-	-	-	0.018
2	Weir irrigation scheme near Baghela Ghat under Darbhanga district	0.008	-	-	-	-	0.008
3	Construction work of weir near Laxmipur village in Madhubani district on Bihul river.	0.024	-	-	-	-	0.024
4	Weir irrigation scheme on Tikma river under Darbhanga district.	0.008	-	-	-	-	0.008
5	Mandai Weir Scheme in Jahanabad district	0.016	0.021	-	-	-	0.037
6	Restoration of Dariyapur Weir in Shekhpura district	0.022	0.022	0.022	0.022	0.020	0.108
7	Construction of check dam and restoration work of pines on Mani river in Ghoraha village of Bariarpur block under Munger district.	0.021	-	-	-	-	0.021
Total		0.117	0.043	0.022	0.022	0.020	0.224





Fourth Agriculture Roadmap 2023-28



No.	Name of the Scheme	Financial target (in lakh Rs.)					
		2023-24	2024-25	2025-26	2026-27	2027-28	Total
1	Garaul Weir Irrigation Scheme located in Alinagar block of Darbhanga district.	143	-	-	-	-	143
2	Weir irrigation scheme near Baghela Ghat under Darbhanga district	150	-	-	-	-	150
3	Construction work of weir near Laxmipur village in Madhubani district on Bihul river.	2541	-	-	-	-	2541
4	Weir irrigation scheme on Tikma river under Darbhanga district.	638	-	-	-	-	638
5	Mandai Weir Scheme in Jahanabad district	6200	2003	-	-	-	8203
6	Restoration of Dariyapur Weir in Shekhpura district	120	120	120	120	120	600
7	Construction of check dam and restoration work of pines on Mani river in Ghoraha village of Bariarpur block under Munger district.	800	-	-	-	-	800
Total		10592	2123	120	120	120	13075





- **Ongoing Pump Canal Scheme** - Under the ongoing irrigation scheme, 0.253 lakh hectare irrigation potential is to be created/restored by implementing a total of 06 schemes during the year 2023-28 under the Pump Canal Scheme. A total expenditure of Rs 17800 lakh is estimated for its implementation.

The physical target and financial target set for these schemes are shown in **Table-4**.

Table-4: Pump Canal Scheme

No	Name of the Scheme	Target of Irrigation Potential Creation/ Restoration (in lakh ha)					
		2023-24	2024-25	2025-26	2026-27	2027-28	Total
1	Bateshwarsthan Ganga Pump Canal Project Phase-II.	0.0316	0.0316	0.0316	0.0316	0.0316	0.158
2	Construction work at 1.70 R.D of Durgavati left main canal	0.0030	-	-	-	-	0.003
3	Construction work of Nikrish Pump Canal Scheme on Karmnasha river.	0.0280	-	-	-	-	0.028
4	Construction work of Dhadhar Pump House and Link Canal on Karmanasha River.	0.0270	-	-	-	-	0.027
5	Construction of Tiara Pump House and renovation work of its distribution system on Karmanasha River.	0.0210	-	-	-	-	0.021
6	Construction work of Jaitpura Pump Canal Scheme on Karmnasha river.	0.0160	-	-	-	-	0.016
Total		0.1266	0.0316	0.0316	0.0316	0.0316	0.253



Fourth Agriculture Roadmap 2023-28



No	Name of the Scheme	Financial target (in lakh Rs.)					
		2023-24	2024-25	2025-26	2026-27	2027-28	Total
1	Bateshwarsthan Ganga Pump Canal Project Phase-II.	2180	2180	2180	2180	2180	10900
2	Construction work at 1.70 R.D of Durgavati left main canal	300	-	-	-	-	300
3	Construction work of Nikrish Pump Canal Scheme on Karmnasha river.	1000	-	-	-	-	1000
4	Construction work of Dhadhar Pump House and Link Canal on Karmanasha River.	2500	-	-	-	-	2500
5	Construction of Tiara Pump House and renovation work of its distribution system on Karmanasha River.	2400	-	-	-	-	2400
6	Construction work of Jaitpura Pump Canal Scheme on Karmnasha river.	700	-	-	-	-	700
Total		9080	2180	2180	2180	2180	17800





- **Ongoing Canal Restoration /Extension Scheme** - Under the canal restoration /extension scheme, 4.166 lakh hectares of irrigation potential is to be created/restorated by implementing a total of 05 schemes during the year 2023-28 under the ongoing irrigation scheme. A total expenditure of Rs 316600 lakh is estimated for its implementation.

The physical target and financial target set for these schemes are shown in **Table-5**.

Table-5: Canal Restoration/ Extension Scheme

No.	Name of the Scheme	Target of Irrigation Potential Creation/ Restoration (in lakh ha)					
		2023-24	2024-25	2025-26	2026-27	2027-28	Total
1	Western Koshi Canal Project	0.500	0.500	0.593	-	-	1.593
2	Eastern Gandak Canal System (Gandak Phase-2)	0.035	0.280	0.280	0.280	0.285	1.160
3	Remaining work of restoration (ERM) of Western Gandak Canal System (Saran Main Canal and its distributary system)	0.500	0.500	0.339	-	-	1.339
4	Restoration and lining of Chausa branch canal from kilometer 0.00 to 12.924 under Son Canal system and restoration work of Kochas distributary and Indore distributary originating from Chausa branch canal	0.007	-	-	-	-	0.007
5	Restoration work of aquaduct-cum-one-way bridge on Chain No. 124 (RD 12.40) of Chandan High Level Main Canal	0.067	-	-	-	-	0.067
Total		1.109	1.280	1.212	0.280	0.285	4.166



Fourth Agriculture Roadmap 2023-28



No.	Name of the Scheme	Financial target (in lakh Rs.)					
		2023-24	2024-25	2025-26	2026-27	2027-28	Total
1	Western Koshi Canal Project	20000	20000	9300	-	-	49300
2	Eastern Gandak Canal System (Gandak Phase-2)	39500	29000	29000	29000	28700	155200
3	Remaining work of restoration (ERM) of Western Gandak Canal System (Saran Main Canal and its distributary system)	20000	50000	40000	-	-	110000
4	Restoration and lining of Chausa branch canal from kilometer 0.00 to 12.924 under Son Canal system and restoration work of Kochas distributary and Indore distributary originating from Chausa branch canal	1500	-	-	-	-	1500
5	Restoration work of aquaduct-cum-one-way bridge on Chain No. 124 (RD 12.40) of Chandan High Level Main Canal	600	-	-	-	-	600
Total		81600	99000	78300	29000	28700	316600





- **Ongoing Reservoir Scheme** - Under the ongoing irrigation scheme, 0.460 lakh hectare irrigation potential is to be created/restored during the year 2023-28 by implementing a total of 03 schemes under the Reservoir Scheme. A total expenditure of Rs 86800 lakh is estimated for its implementation.

The physical target and financial target set for these schemes are shown in **Table-6**.

Table-6: On-going Reservoir Scheme

No.	Name of the Scheme	Target of Irrigation Potential Creation/ Restoration (in lakh ha)					
		2023-24	2024-25	2025-26	2026-27	2027-28	Total
1	Durgavati Reservoir Scheme	0.058	-	-	-	-	0.058
2	Construction work of Kundghat reservoir scheme	0.014	-	-	-	-	0.014
3	Uttar Koel Reservoir Scheme	0.10	0.10	0.188	-	-	0.388
	Total	0.172	0.10	0.188	-	-	0.460

No.	Name of the Scheme	Financial target (in lakh Rs.)					
		2023-24	2024-25	2025-26	2026-27	2027-28	Total
1	Durgavati Reservoir Scheme	5000	-	-	-	-	5000
2	Construction work of Kundghat reservoir scheme	7100	-	-	-	-	7100
3	Uttar Koel Reservoir Scheme	10000	39200	25500	-	-	74700
	Total	22100	39200	25500	-	-	86800





Irrigation potential creation/restoration program (2023-28) under the proposed irrigation scheme

- **Pump Canal Scheme** - Under the proposed irrigation scheme, 0.0328 lakh hectare irrigation potential is to be created/restored during the year 2023-28 by implementing a total of 01 schemes under the Pump Canal Scheme. A total expenditure of Rs. 50000 lakh is estimated for its implementation.

The physical target and financial target fixed for this scheme are shown in **Table-7**.

Proposed Pump Canal Scheme

No.	Name of the Scheme	Target of Irrigation Potential Creation/ Restoration (in lakh ha)					
		2023-24	2024-25	2025-26	2026-27	2027-28	Total
1	Dakra Nala Pump Canal Scheme	-	0.005	0.005	0.005	0.0178	0.0328
	Total	-	0.005	0.005	0.005	0.0178	0.0328

No.	Name of the Scheme	Financial target (in lakh Rs.)					
		2023-24	2024-25	2025-26	2026-27	2027-28	Total
1	Dakra Nala Pump Canal Scheme	6000	9000	10000	10000	15000	50000
	Total	6000	9000	10000	10000	15000	50000

- **Reservoir Scheme** - Under the proposed irrigation scheme, 0.228 lakh hectare irrigation potential is to be created/restored during the year 2023-28 by implementing a total of 02 schemes under the Reservoir Scheme. A total expenditure of Rs 123100 lakh is estimated on its implementation.

The physical target and financial target set for these schemes are shown in **Table-8**.

Table-8: Proposed Reservoir Scheme

No.	Name of the Scheme	Target of Irrigation Potential Creation/ Restoration (in lakh ha)					
		2023-24	2024-25	2025-26	2026-27	2027-28	Total
1	Barnar Reservoir Scheme	-	-	-	0.100	0.122	0.222



2	Sindhwarni Reservoir Scheme	-	0.006	-	-	-	0.006
	Total	-	0.006	-	0.100	0.122	0.228

No.	Name of the Scheme	Financial target (in lakh Rs.)					
		2023-24	2024-25	2025-26	2026-27	2027-28	Total
1	Barnar Reservoir Scheme	5000	20000	30000	30000	25600	110600
2	Sindhwarni Reservoir Scheme	8000	4500	-	-	-	12500
	Total	13000	24500	30000	30000	25600	123100

Program of River Linking Scheme (2023-28)-

During the year 2023-28, 3.358 lakh hectare irrigation potential is to be created/restored by implementing a total of 04 river linking schemes. A total expenditure of Rs 619225 lakh is estimated for its implementation.

The physical target and financial target fixed for these schemes are shown in Table-9.

Table-9: Scheme for flood control and irrigation promotion through river linkingscheme

No.	Name of the Scheme	Target of Irrigation Potential Creation/ Restoration (in lakh ha)					
		2023-24	2024-25	2025-26	2026-27	2027-28	Total
1	Kosi Mainchi Intrastate Link Project	-	-	0.100	0.870	1.170	2.140
2	Bagmati-Budhi Gandak River Link Belwadhar Scheme	-	0.237	0.237	0.238	0.238	0.950
3	Gandak Chhari-Ganga river link scheme	-	0.009	0.009	-	-	0.018
4	Gandak-Daha-Ghaghra river link scheme	-	0.0625	0.0625	0.0625	0.0625	0.250
	Total	-	0.3085	0.4085	1.1705	1.4705	3.358





No.	Name of the Scheme	Financial target (in lakh Rs.)					
		2023-24	2024-25	2025-26	2026-27	2027-28	Total
1	Kosi Mainchi Intrastate Link Project	3000	6000	150000	290000	41000	490000
2	Bagmati-Budhi Gandak River Link Belwadhar Scheme	14000	14000	14000	14000	14000	70000
3	Gandak Chhari-Ganga river link scheme	4612	4613	-	-	-	9225
4	Gandak-Daha-Ghaghra river link scheme	10000	10000	10000	10000	10000	50000
	Total	31612	34613	174000	314000	65000	619225

4.8 Program of Tal Development Plan (2023-28) –

During the year 2023-28, 0.196 lakh hectare irrigation potential is to be created / restored by implementing the Tal Development Scheme. A total expenditure of Rs 114707 lakh is estimated for its implementation.

The physical target and financial target fixed for this scheme are shown in Table-10 .

Table-10: Ongoing Tal Vikas Scheme

No.	Name of the Scheme	Target of Irrigation Potential Creation/ Restoration (in lakh ha)					
		2023-24	2024-25	2025-26	2026-27	2027-28	Total
1	Tal Development Scheme	0.049	0.098	0.049	-	-	0.196
	Total	0.049	0.098	0.049	-	-	0.196

No.	Name of the Scheme	Financial target (in lakh Rs.)					
		2023-24	2024-25	2025-26	2026-27	2027-28	Total
1	Tal Development Scheme	50000	34707	30000	-	-	114707
	Total	50000	34707	30000	-	-	114707



Fourth Agriculture Roadmap 2023-28



Flood Control and Flood Management Program (2023-28) -

Bihar is affected by floods almost every year. Out of total area of state 94.163 lakh hectare, about 68.80 lakh hectare area of the state is flood affected. Every year crops are damaged due to floods. Management of floods is important for intense agriculture.

- By implementing 11 ongoing flood protection schemes during the year 2023-28, there is a program to provide flood protection in 19.272 lakh hectare area by constructing 550.242 km of new embankments, on which a total expenditure of Rs 230400 lakh is estimated.

The physical target and financial target set for these schemes are shown in **Table-11**.





Table-11: Ongoing Flood control schemes

No.	Name of the Scheme	Target to protect area from flood (in lakh ha)					
		2023-24	2024-25	2025-26	2026-27	2027-28	Total
1	Bagmati Flood Management Plan Phase-II	2.000	3.243	1.250	-	-	6.493
2	Bagmati Flood Management Plan Phase-III(a)	1.000	1.320	0.580	-	-	2.900
3	Bagmati Flood Management Plan Phase-IV(a)	1.512	1.878	1.000	-	-	4.390
4	Bagmati Flood Management Plan Phase-V(a)	0.275	0.800	0.800	0.675	-	2.550
5	Mahananda Flood Management Plan Phase-II	0.200	0.330	0.330	0.280	-	1.140
6	Buxar-Koilwar Embankment	0.007	0.007	0.007	0.007	0.008	0.036
7	Adhwara Group-Jhim Jamura	0.1232	0.0308	-	-	-	0.1540
8	Rato River Embankment	0.020	0.020	0.020	-	-	0.060
9	Kamla Balan Phase-1	0.480	-	-	-	-	0.480
10	AMU protection work	0.003	0.003	0.003	-	-	0.009
11	Tal Development scheme	0.530	0.530	-	-	-	1.060
Total		6.1502	8.1618	3.99	0.962	0.008	19.272



Fourth Agriculture Roadmap 2023-28



No.	Name of the Scheme	Target for construction of embankment (in km)	Financial target (in lakh Rs.)					
			2023-24	2024-25	2025-26	2026-27	2027-28	Total
1	Bagmati Flood Management Plan Phase-II	19.190	5000	8000	5000	-	-	18000
2	Bagmati Flood Management Plan Phase-III(a)	0	10000	18000	12000	-	-	40000
3	Bagmati Flood Management Plan Phase-IV(a)	1.732	3000	2000	2000	-	-	7000
4	Bagmati Flood Management Plan Phase-V(a)	52.330	5000	10500	18000	3000	-	36500
5	Mahananda Flood Management Plan Phase-II	198.370	10000	22500	22500	24200	-	79200
6	Buxar-Koilwar Embankment	5.390	500	600	500	400	1100	3100
7	Adhwara Group-Jhim Jamura	49.770	800	200	-	-	-	1000
8	Rato River Embankment	32.000	2000	4000	3500	-	-	9500
9	Kamla Balan Phase-1	80.000	32000	-	-	-	-	32000
10	AMU protection work	3.460	1367	1467	1266	-	-	4100
11	Tal Development scheme	108.000	-	-	-	-	-	0*
Total		550.242	69667	67267	64766	27600	1100	230400



- * The financial target of Rs 114707 lakh is mentioned in the irrigation scheme.
- During the year 2023-28, there is a program to provide flood protection in 4.31 lakh hectare by constructing 168.26 km of new embankments by implementing the 05 schemes proposed, on which a total expenditure of Rs 153600 lakh is estimated.

The physical target and financial target set for this scheme are shown in **Table-12**.

Table-12: Proposed Flood Control Schemes

No.	Name of the Scheme	Tagret of area protection from flood (in lakh ha)					
		2023-24	2024-25	2025-26	2026-27	2027-28	Total
1	Sikarhana Embankment	0.40	0.40	0.40	-	-	1.20
2	Kamla Balan Phase-2	0.28	0.28	-	-	-	0.56
3	Bagmati Flood Management Plan V(b)	0.20	0.25	0.25	0.25	0.35	1.30
4	Bagmati (Belwadhra) - Budhi Gandak (Minapur) Link Scheme	0.20	0.40	-	-	-	0.60
5	Bagmati (Shantidhar) Budhi Gandak (Tirmuhanghat) Link Scheme	0.20	0.30	0.15	-	-	0.65
	Total	1.28	1.63	0.80	0.25	0.35	4.31



Fourth Agriculture Roadmap 2023-28



Fourth Agriculture Roadmap 2023-28

No.	Name of the Scheme	Target for construction of embankment (in km)	Financial target (in lakh Rs.)					
			2023-24	2024-25	2025-26	2026-27	2027-28	Total
		Total						
1	Sikarhana Embankment	56.56	8000	8000	8000	-	-	24000
2	Kamla Balan Phase-2	51.70	14800	14800	-	-	-	29600
3	Bagmati Flood Management Plan V(b)	60.00	5000	15000	15000	15000	12000	62000
4	Bagmati (Belwadhara) - Budhi Gandak (Minapur) Link Scheme	-	4000	9000	-	-	-	13000
5	Bagmati (Shantidhar) Budhi Gandak (Tirmuhanghat) Link Scheme	-	4000	10000	11000	-	-	25000
	Total	168.26	35800	56800	34000	15000	12000	153600





4.10 Drainage Program (2023-28)

- There is a program to free 0.60 lakh hectare area from water-logging by implementing 01 on-going scheme during the year 2023-28, on which a total expenditure of Rs 10000 lakh is estimated.

The physical target and financial target set for these schemes are shown in **Table-13**.

Table-13: On-going water drainage scheme

No.	Name of the Scheme	Target of area protection from water-logging (in lakh ha)					
		2023-24	2024-25	2025-26	2026-27	2027-28	Total
1	Flood control and drainage scheme in Mokama Tall area	0.40	0.20	-	-	-	0.60
	Total	0.40	0.20	-	-	-	0.60

No.	Name of the Scheme	Financial target (in lakh Rs.)					
		2023-24	2024-25	2025-26	2026-27	2027-28	Total
1	Flood control and drainage scheme in Mokama Tall area	8000	2000	-	-	-	10000
	Total	8000	2000	-	-	-	10000

- During the year 2023-28, the proposed 95 schemes for water drainage are to be implemented, in which a total expenditure of Rs 50000 lakh is estimated.

The physical target and financial target fixed for these schemes are shown in **Table-14**.

Table-14: Proposed water drainage scheme

No.	Name of the Scheme	Number of Scheme					
		2023-24	2024-25	2025-26	2026-27	2027-28	Total
1	Schemes for drainage	5	25	35	20	10	95
	Total	5	25	35	20	10	95

Fourth Agriculture Roadmap 2023-28



No.	Name of the Scheme	Financial target (in lakh Rs.)					
		2023-24	2024-25	2025-26	2026-27	2027-28	Total
1	Schemes for drainage	2600	13200	18700	10700	4800	50000
	Total	2600	13200	18700	10700	4800	50000

Total for the ongoing scheme Rs 923692 lakh and for the proposed scheme Rs 995925 lakh which means a total of Rs. 1919617 lakh will be required for the implementation of the above works under the Agriculture Road Map 2023-28. Details are shown in Table (D) and (E).

Table-(D) On-going Scheme

No.	On-going Schemes	Number of schemes	Amount (in lakh Rs.)					Total
			2023-24	2024-25	2025-26	2026-27	2027-28	
1	'Har Khet Tak Sinchai Ka Pani' scheme	1127	35408	34592	-	-	-	70000
2	Ongoing barrage scheme	04	39710	16400	8200	-	-	64310
3	Ongoing weir scheme	07	10592	2123	120	120	120	13075
4	Ongoing Pump canal scheme	06	9080	2180	2180	2180	2180	17800
5	Ongoing Canal Restoration /Extension plan	05	81600	99000	78300	29000	28700	316600
6	Ongoing reservoir scheme	03	22100	39200	25500	-	-	86800





Fourth Agriculture Roadmap 2023-28



No.	On-going Schemes	Number of schemes	Amount (in lakh Rs.)					Total
			2023-24	2024-25	2025-26	2026-27	2027-28	
7	Tal Development Plan	01	50000	34707	30000	-	-	114707
8	Ongoing flood control scheme	11	69667	67267	64766	27600	1100	230400
9	Ongoing water drainage scheme	01	8000	2000	-	-	-	10000
Total		1165	326157	297469	209066	58900	32100	923692

Table-(E) Proposed Scheme

No.	New Schemes	No. of Schemes	Amount (in lakh Rs.)					Total
			2023-24	2024-25	2025-26	2026-27	2027-28	
1	Proposed Pump Canal Scheme	01	6000	9000	10000	10000	15000	50000
2	Proposed Reservoir Scheme	02	13000	24500	30000	30000	25600	123100
3	River linking scheme	04	31612	34613	174000	314000	65000	619225
4	Proposed Flood Control scheme	05	35800	56800	34000	15000	12000	153600
5	Proposed drainage scheme	95	2600	13200	18700	10700	4800	50000
Total		107	89012	138113	266700	379700	122400	995925

Fourth Agriculture Roadmap 2023-28





Fourth Agriculture Roadmap 2023-28



In addition to the above scheme, an inter-departmental committee has been constituted under the chairmanship of the District Magistrate of four affected district for identifying water-logging sugarcane producing land reported againsts 3.43 lakh acres of land reported by the sugarcane industries department. After survey of the said committee, according to the opinion, necessary structures will be constructed by the concerned department to get rid of water-logging

After inspection by the officials, 0.99424 lakh acres of water logged area has already been identified and inspection of other places are in progress. The work will be implemented by preparing the DPR of the schemes for drainage by the regional officers. For the above works, the identified schemes will be implemented by the Water Resources Department according to the regular drainage schemes.



05

Minor Water
Resources





Minor Water Resources

Background:

Irrigation water is necessary for agriculture. All those irrigation schemes which possess the command area up to 2000 Hectare comes under the purview of Minor Water Resource Department. The main objective of Minor Water Resource Department is to develop the irrigation capacity with surface and the ground water available in the state by spending lesser amount and also ensuring the optimum use of these resources. Minor irrigation schemes are popular among farmers. By minor irrigation schemes it will be fruitful to develop the maximum irrigation potential with lesser investment. In the situation of drought, it becomes feasible to manage irrigation through schemes based on ground water. It becomes possible to provide the irrigation facility to those agricultural lands which are far from the command area of larger schemes. Surface schemes like Ahar-Pyne, pond and check-dam not only provide the irrigation facility but also recharge the groundwater.

Minor Water Resource Department mainly concerned with three areas of work:-

1. Surface schemes like traditional Ahar-Pyne Pond, weir, check-dam and lift irrigation schemes etc.
2. Ground water schemes like State tube well, private tube well etc.
3. Collection of ground water data and its analysis.

To provide the irrigation facility by surface irrigation and Ground water irrigation, special attention could be given to below mentioned points under Minor Water Resource Department,

1. Conducting comprehensive survey, GIS mapping and restoring the irrigation potential by renovating of all the traditional Ahar-Pyne system.
2. Implementing participatory irrigation management by encouraging people's participation in minor irrigation schemes. Ensuring public participation as per implementation, maintenance and use. with public participation the benefits of these schemes can be extended to the maximum number of farmers.
3. Promoting water harvesting structure under semi critical, critical and over exploited blocks in the state.
4. From Banka to Kaimur there are several mountainous and plateau regions where there is the possibility of creation of irrigation facility by constructing garland trench. With the objective of accumulating water in mountainous and plateau regions excluding the forest areas.
5. At present Digital Water Level Recorders are installed in district and block headquarters. For accumulating more reliable underground water data, underground water recorders could be installed in all panchayats of the state.





The data received from these would be more broad-based and reliable and also with the analysis of this data the estimation of under ground water could be done in more effective way. In the same way for storage of ground water, aquifer mapping should be done across all the regions of the state and scientific analysis should be done of received data.

6. With passage of time because of the accumulation of silt in Ahar-pyne, check dams etc. the water storage capacity and irrigation capacity decreases. Thus, to address the problem of siltation in these surface schemes, the provision for silt management could be taken into consideration. Along with this, the study could be conducted to tackle the issue of irrigation induced salinity.

Detail Component wise DPR's list:

Sl. No.	DPR Title	No of Schemes	Approximate Irrigation Potential (In lakh)	Approx Budget (In lakh Rs.)
1	Restoration & Renovation of Ahar Pyne Irrigation Schemes	3223	2.26	191100
2	Construction & Renovation of Weir/Check Dam Schemes	730	0.86	146000
3	Construction & Renovation of Lift Irrigation Schemes	721	0.33	28800
4	Niji Nalkup Yojana	90000	2.52	45000
5	Shallow tubewell yojna	80000	1.6	20000
6	Repair and restoration of State Tube well Scheme	6000	3.60	99900
Total		180674	11.17	530800





दुर्गावती जलाशय

वे जल धारा

LEFT PO
INFORMED
CLIMAT - 12
WIND SPEED
NOV - 20

06

Cooperatives





Cooperatives

Introduction

The Cooperative Department plays a vital role in implementing the agricultural roadmap by fulfilling the overall requirements of the crop cycle for farmers. These include providing agricultural inputs (such as fertilizers, seeds, pesticides, agricultural credit, etc.), creating warehouses for increasing food storage capacity, establishing an agricultural equipment bank, processing of agricultural products, and ensuring the procurement of agricultural produce on minimum support price and training for institutional development under the purview of cooperative sector. The department has achieved commendable results in carrying out these landmark achievements.

The establishment of godown construction cum office facilities under PACS and Vyapar Mandal has not only provided the physical recognition to cooperative institutions but also paved the ways for business development. Out of a total of 8,984 PACS and Vyapar Mandal in the state, the construction of godown-cum-office facilities at 6,888 PACS and Vyapar Mandal have already been completed, resulted in the creation of approximately 14.63 lakh MT storage capacities for agricultural produce. Adding to this, the creation of 03 lakh MT storage capacity is under process. Because of creation of storage capacity and expansion, activities like fertilizer distribution, public distribution mechanism, procurement of agricultural produce on minimum support prices etc. have been executed successfully through cooperative societies. Furthermore, Rice Mills have been established at 468 PACS and Vyapar Mandal, and through this procured paddy has milled and supplied to the state food corporation.

To ensure maximum benefit from minimum support price (MSP) to the farmers, the state government has assigned this task of procurement of food grains (especially paddy and wheat) to PACS and Vyapar Mandal. 44.90 Lakhs MT of Paddy have been procured from 6.42 Lakhs of farmers, and against this an amount of INR 8,710 Cr. paid directly to the farmers during the food grain procurement year of 2021-22. During the current procurement year 2022-23, 42.04 Lakhs MT of Paddy have been procured from 5.77 Lakhs of farmers, and against this INR 8,577 Cr. paid to them. Because of active participation and dedicated approach of Cooperative societies for food grain procurement under MSP, the income level of farmers is increased and helped them in overcoming the market uncertainties.

State cooperative banks facilitates short term loan through Kisan Credit card to the farmers who have PACS membership. The interest rate payable on Kisan Credit Card is 7%, with a 2% interest subsidy and an additional 3% interest subsidy is available for timely loan repayment. During financial year 2022-23, cooperative banks distributed a sum of Rs 271.60 crore as short-term agricultural loans to 92,573 farmers. Cooperative banks are successfully fulfilling the financial requirements,





related to food grain procurement. All the cooperative banks in the state are operating and monitoring the various activities under modern technology-based platforms.

To provide benefits to small and marginal farmers and enhancing their agricultural productivity from modern agricultural technology, the Cooperative Department is implementing the Bihar Chief minister Harit Krishi Sanyatra Scheme, this scheme aims to establish agricultural equipment banks at 2,927 selected PACS within the state. Currently, 11,912 units of agricultural equipment have been purchased by 2,899 PACS, and an additional purchase of 3,880 units of agricultural equipment are under process.

Since 2018 (Kharif season), the Bihar State Crop Assistance Scheme is implemented and operational in the state. This scheme benefitted registered farmers and non-raiyat farmers on account of their crop damages and facilitated them by the help of online portal of agricultural department. Till date, 26.53 lakh farmers have been benefitted from this scheme and through this a total of Rs 1651.35 crore have been paid to them.

The Bihar State Vegetable Processing and Marketing Scheme aims to provide fair prices to vegetable producers and availability of quality vegetables at an affordable price for the consumers. It covers 35,126 members in 300 block level primary vegetable cooperative societies across 20 districts in the state. So far, these committees have traded 43,766 MT of vegetables, and generated turnover of Rs 72.09 crore.

The State PACS (Primary Agricultural Credit Societies) are being developed as multi-purpose business organizations. The computerization of PACS has started to ensure transparency in their activities and facilitating the business diversification. The department plans to expand the business scope of PACS to meet both agricultural and non-agricultural needs in rural areas.

The department has set up a toll-free call center called 'Sugam' (1800 1800 110) to provide information about Cooperative Department schemes and address complaints promptly. The call center has played a crucial role in the execution of successful operation for the procurement business, the Bihar State Crop Assistance Scheme, and in other departmental schemes.

Cooperative Department's Priorities for the Fourth Agricultural Road Map (2023-2028)

Under the Fourth Agricultural Road Map (2023-28), priorities have been fixed to meet the agricultural and non-agricultural business needs of farmers at the local level, promoting comprehensive development through cooperatives.

To facilitate business development and providing physical identity to the cooperatives, godown construction-cum-office facilities have been established at





PACS and Vyapar Mandals within the state. The department aims to create a storage capacity of approximately 10 lakh MT in all remaining PACS and trade circles as part of the Fourth Agricultural Road Map. Additionally, the Department of Industries will support the establishment of Usna rice mill in cooperative societies, replacing the Arwa rice mill.

To provide benefits to small and marginal farmers in the state for accessing the modern agricultural techniques at competitive rates and increasing their agricultural productivity, the Cooperative Department is implemented the Bihar Chief minister Harit Krishi Sanyatra Scheme. This initiative includes the establishment of agricultural equipment banks in 2,927 selected PACS across the state. The smooth implementation of the Agricultural Equipment Bank is a key focus area under the Fourth Agricultural Road Map, along with the establishment of such banks in selected primary vegetable cooperative Societies using the remaining funds from the Bihar Chief minister Harit Krishi Sanyatra Scheme.

The Bihar State Crop Assistance Scheme has been introduced by the state government in Kharif 2018. Its primary purpose is to support the farmers financially in case of any decline in crop production due to adverse weather conditions and encouraging them for preparing the next crop cycle. Registered farmers and non-raiyat farmers listed under the Agriculture Department's portal are eligible for benefits in case of any crop damages. To date, this scheme has benefited 26.53 lakh farmers, who received payments of Rs 1,651.35 crores. The upcoming agriculture road map aims to include new crops, especially vegetables in this scheme, providing financial assistance to vegetable-producing farmers in case of any crop damages.

The computerization of PACS has begun to transform them into multipurpose business organizations. Currently, the computerization process is underway for 4477 PACS within the state. The Fourth Agricultural Road Map aims to complete the computerization of all PACS within the state. This will enable PACS to diversify their business activities to meet the agricultural and non-agricultural needs of rural areas, in addition to serving the farmers through end-to-end farming cycle.

Short-term loans are distributed through Kisan Credit Card (KCC) to the member farmers of PACS by the cooperative banks in the state. During financial year 2022-23, cooperative banks have distributed Rs 271.60 crore as short-term agricultural loans to 92,573 farmers. In the upcoming agricultural road map, computerization of all PACS in the state is planned, transforming them into the main centers of the rural economy and extending their functions as centers for the District Central Cooperative Bank. This will facilitate in increasing business opportunities and improved loan distribution for the member farmers.

The Fourth Agricultural Road Map also includes institutional strengthening of vegetable and honey producer cooperative societies, aiming to harness the potential of the vegetable and honey sectors through inter-departmental coordination.





Year-wise physical and financial target of agriculture road map (2023-28):

Physical target-

S. No.	Programme	2023-24	2024-25	2025-26	2026-27	2027-28	Total
1	Agriculture credit enhancement						
	(a) Kisan Credit Card (number)	80000	90000	100000	110000	120000	500000
	(b) Credit Flow (in crore)	250	270	300	330	350	1500
2	Increase in storage capacity in Pax/Vyapar Mandal (Lakh MT)	2.0	2.0	2.0	2.0	2.0	10.00
3	Business Development by Cooperative Societies						
	(a) Licence for supply of agricultural inputs	500	500	500	500	500	2500
	(B) Procurement (Target to involve PACS and Vyapar Mandal in procurement work)	7500	7600	7700	7800	8000	38600



S. No.	Programme	2023-24	2024-25	2025-26	2026-27	2027-28	Total
4	Capacity building through training/ workshop/ seminar						
	(a) Modernization, construction, and training of Cooperative Training Institute, Pusa	Construction of new building and renovation of old building					
	(b) Training and capacity building of PACS/Vyapar Mandal executive members (number)	600	600	600	600	600	3,000
	(c) Annual training of PACS managers/ members (number)	500	2000	2000	2000	2000	8,500
	(d) Training and capacity building of officers/ employees of the department (number)	300	300	300	300	300	1,500
5	PACS Computerization	2000	2500	3558	-	-	8058
6	Registration / coverage of farmers under Bihar State Crop Assistance Scheme (target - in lakhs)	25	28	30	32	35	150





Fourth Agriculture Roadmap 2023-28



Financial target -

(Amount in lakh)

S. No	Programme	2023-24	2024-25	2025-26	2026-27	2027-28	Total
1	1) Increase in agricultural credit						
	(a) Kisan Credit Card (Amount)	25000	27000	30000	33000	35000	150000
	(b) Annual credit flow (of 'A' including amount)	420000	440000	460000	480000	500000	2300000
2	Procurement	950000	950000	1000000	1050000	1100000	5050000
3	Increase in storage capacity in PACS/Vyapar Mandal (Lakh MT)	3761.60	3761.60	3761.60	3761.60	3761.60	18808.00
4	Capacity building through training/workshop/seminar						
	(a) Modernization, construction, and training of Cooperative Training Institute, Pusa	176	141	-	-	-	317
	(b) Training and capacity building of PACS/ Vyapar Mandal executive members	50	50	50	50	50	250
	(c) Annual training of PACS managers/ members	10	10	10	10	10	50





Fourth Agriculture Roadmap 2023-28



S. No	Programme	2023-24	2024-25	2025-26	2026-27	2027-28	Total
	(d) Training and capacity building of the officers/ employees of the department	25	25	25	25	25	125
5	PACS Computerization	6180	7725	10995	-	-	24900
	Total (Sum of S.No. 3+4+5)	10202.60	11712.60	14841.60	3846.60	3846.60	44450.00



07 | Sugarcane **Industries**





Sugarcane Industries Department

Introduction:-

Bihar is an agricultural state. Agriculture is the backbone of the state economy, with 76% of the population still dependent on it. State has abundant natural resources such as suitable soil, climate, and water for agriculture. Sugarcane is an important cash crop in Bihar and is commercially cultivated due to its suitability to the climate and soil. Sugarcane is cultivated in approximately 3.00 lakh hectares area.

There are currently a total of 9 sugar mills operating in Bihar state, primarily located in West Champaran, East Champaran, Gopalganj, and Samastipur district. There is significant potential for establishing jaggery units in non-sugar mill districts such as Madhubani, Saharsa, Madhepura, Banka, Darbhanga, Jamui, Purnia, Begusarai, Vaishali, Nawada, Lakhisarai, Munger, Araria, Khagaria, and Gaya.

Achievements of past Agriculture Road Map:-

During the period of agriculture Road Map (2012-2017), there has been a significant increase in area, production and productivity of sugarcane. Sugarcane area increased from 2.49 lakh hectare to 2.64 lakh hectare, Sugarcane production increased from 134.14 lakh tonnes to 182.34 lakh tonnes and productivity increased from 53.55 ton/hectare to 69.06 ton/hectare.

In view of the achievements of the Agriculture Road Map (2017-2023), the average target of sugarcane area was 3.16 lakh hectare, of which the achievement was 2.76 lakh hectare, the average target of seed production and distribution was 41.80 lakh quintals and the achievement was 15.31 lakh quintals, average target of seed replacement rate of 10.93 percent whereas the achievement was 5.01 percent. Average sugarcane production target was 264.02 lakh tonnes whereas the achievement was 147.51 lakh tonnes. In this series, the average sugarcane productivity target was 83 ton/hectare where 53.29 ton/hectare was the achievement, average target of sugarcane crushed was 63 lakh tonnes whereas the achievement was 63.31 lakh tonnes, average target of sugar production was 6.60 lakh tonnes whereas the achievement was 6.39 lakh tonnes and average target of sugar recovery percentage of 11.50 whereas the achievement was 10.31 percent.

In the year 2005-2006, the crushing capacity of the sugar mills of the state was 33500 TCD, distillery capacity 75 KLPD, which increased to 57500 TCD, 290 KLPD in the year 2014-2015 as well as power generation started in the year 2014-15 with the capacity of 70 MW. In this sequence there was an increase in crushing capacity of sugar mill to 62950 TCD, Distillery to 470 KLPD and power generation capacity to 88.50 MW in the year 2021-2022.





Priorities

In the fourth Agriculture Road map (2023-2028), along with the increase in sugarcane production in all the sugarcane producing districts of the state, encouraging jaggery industry will increase the income of the farmers of the state and will provide direct employment to about 10775 people through jaggery industry. Along with this, ensuring the availability of seeds of best selected strains of sugarcane and increasing the seed replacement rate, promoting intercropping, distribution of insecticides at a subsidized rate to protect the sugarcane crop from borer insects and other pests and diseases, distribution of Bio-fertilizers/Organic fertilizers to the farmers at the subsidized rate are other priorities. In light of the challenges posed by flooding and water logging, testing of recommended varieties from outside the state is currently underway to identify those varieties that are suitable for the local climatic conditions. Furthermore seminars/inter-state exposure to progressive sugarcane farmers, training of farmers and entrepreneurs by setting up visit cum training/incubation centre and construction of juice analysis laboratory are among the priorities.

During the Fourth Agriculture Road Map period, efforts will be made to increase sugarcane productivity from 49.70 ton/hectare to approximately 90 ton/hectare and sugarcane coverage from 3 lakh hectares to 3.50 lakh hectares, as well as to achieve the desired sugar recovery level of 13 percent within the next five years.

DPR: Summary

Bihar State Jaggery Industries Promotion Programme-

As part of the Fourth Agriculture Road Map 2023-28, there is a proposal to increase the total area dedicated to sugarcane cultivation from 3.00 lakh hectares to 3.5 lakh hectares. This will include an increase in the area under sugar mills from 2.8 lakh hectares to 3.01 lakh hectares, and an increase from 0.16 lakh hectares to 0.49 lakh hectares in non-sugar mill areas.

The proposed Bihar State Jaggery Industries Promotion Programme aims to establish approximately 405 jaggery units of varying capacities, with 70% of these units to be set up in non-sugar mill areas and the remaining 30% in sugar mill areas.

There is significant potential for establishing jaggery units in non-sugar mill districts such as Madhubani, Saharsa, Madhepura, Banka, Darbhanga, Jamui, Purnia, Begusarai, Vaishali, Nawada, Lakhisarai, Munger, Araria, Khagaria, and Gaya. Additionally, there is a proposal to set up jaggery units in all other districts as well.

A total of Rs. 6325 lakh is estimated to be spent on the proposed Bihar State Jaggery Industries Promotion Programme which is as follows:-





Activities	Output	Estimated expenditure (Rs. in lakh)
1. Establishment of jaggery industry	Establishment of new jaggery plants under the Jaggery Industries Promotion Programme of the Sugarcane Industries Department and the amount given to investors on subsidy and other expenses: - Between 2023 and 2028, a total of 405 new jaggery plants of varying capacities will be established, and the government will provide a subsidy of Rs. 5000 lakh for the same. - Rs.750 lakh will be allocated for the reimbursement of interest on new large units.	5750
2. Training of farmers and entrepreneurs at incubation centre	- Establishment of a new incubation centre at Sugarcane Research Institute in Pusa/IISR Regional Centre, Motipur, with an estimated total expenditure of Rs 50 lakh. - Total expenditure of Rs 125 lakh on training programmes and centre visits for farmers and entrepreneurs. This will involve conducting 4 training sessions each year, with up to 50 participants attending a seven-day training programme.	175
3. Establishment of juice analysis lab	Construction of a new juice analysis lab at the SRI in Pusa, at an estimated cost of Rs 75 lakh.	75
4. Miscellaneous	- Miscellaneous and contingency expenses totaling Rs 25 lakh - Expenditure of Rs 300 lakh for supervision, monitoring, and publicity activities.	325
Total estimated expenditure		6325

Ongoing programmes

A. Mukhyamantri Ganna Vikas Programme :-

1. Incentive on Production of Breeder Seed at Seed Multiplication in state Farm of IISR, Motipur/SRI, Pusa @ Rs. 2.20 lakh per ha.
2. Incentive on production of Foundation seed.
3. Certified seed production incentive program @Rs 50 per quintal.





4. Distribution of seeds of selected varieties of sugarcane at subsidized rate.
5. Grant for intercrop cultivation of Lentil/Green gram crops from certified seed with sugarcane.
6. Subsidy to sugarcane producing farmers on use of insecticides to protect the sugarcane crop from borer insect and other pests and diseases.
7. Subsidy on purchase of bio fertilizer/organic fertilizer/manure (bio compost).
8. Preparation of sugarcane seedlings by budchip/single bud method.
9. Trial/testing of recommended sugarcane varieties from outside the state which are suitable for this state in different Agro climatic zones, Rs.20,000 per trial in 0.1 ha area.
10. Distribution of certified paddy seed at subsidized rate.
11. Amount for the first year for the implementation of Monitoring and Advisory Services for Sugarcane (MAAS) in Bihar by SRI, Pusa.
12. One day state level seminar/workshop, Rs.15.00 lakh per seminar.
13. Visit and training of departmental officials/representatives of sugar mills outside the state.
14. Inter -state exposure visit cum training of progressive sugarcane farmers (20 farmers) for 7-10 days, @Rs.1500 per farmer per day.
15. One day farmers training for 40 farmers.

B. Scheme for supervision, monitoring and technical dissemination of Sugarcane Development Scheme-

Incentive package to sugar mills-Under the provision of Incentive package 2014, subsidy for establishment of new sugar mill/capacity expansion, establishment of distillery/capacity expansion and establishment of Co-gen/capacity expansion.

1. Maximum grant of Rs.1500 lakh on establishment of new sugar mill/capacity expansion.
2. Maximum grant of Rs. 500 lakh on establishment /capacity expansion of distillery.
3. Maximum grant of Rs.1500 lakh on establishment /capacity expansion of Co-gen.
4. Subsidy on special grant for recovery rate of sugar under Agriculture Road Map.





Fourth Agriculture Roadmap 2023-28



Fourth Agriculture Roadmap 2023-28

Total expenditure under Fourth Agriculture Road Map(2023-2028) :-

Sl. No.	Components	Unit	2023-24		2024-25		2025-26	
			Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
A	Mukhya Mantri Ganna Vikash Programme							
1	Three Tier Seed Production Programmes							
1.1	Incentive on Production of Breeder Seed at Seed Multiplication in state Farm's of IISR/SRI @ Rs. 2.20 lakh per ha	ha	37	81.40	40	92.00	42	100.80
1.2	Incentive on production of foundation seed @ 60000/- per hectare for sugar mills/farmers	ha	350	210.00	370	222.00	400	240.00
1.3	Incentive on production of certified seed of selected varieties of sugarcane	qtls.	2100000	1050.00	2100000	1050.00	2100000	1050.00
1.4	Distribution of certified seed of selected varieties of Sugarcane on subsidy.	qtls.	2100000	4517.10	2100000	4517.10	2100000	4517.10
1.5	Distribution of Plant Protection Chemicals on subsidy @ 50% of the total cost or maximum Rs. 2,500/- per ha to the sugarcane producer farmers.	ha	35000	875.00	35000	875.00	35000	875.00
2	Awareness Program							
2.1	One day farmer Training Programme @ Rs. 14,000/- per training for group of 40 farmers	Nos.	300	42.00	325	45.50	350	49.00
2.2	State level Workshop-cum-Seminar/Tour & Training	-	-	85.00	-	90.00	-	90.00
	Total (A)-			6860.50		6891.60		6921.90





Fourth Agriculture Roadmap 2023-28



Sl. No.	Components	Unit	2026-27		2027-28		2023 - 2028	
			Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
A	Mukhya Mantri Ganna Vikash Programme							
1	Three Tier Seed Production Programmes							
1.1	Incentive on Production of Breeder Seed at Seed Multiplication in state Farm's of IISR/SRI @ Rs. 2.20 lakh per ha	ha	45	112.50	48	124.80	212	511.50
1.2	Incentive on production of foundation seed @ 60000/- per hectare for sugar mills/farmers	ha	420	252.00	450	270.00	1990	1194.00
1.3	Incentive on production of certified seed of selected varieties of sugarcane	qtls.	2220000	1110.00	2400000	1200.00	10920000	5460.00
1.4	Distribution of certified seed of selected varieties of Sugarcane on subsidy.	qtls.	2220000	4775.22	2400000	5162.40	10920000	23488.92
1.5	Distribution of Plant Protection Chemicals on subsidy @ 50% of the total cost or maximum Rs. 2,500/- per ha to the sugarcane producer farmers.	ha	37000	925.00	40000	1000.00	182000	4550.00
2	Awareness Program							
2.1	One day farmer Training Programme @ Rs. 14,000/- per training for group of 40 farmers	Nos.	375	52.50	400	56.00	1750	245.00
2.2	State level Workshop-cum-Seminar/Tour & Training	-	-	95.00	-	95.00	-	455.00
	Total (A)-			7322.22		7908.20		35904.42





Fourth Agriculture Roadmap 2023-28



Sl. No.	Components	Unit	2023-24		2024-25		2025-26	
			Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
B	Supervision, monitoring & technical publicity of Sugarcane developmental Schemes (Budget Head-2401)							
1	Hiring of vehicle for Supervision, monitoring of schemes & work	-	-	70.00	-	75.00	-	80.00
2	Publication & Extension of departmental schemes Advertisement/Publication/Ihaki/exhibition etc)	-	-	50.00	-	50.00	-	50.00
3	Contegencies for implementation of schemes	-	-	20.00	-	20.00	-	20.00
	Total (B)-			140.00		145.00		150.00
	Total (A+B)-			7000.50		7036.60		7071.90
C	Schemes of Incentive Policy & assistance to the Sugar Mills as Subsidy (Budget Head-2852)							
1	Incentive for establishment/Capacity expansion of Sugar Mills / Distilleries / Co-gen Units	-	-	6000.00	-	6000.00	-	6000.00
2	Scheme Reimbursement of GSTon sugar/Molasses under the Incentive Policy	-						
3	Incentive for Sugar Recovery	-						
4	Reimbursement of Entry Tax on Purchase of Plant & Machineries for new sugarcane based industries/their expansion modernization	-						
5	Transport Subsidy on purchase of cane from Riga Sugar Mill Area	-						
	Total (C)-			6000.00		6000.00		6000.00
D	Bihar State Jaggery Industries Promotion Programme (Budget Head-2852)							
1	Bihar State Jaggery Industries Promotion Programme	-		1365.00		1240.00		1240.00
	Total (A+B+C+D)-			14365.50		14276.60		14311.90



Fourth Agriculture Roadmap 2023-28



Sl. No.	Components	Unit	2026-27		2027-28		2023 - 2028	
			Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
B	Supervision, monitoring & technical publicity of Sugarcane developmental Schemes (Budget Head-2401)							
1	Hiring of vehicle for Supervision, monitoring of schemes & work	-	-	80.00	-	80.00	-	385.00
2	Publication & Extension of departmental schemes Advertisement/Publication/[haki /exhibition etc)	-	-	60.00	-	60.00	-	270.00
3	Contegencies for implementation of schemes	-	-	25.00	-	25.00	-	110.00
	Total (B)-			165.00		165.00		765.00
	Total (A+B)-			7487.22		8073.20		36669.42
C	Schemes of Incentive Policy & assistance to the Sugar Mills as Subsidy (Budget Head-2852)							
1	Incentive for establishment/Capacity expansion of Sugar Mills / Distilleries / Co-gen Units	-	-	6000.00	-	6000.00	-	30000.00
2	Scheme Reimbursement of GSTon sugar/Molasses under the Incentive Policy	-						
3	Incentive for Sugar Recovery	-						
4	Reimbursement of Entry Tax on Purchase of Plant & Machineries for new sugarcane based industries/their expansion modernization	-						
5	Transport Subsidy on purchase of cane from Riga Sugar Mill Area	-						
	Total (C)-			6000.00		6000.00		30000.00
D								
1	Bihar State Jaggery Industries Promotion Programme	-		1240.00		1240.00		6325.00
	Total (A+B+C+D)-			14727.22		15313.20		72994.42





08

Revenue and Land
Reforms





REVENUE AND LAND REFORMS DEPARTMENT

Objectives and Introduction

Land is one of the most important need for housing and development works aimed at farmers, agricultural laborers and families without homestead, for which land maps and updated revenue records are required. It is absolutely necessary to update the Jamabandi Register and to have updated Records of Rights for the determination of title. With the updation of Records of Rights, land related disputes of citizens/ land holders/ farmers can be reduced to a great extent. In land acquisition many types of problems can be avoided by keeping the Records of Rights updated. Records of Rights are important documents.

For the above objectives in mind, land survey had been started in the last agriculture road map. The main objective of the government is to prepare the updated revenue map of each land plots and maintain the ryotwar Records of Rights (Khatian) in hard as well as soft copy by using special software.

Special Survey and Settlement Program

In the light of the decision taken by the government for the purpose of preparing new Records of Rights (Khatian) and maps for the farmers of the state and for ending land disputes with the help of updated land records, special survey and settlement work is in progress in 20 districts viz. Begusarai, Lakhisarai, Khagaria, Purnia, Katihar, Araria, Kishanganj, Supaul, Saharsa, Madhepura, West Champaran, Sheohar, Sitamarhi, Jamui, Banka, Sheikhpura, Nalanda, Jehanabad, Munger and Arwal, in the first phase. Up till now, final Records of Rights and maps have been published in 300 revenue villages and draft Records of Rights and maps have been published in 868 revenue villages.

The work of aerial photography has been done by various agencies under the Special Survey and Settlement Programme. It has been completed in all the 38 districts of the state.

In the Fourth Agriculture Road Map (2023-2028) the work of ground verification/ khatian/draft publication/final publication of the land maps prepared by the agencies through aerial photography in all the revenue villages of all the 38 districts of the state will be done in a phased manner as follows:

Action plan to complete the special survey and settlement work by 2024

S. No.	Phases of Work	Nos. of Districts covered	Nos. of circles covered	Nos. of villages covered	Proposed month for work initiation	Proposed month for work completion
1	First	20	89	4989	September, 2020	December, 2023





S. No.	Phases of Work	Nos. of Districts covered	Nos. of circles covered	Nos. of villages covered	Proposed month for work initiation	Proposed month for work completion
2	Second	Remaining circles of 18 districts of first phase	131	11428	September, 2021	March, 2024
3	Third	6	102	8682	June, 2023	September, 2024
4	Fourth	7	103	12342	July, 2023	October, 2024
5	Fifth	5	109	7587	August, 2023	November, 2024
Total		38	534	45028		

S. No.	Financial Year	Final Publication of Records of Rights		Expenditure (In Lakhs)
		Districts	Revenue Villages	
1-	2023-24	20	16228	56400.48
2-	2024-25	18	28611	56900.48
Total		38	44839	113300.96

Aerial Photography under The Special Survey and Settlement Program is funded through the central sponsored scheme Digital India Land Records Modernization Program (DILRMP) of Government of India and salary and other works are being funded by the state plan of Government of Bihar.

For the purpose of completing the survey work within the prescribed time limit, a total of 4369 survey employees were appointed on contract basis under the Bihar Special Survey and Settlement Program in the year 2019-20 and the survey work was started after providing training related to survey and settlement.

Apart from the above mentioned work force, in order to achieve the target to complete the work by 2024, 355 Special Survey Assistant Settlement Officers, 758 Special Survey Kanungo, 8244 Special Survey Amins and 744 Special Survey Clerks have been sanctioned and will be hired to expedite the work.

Under the Bihar Special Survey and Settlement Program, "Citizen Records of Rights ePassbook" for all agricultural and residential land will be made available online to the ryots/citizens/farmers of the state. Along with this, there is a target of giving a unique serial number (ULPIN- Unique Land Parcel Identification Number) to each plot present in the maps of villages in the state. With the help of the unique serial



number of each plot, identification of any plot of the state and related information can be easily obtained.

With the aim of increasing agricultural productivity in the state, there is a plan to start consolidation work in 2025 after the completion of the special survey and settlement. The list of 104 revenue villages having the final Records of Rights published after the completion of special survey and settlement in those villages have been made available to the Consolidation Directorate for consolidation work in the state.

The year 2024 has been fixed as the target for completion of special survey and settlement work in all circles. To achieve this goal, it is necessary that:

1. Regular posting against important posts like Settlement Officer/Incharge Officer, Settlement and Regular Assistant Settlement Officer (HQ) in all the districts undergoing Special Survey and Settlement.
2. Timely appointment against 10101 posts to be recommended by Bihar Combined Entrance Competitive Examination Board (BCECEB) for special survey and settlement work.
3. High-level continuous monitoring by in-charge Secretaries and Divisional Commissioners of districts.
4. Availability of funds according to budgetary provisions for completion of special survey and settlement work.

Integrated Land Records Management System: -

Under Third Agricultural Roadmap, the computerization work of Jamabandi Register of the state, the process of online mutation, online land possession certificate, online rent payment has been completed and made available to the citizens.

With the aim of making all the facilities provided by the department such as online mutation etc. in an integrated and easy manner, a new system will be developed which will be based on core banking concepts like Aadhar-linked and secure transaction.

Under this the following types of facilities will be provided: -

- 1) Online Mutation (Under this, spatial and textual mutation will be done real time)
- 2) Online land tax payment facility
- 3) Online Jamabandi Updation
- 4) Aadhaar Seeding
- 5) Online Land Possession Certificate
- 6) Online Land Parcel Map
- 7) Facility to view and download all revenue records online
- 8) Register of online encumbrances (Mortgage, court cases, land acquisition proceedings and other statutory orders)





- 9) Facility for online conversion for non-agriculture purposes
- 10) Facility to get land measurement done online
- 11) Integration with the Registration Department
- 12) Integration with other departments through API

The management of Integrated Land Records Management System will be done through the proposed Bihar Land Records Management Society on the lines of SCORE of the registration department. In this agricultural road map, the formation of the society and the implementation of Integrated Land Records Management System will be ensured. Under this, the cost of one-time development of software and the expenditure on maintenance of software per year (including GST) is as follows:

Sr. No.	Financial Year	Expenditure (In Lakhs)
1	2023-24	1622.50
2	2024-25	324.50
3	2025-26	324.50
4	2026-27	324.50
5	2027-28	324.50
Total		2920.50

Scanning and Digitization of Revenue Records

Preservation and maintenance of records related to land is an important responsibility of the state government. The work of scanning and digitization is being done for the purpose of preservation of important revenue records maintained in circle level and district level records rooms of the state. Out of the maintained records, the work of digitization of important records like Khatian, Jamabandi registers of past Survey, Mutation, Sairat, Land Ceiling etc. will be done through out-sourced agency.

Various revenue records viz. The scanning and digitization work of revenue maps and consolidation records and the digitization work of Jamabandi Register have been completed and published on the departmental website. The scanning and digitization work of the said records will be completed in the next 03 years with the sanctioned amount under the state plan. To convert the district archives into digital libraries, the target of completing the work at the department level has been kept as follows:

Financial year	No. of districts covered	No. of circles covered	Expenditure (Amount in Lakhs)
2023-24	38	260	1217.00
2024-25	38	274	1283.00
Total		534	2500.00





Digitization of Revenue Maps, Georeferencing and Plot's unique serial number

Digitization of 135865 maps of all revenue villages have been completed with the objective of making available the maps of their villages to all the farmers in the state. Farmers Data Center has been set up at Bihar Survey Office, Gulzarbagh, Patna to supply maps to the farmers. In addition to the above, digitized revenue maps are being supplied from 37 places in 34 districts of the state by installing plotters. Farmers and common citizens have the facility to get the maps of any revenue village of the state from any of the centres.

At present, online door step delivery facility has been started for the citizens of the state to get the map sitting at home.

For the purpose of many uses of digitized revenue maps maintained in the state and for the purpose of maintaining various types of information related to Kisan Database, Mega Food Park etc., the work of georeferencing the maps is necessary. At present all the revenue maps of 08 districts of the state have been georeferenced and within the next one year the work of georeferencing the maps of all the remaining revenue villages of the state will be completed. For this, a detailed project report (DPR) has been prepared.

Total Financial Outlay:-

The following are the financial outlays for the above-mentioned components:

Sl.	Financial Year	Financial Outlay (in Lakh Rs.)
1	Special Survey and Settlement Program	113300.96
2	Integrated Land Records Management System	2920.50
3	Scanning and digitization of revenue records	2500.00
4	Digitization of Revenue Maps Geo-referencing (DPR component)	1353.19
Total Sum:		120074.65



09

Food and Consumer
Protection





Food and Consumer Protection

Introduction:

Bihar has registered quantum jump in terms of productivity and production of all major crops including wheat and paddy. In the fourth Agriculture Roadmap, Government of Bihar aims to create a comprehensive, long-term vision for the future of the agricultural sector to ensure that the needs of all the stakeholders are met. As the paddy procurement has stabilized in the State over the last few years and the State has been able to procure 45 LMT of paddy, equivalent to about 30 LMT of rice, to meet the entire need of the targeted public distribution system under national food security act, 2013, following are some of the key targets to be achieved under fourth Agriculture Roadmap:

1. Continuing procurement of paddy at 45 LMT per year
2. Procurement of wheat of up to 20 Lakh MT/ Year
3. Procurement of Oil Seeds (mustard) through Price Support Schemes (PSS)
4. Procurement of Pulses (Gram and Lentil)
5. Increase of Storage Capacity, including under Private Entrepreneurship Guarantee (PEG) Scheme.

1. Continuing procurement of paddy at 45 LMT per year

It is proposed that the paddy procurement will continue at 45 LMT per year in the fourth roadmap and beyond. This alone will pump in over Rs. 61, 65,000 lakh at total economic cost, including Minimum Support Price (MSP), milling, transportation, storage and borrowing cost. The payment to farmers alone will amount to a total of Rs. 56, 04,500 lakh during the Fourth roadmap.

Projected expenditure on paddy procurement during the Fourth Krishi Roadmap:

Season	Estimated Procurement (MT)	MSP to be paid to Farmer (Amount in Lakh Rs.)	Total Incidental Cost (Amount in Lakh Rs.)	Total Economic Cost (Amount in Lakh Rs.)
2023-24	4,500,000	918000	91800	1009800
2024-25	4,500,000	1009800	101000	1110800
2025-26	4,500,000	1110800	111100	1221900
2026-27	4,500,000	1221900	122200	1344100
2027-28	4,500,000	1344000	134400	1478500
Total		5604500	560500	6165100





Assumptions:

The MSP has been assumed to increase @10% per season on the basis of the MSP of 2022-23.

The incidental cost has been assumed to increase @10% per season.

1. Procurement of Wheat of up to 20 Lakh MT/ Year

Background: Increased production of wheat and paddy has led to seasonal downswings in the prices of both wheat and paddy after the harvest. This also leads to the distressed sale by the farmers as they are desperate to sell their produce and recover their investments quickly in the face of substantial surplus combined with storage and processing infrastructure constraints. They get rid of their produce at prices considerably lower than the Minimum Support Price (MSP) announced by the Government of India.

Intervention: The state government has made sustained efforts in putting up a well-running procurement system in the state under the Decentralized Procurement System (DCP). Under the existing DCP arrangement, co-operative bodies like Primary Agriculture Co-operative Society (PACS) and 'Vyaapar Mandals' (VMs) procure wheat and paddy from farmers at the Panchayat and Block levels respectively and ensure payments to the farmers directly into their bank accounts at MSP, thereby preventing the distress sell in an institutionalized manner and eliminating exploiting elements in the rural area. These co-operative bodies deliver the wheat stocks to the collection centers of Bihar State Food and Civil Supplies Corporation Limited (BSFCSCCL) which in turn distributes the stock under Targeted Public Distribution System (TPDS).

In case of wheat, the procured stocks are directly transferred to BSFCSCCL. BSFCSCCL releases the entire payment covering MSP as well as approved incidental costs, including the commission to the co-operative bodies, within 72 hours of receipt of the stocks. This system has performed well in the last few years and the entire operations may gradually be streamlined.

Key Outputs

Payment of MSP: Under the existing DCP arrangement, co-operative bodies like Primary Agriculture Co-operative Society (PACS) and 'Vyaapar Mandals' (VMs) procure wheat and paddy from farmers at the Panchayat and Block levels respectively and ensure payments to the farmers directly into their bank accounts at MSP. The total estimated payment to farmers at Minimum Support Price will be Rs 12,97,300 lakh over the 4th Roadmap and a total of Rs 15,07,200 lakh will get invested in the economy.



Procured Quantity: It is evident that the state needs to intensify the efforts for wheat procurement to ensure that the farmers get the benefit of the MSP, and the state becomes self-reliant in terms of feeding its own TPDS with wheat. The requirement of wheat under TPDS is around 22 LMT/Annum. There should not be any difficulty in procuring the required 22 LMT of wheat. This shall be achieved by aggressive and timely procurement operations across the state. Prompt payments to the farmers shall be ensured and procured stocks shall be consumed under TPDS.

Key Outcomes

Procurement of Wheat of up to 20 Lakh MT/ Year: So far as the wheat procurement is concerned, the state has not been very successful. The procurement figures against the production figures in the last 5 years are listed in the following table.

RMS Season/Year	Production of Wheat in (MT)	Procured Wheat in (MT)
2021-22	6222000	455545.93
2020-21	6635017	3710.27
2019-20	5579348	2815.75
2018-19	6465905	17504.45
2017-18	6104303	0.00

The requirement of wheat under TPDS is around 22 LMT/Annum. This shall be achieved by aggressive and timely procurement operations across the state. Prompt payments to the farmers shall be ensured and procured stocks shall be consumed under TPDS.

Prevention of distress sale: To prevent distress sale of both wheat and paddy, the state government has made sustained efforts in putting up a well-running procurement system in the state under the Decentralized Procurement System (DCP). Under the existing DCP arrangement, co-operative bodies like Primary Agriculture Co-operative Society (PACS) and 'Vyaapar Mandals' (VMs) procure wheat and paddy from farmers at the Panchayat and Block levels respectively and ensure payments to the farmers directly into their bank accounts at MSP, thereby preventing the distress sell in an institutionalized manner and eliminating exploiting elements in the villages. The procured wheat stocks are directly transferred to BSFCSCCL. BSFCSCCL releases the entire payment covering MSP as well as approved incidental costs, including the commission to the co-operative bodies, within 72 hours of receipt of the stocks.





Monitorable Indicator

Procurement report: BSFCSCS shall be responsible to furnish the daily progress reports of procurement & disposal (quantity and value wise) to their immediate hierarchy through SMS, email, fax etc.

Display of information: The procurement center shall prominently display the MSP, bonus, hours and days of operation, period of procurement, mode and timing of payment to farmers.

Projected expenditure

Projected expenditure on wheat procurement during the 4th Krishi Roadmap is as under:

Season	Estimated Procurement (MT)	MSP to be paid to Farmer (Amount in Lakh Rs.)	Total Incidental Cost (Amount in Lakh Rs.)	Total Economic Cost (Amount in Lakh Rs.)
2023-24	1,000,000	212500	34400	246900
2024-25	1,000,000	233800	37800	271600
2025-26	1,000,000	257100	41600	298700
2026-27	1,000,000	282800	45700	328600
2027-28	1,000,000	311100	50300	361400
Total		1297300	209800	1507200

Assumptions:

The MSP has been assumed to increase @10% per season on the basis of the MSP of 2022-23.

The incidental cost has been assumed to increase @10% per season.

Procurement of oilseeds through Price Support Schemes (PSS)

Background: The state is in the dire needs of not only adopting climate-resilient agriculture but diversifying its agriculture to prevent both glut and shortage of different crop produces. This will not only fetch remunerative price to the farmers but will also wean them away from paddy and wheat. As the area under oilseeds production has not witnessed any substantial increase over the years, the farmers need to be incentivized for diverting land for oilseed cultivation. One major incentive is offering them guaranteed MSP every season so that they are assured of remunerative returns on oilseed cultivation. As procurement of paddy and wheat have resulted in record production of the two crops, the same can be expected from well-organized procurement of oilseeds in the state.





Interventions:

Notification of oilseeds crops: The State Government shall notify the expected production, sowing area, average yield, peak arrival/harvesting period for oilseeds crops for which MSP has already been declared.

Exemption from tax/levy etc.: State Govt. does not levy state duties in respect to PSS operations in the interest of its farmers and reduce the procurement cost.

Documents required: The State Governments shall also notify the all-land revenue documents which are required to prove the genuineness of the farmers and required to produce before the procuring agencies.

PSS awareness/publicity: The State Government shall make adequate publicity of PSS operations like MSP for the oilseed crops, name and address of procurement centers, procurement period, documents required.

Demarcation of area of operation between the central agencies: As state food corporation will alone be the procuring agency, there will be no overlap or duplication.

Logistic arrangements: Proper storage arrangements will be facilitated by the State Government in scientific manner. All necessary arrangements like GPRS fitted transport facilities, electronic weighing machines, moisture/foreign matter/oil content, testing machines will be made available by BSFCSCCL. These costs will be reimbursed under the PSS scheme by BSFCSCCL as per approved norms/expenditure.

Working capital arrangements for state agencies: BSFCSCCL will arrange and ensure adequate capital so that farmers dues can be cleared within 2 days of receipt of their produce. The cost of such investment shall be duly reimbursed by the DAC at market rate of interest within 10 days or the actual cost, whichever is less.

Establishment of godowns, processing mills in the procuring areas: BSFCSCCL will encourage/launch large scale programs for setting up warehouses, processing mills through public private partnership mode etc. in rural areas in a time bound manner, so that the farmers are aware of and can take advantage of the same for their produce in form of adequate storage/value addition facilities nearby.

Key Outcomes:

Diversifying agriculture through procurement of oilseeds crop:

The state is in the dire needs of not only adopting climate-resilient agriculture but diversifying its agriculture to prevent both glut and shortage of different crop produces. This will not only fetch remunerative price to the farmers but will also wean them away from paddy and wheat. As the area under oilseeds production has not witnessed any substantial increase over the years, the farmers need to be



incentivized for diverting land for oilseed cultivation. One major incentive is offering them guaranteed MSP every season so that they are assured of remunerative returns on oilseed cultivation. As procurement of paddy and wheat have resulted in record production of the two crops, the same can be expected from well-organized procurement of oilseeds in the state. The area and production of oilseeds are listed in the following table:

RMS Season/Year	Area of cultivation of Oilseeds (in hectare)	Production of Oilseeds (MT)
2020-21	115190	124081
2019-20	113400	124648
2018-19	100114	124862
2017-18	102844	124219
2016-17	108858	125788

It is proposed that around 25% of the production can be procured under the Price Support Scheme (PSS) of the Ministry of Agriculture. **It is to be noted that the requirement of cooking oil in Integrated Child Development Services (ICDS) and Mid-Day Meal (MDM) is about 25000 MT which translates to about 75000 MT of oilseeds.**

This procurement shall be made by BSFCSCSCL as the state nodal agency in collaboration with National Agricultural Cooperative Marketing Federation of India Ltd. (NAFED) and the procured stocks shall be transferred to NAFED. The farmers shall be paid MSP within 48 hours and the BSFCSCSCL will recover the MSP and incidental payments from NAFED. The state government shall have to pay for under-recovery in case of procured stocks being sold/auctioned at less-than-optimal prices.

The procurement system for the oilseeds shall broadly be similar to the one existing for pulses procurement under PSS. It is also proposed that oilseeds procurement shall be targeted in accordance with the production achievements.

Financial Target

Setting up of Target of oilseed procurement for next five years: Government of Bihar has taken a decision on procurement of Oilseeds, starting from the year 2023. To successfully implement this, an assessment of oilseed cultivated area and oilseed production for the last 5 years has been done (as per the table illustrated above) and the target has been set for procurement of around 25% of total oilseeds production under the Price Support Scheme (PSS) of the Ministry of Agriculture. Subsequently, the roadmap has been prepared for the next 5 years for the procurement of oilseeds (as per the table illustrated below).





RMS Season/ Year	Estimated Area of cultivation of Oilseeds (in hectare with 10% annual increment)	Estimated Procurement of Oilseeds (in MT) (with 20% annual increment)
2022-23	126709.0	37224.30
2023-24	139379.9	44669.16
2024-25	153317.9	53602.99
2025-26	168649.7	64323.59
2026-27	185514.6	77188.31

*Note: We have assumed the data of area of cultivation and production of oilseeds as per year 2020-21 as baseline for the calculation of Estimated Area of cultivation and Estimated Procurement of Oilseeds.

Implementation Mechanism:

Mode of purchase and Payment to Farmers: The procurement of oilseeds will be done by BSFCSCSCL as the state nodal agency in association with National Agricultural Cooperative Marketing Federation of India Limited (NAFED) and the procured stock will be transferred to NAFED. Farmers will be paid at MSP within 48 hours by BSFCSCSCL. BSFCSCSCL will recover MSP and incidental payments paid to the farmers, from NAFED. Further, only one payment shall be made in a day in the account of a farmer. In case the oilseeds procured are sold/auctioned at less than optimum prices, the State Government have to pay for the under-recovery. The procurement centers will be established close to CWC/SWC godowns, processing mills to reduce transportation cost. Online mechanism used for oilseeds procurement will be similar to that of pulse procurement and BSFCSCSCL will display the details of procurement on daily basis on its website.

Quantity for procurement: The overall procurement quantity will normally be 25% of the actual production of oilseed for that particular year/season. If the procurement exceeds 25%, the procurement action will be taken by BSFCSCSCL after taking permission from the regulatory DAC

Visits & Inspections: BSFCSCSCL will be responsible for effective monitoring of the PSS operations subsequently ensuring strict compliance with the provisions and conditions of the scheme and its guidelines.

Storage of procured Stock: BSFCSCSCL shall be responsible to store the procured stock only in CWC/SWC godowns. It shall be ensured that the stock is stored safely and scientifically so that it does not suffer any preventive loss.



Limitation on holding the stock: The procured material shall be stored only to its biological life but not exceeding six months from the closure of PSS operation to avoid increasing holding cost and quality deterioration. Biological life is referred as Future Expiry Date (FED) in the parlance of commodity exchange, is the life of the commodity after which it must be re-assessed/ consumed in order to remain fit for human consumption. Further, while holding the stock, the seasonality/durability of that particular crop shall also be kept in mind. Any material that is stored for a period of more than six months must be put or disposal on priority basis.

Maintenance of Documents/Accounts: BSFCSCL/District level officials shall be responsible to maintain all relevant records like quantity and value of produce procured daily with name and address of farmers, payment made to farmers, produce rejected, expenditure incurred, ruling market price of the commodity etc. The F&CP department, GoB shall adhere to all the above-mentioned measures/ guidelines along with any other guidelines from the Government of India. The above guidelines will be modified as and when the Government of India modifies any guideline related to Price Support Scheme (PSS).

Genuineness of the farmer and his landholding: Before undertaking purchases of oilseed under PSS, the BSFCSCL/Procurement Center, may contact the concerned state authorities for deciding the documents to ensure the genuineness of the farmer and his/her landholding.

Online platform developed by NAFED: The NAFED's e-Samridhi platform is an efficient, transparent, inter-operable, digital procurement platform for farmers comprises of different constituents covering the entire process from procurement to disposal. The entire process is integrated and is capable of handling processes from farmer procurement/Market Purchase to storage of commodities. The platform has a complete real-time tracking and management mechanism. Through an online platform entire information and data is captured covering farmer registration, center wise procurement, warehouse wise stock, generation of daily payment file to banks for onward transfer of amount to farmer accounts etc.

Timeline

This is done during RMS season and the government of Bihar decides the period and duration of procurement of food grains.

Monitorable Indicator

Procurement report: BSFCSCL shall be responsible to furnish the daily progress reports of procurement & disposal (quantity and value wise) to their immediate hierarchy through SMS, email, fax etc.





Display of information: The procurement center shall prominently display the MSP, bonus, hours and days of operation, period of procurement, mode and timing of payment to farmers.

Projected expenditure

Projected expenditure on oilseeds procurement during the 4th Krishi Roadmap:

Season	Estimated Procurement (MT)	MSP to be paid to Farmer (Amount in Lakh Rs.)	Total Incidental Cost (Amount in Lakh Rs.)	Total Economic Cost (Amount in Lakh Rs.)
2023-24	37,224	20287	350	20637
2024-25	44,669	26779	462	27241
2025-26	53,603	35348	610	35958
2026-27	64,324	46660	805	47465
2027-28	77,188	61591	1063	62654
Total		190665	3290	193955

Assumptions:

- The MSP has been increased @10% per season on the basis of the MSP of 2022-23.
- The incidental cost has been increased @10% per season.
- The estimated procurement of Oil Seeds has been calculated on the basis of annual increment @10%

The procurement of oilseeds (mustard) will ensure an estimated Rs 190665 lakh to the farmers by MSP payments and will involve an expenditure of a total of Rs 193955 lakh at the Economic Cost.

Procurement of Pulses (Gram and Lentil)

The state government has already initiated procurement of pulses (Gram and Lentil), since 2021-22 Rabi season under the Price Support Schemes (PSS) of ministry of Agriculture Government of India in collaboration with NAFED, which is the central Nodal Agency. Bihar State Food and Civil Supplies Corporation is the State Nodal Agency which sets up procurement centers at block levels. As the total production of pulses has remained stagnant at about 5.20 LMT in the State, as there is little marketable surplus and as the market prices have consistently shot up after the harvest in the face of Government Procurement Policy there has been no significant procurement of pulses since the start of the operation. However, it is assumed that as the crops are diversified during the fourth roadmap period, some marketable surplus will be generated, and the guarantee of MSP will offer the farmers a basic remunerative price based on MSP.



It is to be noted that the requirement of pulses in Integrated Child Development Services (ICDS) and Mid-Day Meal (MDM) is over 1.15 LMT.

Projected expenditure

Projected expenditure on pulse procurement during the 4th Krishi Roadmap:

Season	Estimated Procurement (MT)	MSP to be paid to Farmer (Amount in lakh Rs.)	Total Incidental Cost (Amount in lakh Rs.)	Total Economic Cost (Amount in lakh Rs.)
2023-24	25,000	13338	134	13472
2024-25	31,250	18339	185	18524
2025-26	39,063	25216	254	25470
2026-27	48,828	34672	349	35021
2027-28	61,035	47674	480	48154
Total		139239	1402	140641

Assumptions:

- The MSP has been increased @10% per season on the basis of the MSP of 2022-23.
- The incidental cost has been increased @10% per season.
- The estimated procurement of Pulses has been calculated on the basis of annual increment @25%

The procurement of oilseeds (mustard) will ensure an estimated Rs 139239 lakh to the farmers by MSP payments and will involve an expenditure of a total of Rs 140641 lakh at the Economic Cost.

Increase of Storage Capacity, including under Private Entrepreneurship Guarantee (PEG) Scheme:

Background: Lack of adequate warehousing has been a crippling factor in procurement as well as public distribution system of the state. Over the last three agriculture roadmaps, the state has made sustained efforts at augmenting the storage capacities in not only the cooperative sectors which stand at about 14 LMT but also under the BSFCSCSCL which has the responsibility of storing and distributing procured food grains.

The state has made substantial investments in enhancing the storage capacities under BSFCSCSCL which is evident from the following table:

Fourth Agriculture Roadmap 2023-28



Krishi Roadmaps	Target (Lakh MT)	Achievement (Lakh MT)
Before the 2 nd Krishi Roadmap	2.59	2.52
2 nd Krishi Roadmap (2012-17)	11.14	8.67
3 rd Krishi Roadmap (2017-23)	28.28	Completed – 2.51 In Progress - 0.81

Key Outcomes

Increasing storage capacity of godown: The proposed targets along with the estimated cost are summarized in below table:

Fourth Agriculture Roadmap (2023-2028)	Target (Lakh MT)
1st Year	2
2nd Year	4
3rd Year	4
4th Year	5
5th Year	5

Financial Target: Increase of storage capacity for next five years: In order to run the procurement system and PDS efficiently, the state needs to augment the storage capacity by at least 20 LMT across the districts during the next few years. This will be accomplished by identifying suitable government land and sanctioning modern warehousing construction from the state funds.

Year	Target increase (in LMT)	Cost per 100000 metric tons (in lacs)	Total Estimated cost for the year (in Lakh Rs.)
2023-24	2	14480.00	28960.00
2024-25	4	15928.00	63712.00
2025-26	4	17520.80	70083.20
2026-27	5	19272.88	96364.40
2027-28	5	21200.17	106000.84
Total			365120.44

To achieve the targeted increase in storage capacity for next five years (4th Krishi Roadmap), a sum of amount Rs. 365120.44 lakh is estimated. This estimation is based on the technically approved model DPR prepared by BSFCSCSCL for storage of 5000 metric tons of grains amounting to Rs 724 Lakh and an assumed yearly increment (compounded) of 10% of cost.





An abstract of component-wise cost of the model DPR for a warehouse of 5000 MT capacity is reproduced below:

Model DPR of a typical 5000MT Godown		
Summary of the estimated cost for Building, Site Development and Other Buildings		
S.No.	Particulars	Estimated Amount (Rs)
A.	Building (Godown)	
1	Food Grain Godown-5000 MT Capacity (2898.84 sqm and Computer cabin 11.68 sqm)	4,27,53,474.00
	Sub Total 'A' Buildings	4,27,53,474.00
B	Site Development and Bulk Services	
1	Boundary Wall and Gate (404.436 mtr length) + Electrical Street Light	93,23,666.00
2	Site Development	81,49,522.00
	Sub Total 'B' (Site Development and Bulk Services	17,47,3,188.00
C	Other Buildings	
1	Assistant Manager Office Block	35,27,753.00
2	Labour Shed	10,13,348.00
3	Guard Cabin	5,17,356.00
4	Weigh Bridge	13,34,217.00
	Sub Total 'C' (Other Buildings)	63,92,674.00
	Sub Total (A+B+C)	6,66,19,336.00
D	Centage 7%	46,63,353.50
E	D.P.R. Fee (Incl. GST)	4,00,350.00
	Sub Total (A to E)	7,16,83,039.50
F	Supervision & Quality Control Test (including all the taxes) 1%	7,16,830.40
	Grand Total Project Cost	7,23,99,869.90
	R.O.	Rs. 724.00 Lakh



Inclusion of Private Entrepreneurship Guarantee (PEG) Scheme

It is a fact that public investment alone will not be sufficient enough to bridge the infrastructure gap in the warehousing sector. Even for meeting the requirement of procurement and TPDS operations in the backdrop of meeting the challenge of addressing this critical storage constraint, the Food and Consumer Protection Department came out with a Private Entrepreneurship Guarantee (PEG) scheme for the Bihar State Food and Civil Supplies Corporation Limited (BSFCSCCL). It is envisaged under the policy that private entrepreneurs will be invited through a public bidding process to set up a modern warehouse of at least 5000 MT in each Block of state with their own investment on their own/leased land, and BSFCFCL would give a guaranteed rental at the lowest bid price for 10 years. This scheme is modeled on similar schemes implemented by Food Corporation of India. This is expected to incentivize creation of private warehousing facilities across the state with the initial rental period guaranteed.

After the guarantee period is over, the private entrepreneur is free to offer the warehousing facilities to private parties. It is true that the first two rounds of bidding floated by Bihar State Food and Civil Supplies Corporation Limited (BSFCSCCL) have not been able to generate keen interest among the private investors, it is expected that the same will happen once the agriculture ecosystem reaches a critical developmental state. It is proposed that a total of 4 LMT of warehousing capacity will be created in the fourth roadmap.

Projected expenditure on construction of warehouses under PEG scheme during the Fourth Agriculture Roadmap:

Season	Estimated Target (in LMT)	Cost per LMT (In Lakh Rs.)	Total Estimated Cost (in Lakh Rs.)
2023-24	0.50	960	480.00
2024-25	0.50	1,056	528.00
2025-26	1.00	1,162	1,161.60
2026-27	1.00	1,278	1,277.76
2027-28	1.00	1,406	1,405.54

Conclusion

The total projected cost of the above interventions during the Fourth Roadmap will be a total of Rs **8376694** lakh, the breakup of which is as under:





Fourth Agriculture Roadmap 2023-28



S. No.	Interventions	Total Estimated cost (in Lakh Rs.)
1	Continuing procurement of paddy at 45 LMT per year	6165000
2	Procurement of wheat of up to 20 Lakh MT/ Year	1507200
3	Procurement of Oil Seeds (mustard) through Price Support Schemes (PSS)	194000
4	Procurement of Pulses (Gram and Lentil)	140600
5	Increase of Storage Capacity-Own Warehouse	365120
6	Increase of Storage Capacity- Warehouse under PEG scheme	4853
Total		8376694





10 | Energy





Energy

Introduction –

DPR has been prepared under Fourth Agriculture Road Map to provide free electricity connection to 4,80,000 pump sets including construction of required infrastructure in addition to RDSS infra work. Construction of large scale electrical infrastructure (11 kV dedicated feeder for agriculture, transformers of required capacity and LT line with AB Cable) under RDSS and Mukhyamantri Krishi Vidyut Sambandh Yojana (Phase-2) will be undertaken for providing 4.80 Lakh agricultural pump set connections which includes both remaining as well as new upcoming pump sets during execution period.

Solarisation of all 1354 Nos. existing dedicated feeders for Agriculture is proposed under Fourth Agriculture Road Map along with irrigation with Sprinkler System through Off-Grid Solar Plant.

Achievements–

In order to provide Agriculture connection, large scale infrastructures were created under Deen Dayal Upadhyaya Gram Jyoti Yojana (D.D.U.G.J.Y) and Mukhya Mantri Krishi Vidyut Sambandhan Yojana, details are as follows:-

- New Power Sub Station - 291
- New Distribution Transformer – 93,420
- New Dedicated Agriculture Feeder – 1,354
- For Irrigation new agriculture connections have been proposed- For new electric pump set and for electric pump set converted from diesel pump set.
- More than 2, 74,000 agriculture connections were released to willing farmers under the Schemes till Jan. 2023, raising the total number of Agriculture connections to 3.6 Lakh.

Priorities under Fourth Agriculture Road Map –

Large scale electrical infrastructure (11 kV dedicated feeder for agriculture, transformer and LT line with AB Cable) will be created for providing electric connections to agricultural pump sets under RDSS and Mukhya Mantri Krishi Vidyut Sambandh Yojana (MKVSY Phase II) to provide free electricity connection to the remaining agricultural pump sets as well as new pump sets being installed by the farmers during the period of execution of this project totalling 4.80 lakh.





DPR Summary -

Construction of Infrastructure under MKVSY (Phase - II)						
Sl No	Component	Unit	Discom		Total	Cost (In Lakh Rs)
			NBPDCL	SBPDCL		
1	Agriculture connection	Nos	2.90 Lakh	1.90 Lakh	4.80 Lakh	14391
2	Dedicated 11 KV Feeder	CKM	7574	4857	12430	52633
3	Distribution Transformer (25/63 kVA)	Nos	18936	12141	31078	81175
4	LT Lines	CKM	13842	8875	22717	64496
Total						212694
Contingency & PMA charge @3%						6381
Assessment of total fund required						219075
Separately a sum of Rs. 243774 lakh (Rs. 123372 lakh for NBPDCL and Rs. 120402 lakh for SBPDCL) has been sanctioned under feeder segregation component of Revamped Distribution Sector Scheme (RDSS)						

Financial Requirement -

(in lakh Rs)

Sl No	Component	MKVSY (Phase-II)				
		2023-24	2024 -25	2025-26	2026-27	Total
1	The construction of required infrastructure to provide free electricity connection to 4,80,000 pump sets in addition to RDSS infra work	22000	44000	66000	87075	219075
2.	Solarisation of all 1354 Dedicated 11 KV New Agriculture Feeder.	400000				400000
Total						619075







11

Environment, Forest &
Climate Change



Environment, Forest & Climate Change

Introduction:-

Bihar is located in the eastern part of the country, lower Ganges basin between West Bengal, Jharkhand, Uttar Pradesh and the Himalayan country Nepal. Its geographical area is 94,163 sq km. which is 2.86 percent of the geographical area of the country. Monsoon phenomenon is the characteristic of this region, it brings rain with hot and humid weather from mid-June to September. The climate is cold in winter and very hot in summer. Variability of floods and droughts and extreme weather events in various parts of the state add to the complications in the occurrence of geo-climate under recent climate change scenarios. The state has been organised into 38 districts for administrative purposes on basis of historical and geographical considerations, and many of these regions have distinct differences in biophysical and climatic characteristics. Soil (good alluvium in the plains of the north and marginal soils on the southern bank of the Ganges and newly formed soils in South Bihar), availability of water (rainfall and brought by Himalayan and plateau rivers) and different weather regime in some parts of the state, after suitable opportunities for practicing different farming systems in most of the 38 districts. Agriculture is the mainstay of the state's economic activity and the main employer for the majority of the population, and it plays an important role in the state's economy. Despite the decline in the share of agriculture and related activities in the economy, a substantial population will continue to depend on agriculture and related occupations even in the coming decades. Trends and scenarios of population growth, urbanization and development in the agricultural sector, the nature of the land resources of the State, the conditions of the external economic market, agriculture and related soil-based organic production systems are important components of economy and will be major factor in the creation of gainful employment for large population growing for last several decades.

The Environment, Forest and Climate Change Department of Bihar State is well aware of the sensitivity of the state's environment and climate change and is determined to reduce the negative impacts of climate change for environment protection. In present times awareness regarding environmental protection, ecological balance, pollution control and climate change has increased globally. The Environment, Forest and Climate Change Department of the state is playing a positive role in solving these problems with determination and is active in reducing the adverse/negative effects of flood/drought by planting trees on a large scale. The department is continuously working in the direction of making the common people aware about the environment along with increasing the green cover and income of the farmers by planting trees on the private land of the farmers under agroforestry scheme. Most of the water sources of the state originate in the forest areas. The





department is making far-reaching efforts in the direction of reducing the menace of drought and flood by adopting soil water conservation measures and proper water management. Water conservation works are also being proposed in the forest areas in this agriculture road map. There is a plan to increase the quality and density of forests by planting trees in forest areas as well. There is also a plan to plant trees on government land outside forest areas, on roads, canals and river banks etc. Bamboo plantation is also proposed to be done in forest areas, canal and river banks.

Due to the limited geographical area of forests, it is proposed to plant trees outside the forest areas in raiyati lands also. In the Agriculture Road Map 2023-28, it is proposed to take Agro Forestry scheme as per the previous Agriculture Road Map. Five new clones of Poplar, prepared by the Institute of Forest Productivity, Ranchi, which have better productivity and smaller crown, will be made available to farmers under Agro-forestry scheme. Tissue culture based clone of teak will also be made available for agro-forestry (other species) scheme. For agro-forestry (bamboo plantation), tissue culture-based saplings of the most sought species such as *Bambusa balcooa*, *Bambusa tulda*, *Dendrocalamus longispathus*, etc. will be made available. There is also a proposal to involve JEEVIKA didis for implementation of agro-forestry scheme.

In order to increase forest cover, arrangements are also being made by the department to encourage farmers of the state for agro-forestry, to spread awareness, to develop capacity and to provide technical training. In order to encourage farmers for the plantation on their land under agro-forestry, the state government has exempted 27 tree species to be planted under agro-forestry from the statutory obligation of obtaining transport permit. Recently, the department has decided to associate with the National Transit Pass System, which will facilitate forest producers to obtain transit passes by applying online for inter-state and intra-state transport of their products, as a result of which they to any state within the country and thus they will be able to sell their products/produce at competitive prices.

Status of green cover

The Forest Survey of India, Dehradun, on the basis of the images of High Resolution Satellite Camera LISS-IV, in 2019, estimated green cover of State to be 13896 sq km, including the notified forest area and the tree cover outside it, which is 14.75% of the geographical area of the state.

Achievement in past Agriculture Roadmaps:

The department was given a target to increase State's green cover to 15 percent of the geographical area by the year 2017. The target of increasing the green cover in the state from 9.79 per cent to 15 per cent was a challenging task. To achieve this target, the department set a target of planting trees 23.95 crore saplings during the year 2012-17, against which the department has planted 18.47 crore trees.





Fourth Agriculture Roadmap 2023-28



In the Agriculture Road Map 2017-2023, a target was set to increase the forest cover by 2 percent outside the forest area. According to this target, the Agriculture Road Map 2017-23 was proposed, in which 16.32 crore trees have been planted so far against the target of 18.10 crore plantation.

Achievement in past Agriculture Roadmaps

Krishi roap map	Target [*]	Achievement [*]
2012-17	2395.00	1847.16
2017-23	1810.00	1632.93
Total Plantation	4205.00	3480.09

Note: Number of Plants – In Lakh

Vision

Under the Fourth Agriculture Road Map, the Department of Environment, Forest and Climate Change has a vision for increasing forest cover density of natural forests and conserving the water available in forests and making it available to the vegetation, wildlife and the nearby villagers. To increase the green cover of the state by planting trees on government land outside natural forests as well as by planting trees on farmers' land under agro-forestry schemes. Development of departmental nurseries and Chief Minister private nurseries for making available plants for tree plantation and bamboo plantation. Besides it, ensuring the availability of tissue culture based plants of teak and bamboo.

To work for the conservation of wetlands in view of its importance and potential to limit the effects of climate change. Bamboo is known as green gold. Establishment of tissue culture centers for production of Bamboo Plants, focus on research work, capacity building of personnel, farmers and artisans to promote bamboo. Promotion of forestry produce based industries along with marketing facilities for the agro-forestry produce will be in focus.

Goal

Goal is to increase the green cover of the state by 2% by planting 20 crore tree/bamboo saplings during the period of fourth agriculture road map.

Strategy

- (1) To increase the density of natural forest cover by tree/bamboo plantation and regeneration of forests.
- (2) To increase the tree cover outside the natural forests by planting trees on the canals, roads, rivers banks and railway lines and planting bamboo on the banks of rivers and canals.





- (3) To encourage agro-forestry to increase the income of farmers along with increase in green cover.
- (4) Tree plantation on private land by Jeevika's Self Help Groups /students/ farmers to increase green cover and public participation in environmental protection, involvement of various departments/institutions/ establishments/ central para military force/non-governmental organizations and religious and community organizations in tree plantation.
- (5) To provide good quality plants by establishing departmental and other nurseries run by farmers and Jeevika didis.
- (6) To focus on bamboo by establishing tissue culture based production centers, capacity building of personnel/farmers/artisans, and identification of appropriate species and establishment of demonstration plots.
- (7) To provide facilities for education and research work for agro-forestry in Bihar Forestry Research and Training College.
- (8) To work for conservation and development of wetlands.
- (9) To promote forest produce based industries.
- (10) To provide facilities for marketing of forest produce.

(In lakh Rs.)

Summary of Financial Target		
Sl. No.	DPR	Financial target
01	Development of green cover in natural forests	53940
02	Development of green cover on government land outside natural forests	107073
03	Agro Forestry and other Plantation/Bamboo Plantation	12406
04	Development of nurseries	60956
05	Soil and water conservation in natural forests	66126
06	Bamboo Project	3957
07	Bihar Forestry Research and training College, Munger.	13024
08	Conservation and Management of Wetlands	14342
09	Promotion of Industries based upon Forestry produce	47181
10	Marketing facilities for forestry produce	8593
Total		387598





पर्यटन विभाग बिहार सरकार



धरती अम्बर, जल और जंगल।
इनकी रक्षा सबका मंगल ॥

पारम्परिक व्याघ्र परियोजना प. चम्पारण
ग्रामपंचायत - 1 रामनगर बेरिया

महेश्वर
दाम

12

Food Processing
Industries





Food Processing Industries-

Introduction:

Department of Industries, Government of Bihar is responsible for the comprehensive industrial and entrepreneurship development in the state thereby generating employment opportunities and fostering economic development of the state. The vision of Industries Department is to establish Bihar as the most preferred investment destination by leveraging the states comparative advantages and maximizing opportunities for attaining a balanced regional and sustainable development.

Directorate of Food Processing is a separate directorate in which the food processing industry is promoted from the state. Bihar Investment Promotion Policy 2016, the state has witnessed rapid rise in food processing. The sector has witnessed highest number of units established for Rice Milling, Snacks, Warehouses and feed.

Vision:-

“To be a leading state in Food Processing Sector by leveraging the processing of agri produce, agri waste, state's skills/ know-how and tradition and creation of related ecosystem with logistics, export infrastructure, warehouse and cold storage with the aim towards value enhancement, Increasing efficiency, waste minimization, Governance and Institutional support.”

Goal:-

- Develop commodity-based clusters to enable a focused and planned approach to develop the food processing industry through a coordinated approach between government departments.
- Identify and bridge existing infrastructure gaps affecting the food processing industry.
- Promote innovation, research & development in the industry and ensure continuous technology up gradation.
- Providing adequate infrastructure for food processing ecosystem.
- Undertake capacity building and enhance competitiveness of food processing industry in both domestic and international markets.

Objectives:-

- Enhancing and stabilizing the income level of the farmers
- Achieving integration of the food processing infrastructure from farm to market
- Making the food processing sector attractive for both domestic and foreign investors





- Making food processing as an all season activity
- Undertaking Capacity building & Promotional activities
- Providing Quality check facility
- Providing Marketing assistance to producers.
- Reduction of Agricultural waste
- Enhancing the competitiveness of food processing industry in both domestic as well as international markets

Under Krishi Road Map, Directorate of Food Processing aims at Value Addition program for the raw material produced in the state with focus of Maize, Honey and Fruits & Vegetables. Further, establishing Bihar as leader in bioenergy sector of east India with focus is on production of biofuels from the agriculture produces such as maize, grains, rejected/broken rice, fodder/silage and molasses.

Bihar Industry Promotion policy, 2016 was launched in the state with effect from 1.9.2016 and food processing sector was included as one of the priority sector in the scheme and special incentive have also been provided for these industries.

Glimpse of Food Vision 2015

The state cabinet has approved the food vision 2015. The food vision has made 16 recommendations which are in different stages of implementation. The scheme has been declared the most admired scheme by MoFPI, Gol in the history of the food processing in India. The state government has approved two schemes for food processing industry and these are implemented since 5th December 2008. Under the Scheme for integrated development of food processing sector grant up to 40% of the 4-project's cost, subject to a maximum of Rs. 10 Crores in case of common cluster infrastructure proposed by SPV and up to 35 % of the project cost subject to maximum Rs. 5 Crores in case of an individual investor. Similarly, under the Food Parks Scheme two food parks in fruits and vegetables cluster in the State are proposed at Muzaffarpur – Vaishali region having Champaran food park and Bhagalpur – Katihar region having Bhagalpur food park. The assistance provided by the state government is 20 % of the project cost subject to a max. of Rs. 15 Crores to the Special Purpose Vehicle (SPV), registered as a corporate body with 51 % equity of the private entrepreneurs.

State government is going to roll out another food processing scheme in line with the already executed “**Integrated Development of Food Processing**”. Directorate of food processing industries is thus planning to invite studies to assess the potential and capacity requirement for developing food processing sector in Bihar.





Achievement of past Agriculture Roadmap

- **Increasing the Maize processing capacity in the state:** In the period state has added processing capacity of 3.54 Lakh tons against the target of 10 lakh tons. SIPB estimated investment of 92.38 crores and processing capacity of 2.08 lakh tons annually, 4 such maize processing units have been registered.
- **Increasing the Honey Production Capacity:** Bihar has attained a production capacity of 7350 tons per year against the target of 15120 tons. However, only one unit of annual processing capacity or 1350 tons has registered in SIPB.
- **Increase in Warehouse Capacity:** In the period there has been addition of 3.26 lakh tons of storage capacity. In the period there has been 27 warehouse and cold storage has been established and has got SIPB clearances.

Main Interventions: Schemes and Policies run by Department of Industries

Bihar Industrial Investment Promotion Policy, 2016

Bihar, fundamentally an agrarian economy, has a large agricultural and animal production base offering abundant supply of raw material to be processed for human consumption. Despite these natural advantages, the level of food processing is very low and there is scope to improve the food processing levels to meet the increasing requirements of the state's growing population, while at the same time offering a sustainable consumption market.

Further, the rising income and changing life style in the cities as well as rural Bihar is changing the consumption demand towards processed food. Therefore, the state offers a substantial opportunity for the food processing industry and is expected to play a leading role in the industrialization drive of this state. Some of the strategic advantages in this sector across key product offerings are listed below.

The State offers a substantial opportunity for the food processing industry and is expected to play a leading role in the industrialization drive of this state. Some of the strategic advantages in this sector across key product offerings are listed below.

SN	Sector	Investment Opportunities
1	Food-grain (Cereal and pulses) and oilseed processing	(a) Maize processing units with installed capacity of more than 100 TPD, including units for manufacturing starch and cattle and/or poultry feed (b) Any other cereal processing/our/starch/dough mixes, breakfast food manufacturing unit with installed capacity more than 100 TPD. (c) Pulses processing unit





SN	Sector	Investment Opportunities
		(d) Modern unit for oilseeds processing or extraction from raw materials obtained locally; like Vanaspati oil manufacturing from rice bran and vegetables like soybean, safflower/sunflower, mustard, ground nut, etc. as well as fats and oils extracted from bovine/sheep/goat/fish/marine animals, etc. Unit for solvent extraction for edible oils with or without integrated refining facility.
2	Fruits & Vegetable (F&V) Processing	(a) All kinds of F&V processing units (including units for manufacturing dehydrated and frozen F&V items using IQF/Blast Freezer/Spiral Freezer, etc.) (b) Dehydration and powdering of vegetables like onions, mushrooms, etc. (c) Unit for processing litchi (e.g. units for manufacturing litchi pulp, juice, pulp slabs, jam, jelly, beverage, nectar, candies, powder, etc.) (d) Unit for processing local variety of mangoes into pulp, juice, pulp slabs, jam, jelly, beverage, nectar, candies, powder, etc. (units using mango pulp imported from other states or countries shall not be considered under the priority sector.) (e) Unit for banana processing (e.g. banana chips, pulp, powder, baby food, jam, jelly, banana ower vegetables, banana trunk vegetables & pickles, etc.) (f) Unit for makhana processing (e.g. unit for producing makhana pops, making avoured and/or roasted makhana snacks, RTC kheer, baby food etc.)
3	Milk Processing and Dairy Product Manufacturing	(a) Milk processing units with installed capacities of more than 50 thousands litres per day (b) Units for manufacturing pasteurized milk, milk powder, ice cream powder, condensed milk, infant food, milk cream, butter, butter milk, lassi, yogurt, cheese, ghee, khoya, ice-cream, kulfi, flavoured milk and other dairy products. (c) Units that manufacture products out of milk powder imported from other states or countries shall not be considered under the priority sector. Only products manufactured from milk procured or milk powder manufactured by another unit within the state shall be considered under the priority sector



SN	Sector	Investment Opportunities
4	Honey Processing	Natural honey processing unit
5	Meat, Poultry and Fish Processing	(a) Meat, poultry and fish processing units (e.g. fresh, chilled, and frozen fish; fish fillets and pieces; fish cured or smoked and fish meal for human consumption; fresh and chilled meat of bovine animals such as sheep or goat; meat & edible offal of poultry meat; dried eggs; etc.) (b) Modern slaughter house & abattoir
6	Spice and herbs Processing	(a) Modern processing unit for spices (for e.g. extracts essence & concentrates of spices, powder and paste manufacturing etc.) (b) Unit for extraction of food flavors, colours, oleoresins, etc. (c) Health and wellness food supplements made from herbs
7	Tea Processing	Modern tea processing units
8	Other edible preparation	(a) Modern unit for manufacturing of biscuits/ cookies, etc. (b) Modern bakery unit (e.g. bread, pastries and cakes manufacturing) (c) Modern unit for manufacturing ice-cream (d) Modern unit for manufacturing chocolate & non-chocolate based confectionery items (e) Unit for manufacturing of frozen or non-frozen and packaged ready to eat (RTE) meals and snacks, ready to cook (RTC) food, powdered energy concentrate, instant drink concentrate, etc.
9	Sugarcane Processing	(a) Manufacture of sugar (b) Manufacture of ethanol
10	Warehousing	(a) Fruit ripening chambers (b) Controlled atmosphere (CA)/modified atmosphere (MA) chambers, cold rooms/ deep freezers/ pre-cooling chambers (c) Multiple cold storage facilities/infrastructure including precooling chambers, ripening chambers, CA/MA chambers, cold rooms, deep freezers, bulk chillers, etc. including cold chain logistic arrangements (d) Modern grain silos





SN	Sector	Investment Opportunities
11	General/ Business Development Services	(a) Research & development facilities, quality control laboratories/ testing laboratories, training / incubation centres/skill development centres, etc. related to the food processing sector (b) Food machinery manufacturing (c) Irradiation unit

Under the policy department of industries are giving subsidies under

- Interest subvention
- Private Industrial Park
- Tax related incentive
- Reimbursement Stamp Duty/ Registration
- Land Conversion Fees

Mukhya Mantri Sukshma and Laghu Cluster Vikas Yojana

With the need of integration of new technology for the micro and small entrepreneurs, the scheme was designed to upgrade these interventions with the scheme “**Mukhya Mantri Cluster Development Scheme**”. The scheme aims at inculcating knowledge of new technology, machines/plant with latest technology, packaging technology, and quality maintenance. Further, there is provision for providing information and knowledge through design centers, inspection centers for quality checks, training centers, financial assistant for establishment of depot for raw material, effluent treatment plant etc. so that these units can manufacture quality and attractive products. This will result in customers attraction towards these products and thus benefitting all stakeholders in the value chain. Under this, department has planned to establish Common Service Center (CSC).

The CSC will be established through SPV in which 90% cost will be borne by department (Upto 10 Crores) and rest by SPV. In special cases when the members in the clusters are falling Below Poverty Line then 100% grant can be given to SPV.

Mukhya Mantri Udyami Yojana

Mukhya Mantri Udyami Yojana is a state sponsored flagship scheme in which the entrepreneurship is promoted to establish small and micro units in the state. In this there is very high scope of establishing micro food units. The scheme has been launched in 2021. Every year nearly 2000 applications have been received under food processing category. The scheme focuses on SC/ST/OBC/Women and Youths of the state





Prime Minister Formalization of Micro Food Enterprises (PMFME)

PMFME scheme was launched in 2020 with the aim to enhance the competitiveness of existing individual micro-enterprises in the unorganized segment of the food processing industry and to promote formalization of the sector; and support Farmer Producer Organizations (FPOs), Self Help Groups (SHGs) and Producers Cooperatives along their entire value chain. The scheme is going to run till 2024-25 in which the micro food processing units are availing benefits such as capital subsidy and capacity building. The scheme is going to bring impact to estimated 10000 individual beneficiaries.

Implementation Mechanism

The schemes run by Department of Industries are directly fulfilling the Krishi Road Map targets. The implementation mechanism thus is same as the way the Industries department is implementing its all schemes.

Incentive Clearances (Application and Approval Procedure for Incentives Under the Bihar Industrial Investment Promotion Policy, 2016)

Regulatory Provisions

Financial Incentive Clearance refers to the clearance requested/accorded to an investor for availing financial incentives. The quantum of incentives to be given shall be decided at this stage as per the Policy. This clearance may be granted any time after Stage I approval by the designated Authority of the State Government after completion of the required prerequisites as decided by the Board. This shall be an automatic process and no fresh application shall be required from the investor. The proposals shall be placed before the State Board in its next meeting on fulfilling of the prerequisites for a decision. The State Board shall recommend the quantum of incentives applicable to the investment proposal. The final approval of the Financial Incentives shall be given as per the provision of Rule 7. The actual disbursement of incentives shall be as per actual implementation of the investment proposal.

Policy Provisions

Following are the provisions in respect to the various incentives under the Bihar Industrial Investment Promotion Policy, 2016.





Package of Incentives

Type of Incentives	Salient Feature
Reimbursement Stamp Duty/ Registration	- No stamp duty to be paid in respect of land allotted by the government to IDA/ BIADA. 100% reimbursement of stamp duty/registration fees levied on lease/ sale /transfer of industrial land/shed as also those outside the jurisdiction of Bihar Industrial Area Development Authority would be available to all the new units after the unit commences the commercial production. This reimbursement of stamp duty and registration fees will be granted only for the first time and will not be applicable in subsequent stages of lease/sale/transfer. This incentive will be available to new units only. - The area of land required by the unit shall be fully described in the DPR and the Bank Appraisal Report prepared by the bank or financial institution which is supposed to extend the term loan to the unit.
Land Conversion Fees	100% reimbursement of "land conversion fees"/ "change in land use" fees being levied for conversion of agricultural land after the unit commences the commercial production.
Interest Subvention	- State shall extend "Interest Subvention" to all the eligible units on the term loan availed by the unit from a scheduled nationalized bank or financial institution approved by RBI/SEBI. - Rate of interest for interest subvention will be 10% or actual rate of interest on term loan, whichever is lower. For micro and small units, there shall be an interest subvention of 12%. - The overall limit of this subvention for priority sector units will be 30% of the approved project cost. The subvention limit for non-priority sector units shall be 15% of the approved project cost. The upper limit of this subvention shall be Rs.10 crore. - Disbursement of the subvention amount would be in instalments linked with the term loan repayment schedule stipulated by the concerned bank/financial institutions which extends the term loan to the unit. Interest shall not be paid on promoter's contribution in any form in the unit. - In case the promoters do not avail any term loan for the unit, they would not be eligible for this incentive



Type of Incentives	Salient Feature
Tax related incentive	- All new units can avail tax related benefits with a maximum limit as defined below: - Non-priority sector: 70% of the approved project cost - Priority sector: 100% of the approved project cost - All new micro and small units will be given tax benefits by additional 30% of the approved project cost. - All units engaged in generation of solar and/ or renewable energy for commercial purpose will be given tax benefits by additional 30% of the approved project cost. - All new units shall be eligible for 100% reimbursement of the electricity duty on power including captive power consumed by the same unit or exported to the BSPHCL from the date of commencement of commercial production for a period of 5 years subject to the overall limit defined above. Electricity duty exemption will not be available on captive power exported to entities other than BSPHCL.

Further there has been special incentive package for SC,ST,Women, Women, Differently abled persons, War widows, Acid attack victims and Third gender entrepreneurs

Procedure

- To avail the incentives under the Bihar Industrial Investment Promotion Policy (BIIPP), 2016, the investor shall first have to apply to the SIPB through the Integrated Clearance System and obtain the Stage I clearance for the investment proposal. Once the Stage I clearance is obtained, the investor can apply any time for Financial Incentives Clearance through the designated web portal.
- The investor shall have to online submit the requisite documents & copy of clearances/ approvals etc. The checklist of requisite documents & copy of clearances / approvals etc. shall be available at the designated web portal. No offline /manual submission shall be accepted. The investor should ensure that all the documents & copy of clearances / approvals etc. submitted are appropriate and legible.
- Once the requisite documents & copy of clearances/ approvals are uploaded, an acknowledgement shall be generated. The acknowledgement can be downloaded from the portal. An SMS intimation and e-mail mentioning the application number shall also be issued to the registered mobile number and e-mail Id of the investor.





- On receipt of the requisite documents & copy of clearances / approvals the Secretariat shall scrutinise all the documents within 7 working days from the date of receipt of documents.
- In case the Secretariat finds any discrepancy in the documents, it shall record the discrepancy in detail and communicate the same to the investor within 7 working days from the date of receipt of documents. The Secretariat shall generate online query to the investor seeking necessary explanations and mentioning details of discrepancy in the requisite documents. No hard copy of such communication shall be issued. An SMS intimation and e-mail shall be issued to the registered mobile number and e-mail Id of the investor.
- Once the communication for the discrepancy is obtained, the investors shall have to furnish the requisite explanation and/or documents in online manner.
- On receipt of the documents, the Secretariat shall further scrutinise the explanation offered and submitted documents. The Secretariat shall record its findings and shall prepare its recommendation. The recommendation of the Secretariat shall be placed in the ensuing meeting of the SIPB.
- The SIPB shall discuss the proposal. For the eligible proposals, it shall approve the project cost to be considered for calculation of incentives and decide the quantum of incentives. Once the SIPB has approved the proposal, it shall be placed before the Competent Authority for final approval as per the provisions of Rule 7 of Bihar Industrial Investment Promotion Rules, 2016.
- Once the incentive is approved a sanction letter shall be generated which can be downloaded by the concerned investors from the designated portal. An SMS intimation and e-mail communicating the same shall also be issued to the registered mobile number and e-mail Id of the investor.
- Incentives, once sanctioned, shall be disbursed by the Secretariat without any further reference, to any authority in a time bound manner subject to any conditions which may be attached to the sanction.

Type of Incentive	List of Documents (to be uploaded on the website to claim subsidy)
Reimbursement of Stamp Duty/ Registration Fee	• Proof of Stamp Duty/ Registration Fee paid
Reimbursement of Land Conversion Fee	• Proof of Stamp Duty/ Registration Fee paid



Type of Incentive	List of Documents (to be uploaded on the website to claim subsidy)
Interest Subvention	• Certificate for the Commencement of Commercial Operation • Copy of Bank's letter mentioning payment requirements of Equal Quarterly Instalment • CA certificate for Project Cost and Means of Finance • Copy of bills and invoices (related to establishment of unit)
Tax Related Incentive	• SIPB/ District level Single Window Clearance Committee approval letter • In case of expansion/ Diversification/ Modernisation, SIPB/ District level Single Window Clearance Committee approval letter • Chartered Accountant certificate Regarding investment

Integrated Clearance System

An online system is used to provide clearance and approval to investment proposals as per provision made in Rule 6(3). The clearances to the investment proposals is provided online and in four stages as prescribed below:

Stage I Clearance: Stage I clearances refers to examining the feasibility of the project by the State Board and providing necessary approval to the investor. The Secretariat shall examine the investment proposal in the manner prescribed by the State Board and place the proposal before the State Board for a decision as per provisions made in Rule 4. Stage I clearance will allow investor to apply for subsequent stages of approval.

The Stage I shall necessarily identify the broad sector, quantum of investment and location etc. of the proposed investment. The Board may prescribe a list of information that may be required to be furnished along with the proposal for Stage I Clearance.

Stage II Clearance: Stage II clearance refers to clearances requested by an investor at the pre-establishment stage from the Secretariat before setting up of an industry. List of pre-establishment stage clearances will be notified by the Department from time to time. These clearances shall be provided as per the provisions made in Section 6(4) of the Act.





Stage III Clearance: Stage III clearance refers to clearances requested by an investor at the pre-operation stage from the Secretariat before commencement of commercial production. List of pre-operation stage clearances will be notified by the State Government from time to time. These clearances shall be provided as per the provisions made in Section 6(4) of the Act.

Financial Incentive clearance: Financial Incentive clearance refers to the clearance requested/accorded to an investor for availing financial incentives. The quantum of incentives to be given shall be decided at this stage as per the Policy. This clearance may be granted anytime after Stage I approval by the designated Authority of the State Government after completion of the required prerequisites as decided by the Board. This shall be an automatic process and no fresh application shall be required from the investor. The proposals shall be placed before the State Board in its next meeting on fulfilling of the prerequisites for a decision. The State Board shall recommend the quantum of incentives applicable to the investment proposal. The final approval of the Financial Incentives shall be given as per the provision of Rule 7. The actual disbursement of incentives shall be as per actual implementation of the investment proposal.

Processing and Monitoring of Common Application Forms

An integrated online system will accept and electronically transfer applications to respective Competent Authorities as well as track & monitor status of the application under this system,

- The common application form along with prescribed attachments shall be submitted/ uploaded online.
- The competent authority may ask for additional information from the applicant only once, within first 7 days, through the online portal only. The reply to the additional information shall only be submitted online by the applicant.
- In case the additional information is not sought for by the competent authority within the prescribed time limit from the date of receipt of application, it will be construed that no additional information is required and original time limit for clearance shall apply and the competent authority shall decide on the basis of the documents submitted by the applicant.
- In case the additional information is sought for by the competent authority within the prescribed time limit, the time limit prescribed in Section 5 and Section 6(4) of the Act shall be counted from the date on which the additional information is furnished by the applicant online.





- The competent authority shall process the application and communicate the decision (approve/reject the request along with his comments) within the time limit prescribed in Section 5 and Section 6(4) of the Act to the applicant.
- Applicant will be allowed an option to file for all clearances at once or may choose to apply at various intervals. In case an application for clearance is rejected the applicant may be allowed to file application for the clearance afresh.
- Every approval/ certificate will be given a unique Single Window Clearance ID which can be used for third party verification of approvals in public domain.

Special provisions and measures to simplify process & procedures: Spot approvals shall be given in case of clearances which require only a scrutiny of basic documents. A list of such clearances will be notified by the Department on the advise of the State Board from time to time.

Fees for processing applications: Fees and deposits shall be collected from the applicant during various stages of clearances by the secretariat. Application processing fees will be notified by the Department on the advice of the State Board from time to time.

Rationalization of the inspection for clearances: A joint inspection by all the competent authorities shall be encouraged for the clearances which require inspection.

Financial Incentives to eligible industrial units

- The proposals cleared under rule 6(2) (iv) shall be put up before the competent authority for a decision. All proposal approved in a meeting of the State Board shall be placed before the competent authority in one lot. Decisions shall be taken in the same sequence in which the State Board approves the proposals. In case a proposal has to be approved out of turn, sufficient reasons for such deviations shall be recorded and approved by the Commissioner.
- The competent authority and the time limit to accord approval and decision of Financial Incentives shall be as follows:-
 - The Commissioner within a time limit of 15 days shall take a decision on the proposals, which involve investment of Rs. 2.5 Crore and less. If the decision on the proposal is not taken within the prescribed timeline, the reason for delay shall be recorded.



- Proposals which involve investment of more than Rs. 2.5 Crore and up to a limit of Rs. 10 Crore shall be decided by the Minister, Department of Industries within a time limit of 15 days.
- Proposals which involve investment of more than Rs. 10 Crore and up to a limit of Rs. 20 Crore shall be decided jointly by the Minister, Department of Industries and Minister, Department of Finance. The Minister, Department shall decide within 15 days and subsequently the Finance Minister shall take a decision within the next 15 days.
- Proposals above Rs. 20 Crore shall be decided by the State Government.
- The State Government shall revise the above mentioned time limits, financial limits and competent authority, from time to time, through notification.
- Incentives, once sanctioned, shall be disbursed by the Secretariat without any further reference, to any authority in a time bound manner subject to any conditions which may be attached to the sanction.

Self-certification

The Commissioner shall issue instruction for random verification of self-declaration under section 8 of the Act. Verification shall be conducted by the Secretariat or shall direct a public authority to conduct an enquiry, which shall submit its findings to the Chairman for necessary action.

Application and approval procedure for SIPB Stage I Clearances

- An investor seeking Stage I Clearance for the investment proposal shall have to submit an online application through the designated web portal for the Integrated Clearance System. The investor shall also have to upload requisite documents along with the application. The updated checklist of requisite documents shall be available at the designated web portal.
- The investor shall have to make online payment of the application fee. The updated details of amount of application fee shall be available at the designated web portal.
- No offline/manual submission of the application, any of the requisite documents and/or the application fee shall be accepted and be valid for consideration of Stage I Clearance.
- Once the application is submitted along with all the requisite documents and online payment of application fee is made, an online acknowledgement shall be generated bearing a unique application number. The acknowledgement can be downloaded from the portal. An





SMS intimation and e-mail mentioning the application number shall also be issued to the registered mobile number and e-mail Id of the investor.

- On receipt of the application and requisite documents, the Secretariat shall scrutinise the application and the documents. With the due permission of the Chairman of the Secretariat, the recommendation of the Secretariat shall be placed in the ensuing monthly meeting of the SIPB.
- The SIPB shall discuss the investment proposal and take a decision on its Stage I Clearance. The decision of SIPB shall be communicated to the concerned investor by the Secretariat within 7 days of the SIPB meeting. An SMS intimation and e-mail communicating the decision shall also be issued to the registered mobile number and registered e-mail Id of the investor.
- In case the Stage I clearance is granted, an online letter shall be issued to the investor conveying the same. The letter can be downloaded from the designated web portal. There shall not be issued any hard copy of such communication.
- In case Stage I Clearance is not granted, online communication shall be made to the investor mentioning the reasons for non-clearance (including details of discrepancy in the requisite documents, if any and/or requirement of any additional information) and seeking additional information/ documents. There shall not be issued any hard copy of such communication.
- The investor shall have to furnish the additional information/document(s) online within a maximum of 15 days. No offline/manual submission or online submission through a channel other than the designated web portal shall be accepted. The Secretariat shall scrutinise the response submitted by the investor and prepare a recommendation which shall be placed in the upcoming meeting of the SIPB. If the investor fails to respond within 15 days, the concerned application shall be summarily rejected.
- In respect to the application submitted for the Stage I Clearance, the SIPB can seek only once the additional information/submission of the appropriate document(s). If the investor submits the response within the prescribed timeline, the SIPB, in its next meeting, shall give the final decision (approve or reject) on the Stage I Clearance.
- If Stage I clearance is granted, an online letter shall be issued to the investor conveying the same. The letter can be downloaded from the designated web portal. There shall not be issued any hard copy of such communication. An SMS intimation and e-mail communicating the rejection shall also be issued to the registered mobile number and e-mail Id of the investor.





- If Stage I clearance is not granted, an online letter shall be issued to the investor mentioning the reasons for rejections in details. The letter can be downloaded from the designated web portal. There shall not be issued any hard copy of such communication. An SMS intimation and e-mail communicating the rejection shall also be issued to the registered mobile number and e-mail Id of the investor.

Single Window Clearance

The Single Window Clearance System will transform the business environment in the State by providing efficient, transparent and integrated electronic services to the investors throughout the business lifecycle. The SWC system will provide a platform to the investor to avail all necessary regulatory services, clearances etc. across all agencies. The SWC system will primarily comprise of the following two components:

- Online single window clearance portal to provide necessary transactional and information services to the investors
- Integrated and centralized G2G web application for streamlining and ensuring online workflow of various processes among all stakeholders for providing necessary approvals
- Online SWC portal will be the first point of interaction for the investor. This will act as a repository of relevant information such as Policies, Acts, Notifications, Guidelines, etc. and provide necessary transaction services such as generating the list of clearances for setting up an industry, applying for necessary clearances, making online payment, track status of application, applying for incentives etc.
- The integrated and centralized G2G web application will allow respective government department officials to access and process the applications received through online SWC portal and subsequently update the application status. Salient features of the proposed SWC system are given below.
- Provide on-line platform for interaction of investors with all the relevant stakeholder departments of GOB
- Provide a single interface for Investors to apply for all statutory clearances, concessions, and incentives as prescribed by the GoB from time to time through a single Combined Application Form (CAF),
- View application status, and receive responses (approval/rejection) from the respective Departments
- Single payment for all statutory fees and levies required for application processing through Credit Card, Debit Card, Net Banking Services etc.





- Provide real time status of application through SMS & E-mail to investors
- Implementation of system based timelines for service delivery including timely reminders, automatic escalation and deemed approval
- Provide a centralized G2G application for government officials to review the online application
- Provide MIS report for facilitating necessary decision making by the government officials
- The Bihar Single Window Clearance (SWC) system will be a workflow based system which will seamlessly integrate with other agencies to facilitate service delivery as required by the investors.

Single window clearance is

- **User Registration:** User/Investor will register themselves using email/phone to the single window clearance portal
- **Stage 1 Application Submission:** The investor will apply for stage-1 approval to clear their eligibility criteria to set up industry in Bihar.
- **In-Principal Approval:** SIPB, Dept of Industries will evaluate the stage 1 application and approve after discussion
- **Bank Appraisal:** Investor will go to the approved banks and get the bank appraisal letter.
- **Financial Clearance:** The investor will now apply for financial clearance once they get bank appraisal letter.
- **Know Your Approvals:** Investor will know the required licenses/NOC/clearance list after filling out approval wizard.
- **Apply for Approvals:** After knowing the list of licenses, the investor will start applying to respective departments through our portal.
- **Claim Your Incentives:** After stage-1 clearance and financial clearance, investor can now apply for incentives.

Conclusion

Bihar has tremendous potential for realizing the scope of food processing in all the avenues of food processing such as primary processing, secondary processing and tertiary processing. This is attributed to the diverse agricultural commodities base, (such as cereals, oilseeds & pulses, F&V, Dairy, Fish & Meat) large work force and large population base. Further available natural resources such as potable water, plane land, abundance of raw material in near areas also provide an ideal locations for food processing industries. In the coming years the state is going to witness rise in investment in this sector which results in better employment opportunity, reduction in food wastages, rise in utilization of agri waste.





Total Budget Outlay

Sl.No	DPR Components	Intervention	Scheme	Number of Units	Budget (in Crore)
1	Export Infrastructure	Establishment of Irradiation Unit	TIES	5	250
		Establishment of Pack House	TIES	9	90
2	Honey processing	Processing Unit in production clusters	Mukhya Mantri Cluster Vikash Yojna	25	50
3	Maize Processing	Establishment of Maize Starch Unit	BIIPP 2016	3	440
		Establishment of Compound Feed Units	BIIPP 2016	50	
		Establishment of Ethanol Units (Maize/Broken Rice)	BIIPP 2016	10	500
		Establishment of small-scale poultry and cattle feed unit	Mukhya Mantri Udyami Yojna	10000	1000
4	Rice Milling	Establishment/Expansion/Upgradation of new Parboiled Rice Milling Unit	BIIPP 2016		500
5	Logistics and Warehousing	Establishment of Multi-modal Logistics Park	BIIPP 2016	1	250
		Establishment of Grade A Warehouses	BIIPP 2016	10	50
		Establishment of Warehouses under clearance from SIPB	BIIPP 2016	43	241.27
6	Mega Food Park	Establishment of Mega Food Park	Mega Food Park Scheme	1	24.93
7	Convergence with DoA	Establishment of Food Processing Units	Krishi Road Map Flexi Funds		50
Total					3446.20



13 | Institutional **Finance**





Institutional Finance

Agriculture and Allied Sector in Bihar-

The annual growth rate of Agriculture sector during 2021-22 was 9.6%. In terms of sub-sectors, the contribution of crop sector in growth rate was highest with 11.9%, followed by Fishery and Aquaculture (11.5%), Livestock (6.9%) and forestry and logging (3.5%). The agriculture and allied sector grew at the rate of about 5% during last five years (2017-18 to 2021-22). Overall, the sector accounted for a share of around 20% in GSVA during the same period. The share of sub-sectors to GSVA in 2021-22 was - crop sector with 11.1%, livestock with 6.6% and fisheries and aquaculture with 1.8% and forestry and logging (1.6%).

Relevance of Agri Credit-

The relevance of institutional credit to agriculture sector becomes more significant where the agrarian scenario is predominated by marginal and small landholder farmers (96.96%).

As per Situational Assessment Survey 2019, Bihar is having 28.1% of tenant holdings (Nos) as compared to the national average of 17.3%.

Average Household Surplus (Income- Consumption Expenditure) in the state is Rs. 262 per month per household (all India it is Rs.1413 per month per household) shows the dependency of households on borrowing and credit for farming and capital investment on informal and formal sources of credit. (NAFIS 2016-17).

Hence, to sustain production as well as Investment activities in agriculture, increasing the penetration of institutional credit is of utmost importance.

Emerging areas in the changing scenario –

Climate Change: Adaptation and Mitigation.

Climate Change adaptation and mitigation are important for sustainable agriculture. Adaptation measures to make agriculture climate resilient require: Change in cropping pattern via promoting millet cultivation, Use of water saving irrigation methods such as micro irrigation through drip and sprinkler and the use of renewable energy, etc.

Mitigation measures like interlinking of rivers, intensive plantation, revival of water bodies to check groundwater depletion require public finance.

Majority of the adaptation measures in the field of agriculture require private investment through bank credit. There is a significant credit potential under climate adaptation finance, but the state government also needs to draw a comprehensive action plan on climate change and ensure its implementation.





Integrated Farming System

For making agriculture sustainable and facilitating adaptation to Climate Change situations and also enhancing the farmers' income, Integrated Farming System (IFS) provides a successful model. Hence credit availability is required to make IFS viable for small and marginal farmers.

Organic Farming

Organic farming is a sustainable and environment friendly method of farming using organic inputs and benefiting all kinds of farmers. It helps reduction in cost with premium price. Also, credit for organic farming will have higher rate of return in terms of sustainability of agriculture.

Farmer Producer Organizations

Collectivisation of producers, especially small and marginal farmers, into Producer Organisations / Farmer Producer Organizations (FPOs) / Companies (FPCs) has emerged as one of the most effective pathways to address various challenges both in production and post-production stages in terms of access to technology, credit, market linkages, etc., but most importantly to enable improved access to investments, technology, inputs, credit, markets, manage risks and to realize economies of scale.

In order to make sure the reach of FPOs to credit from mainstream banks and financial institutions and minimize lending risk of the eligible lending institutions, a dedicated Credit Guarantee Fund of Rs. 1,000 Cr. has been maintained and managed by NABSANRAKSHAN, a fully owned subsidiary of NABARD.

The need of the hour is to ensure institutional financing of FPOs, capacity building and promotion of FPOs as Agri-Exporter.

Farm Mechanization and IoT (Internet of Things) in Agriculture

Digital technology in agriculture involving artificial intelligence and machine learning, internet of things(IOT), Drone technology, block chain technology, GIS, GPS, Remote Sensing, analytics, etc. can usher in another green revolution through automation in agricultural activities resulting in promotion of Precision farming, increased efficiency of productivity factors, cost reduction, high yield, proper crop monitoring, reduced losses, enabling traceability, addressing climate risks etc. besides facilitating an efficient agriculture value chain. Further, farm mechanization is also required to increase the production and productivity of agriculture.

Agroforestry

Social forestry is a viable banking model, but somehow no financing is there in the State for it. In view of the changing climate situation and emerging trend of carbon trading, the sector becomes very important and viable banking model.



Fourth Agriculture Roadmap 2023-28



Post-Harvest Infrastructure and Agro Processing -

To utilize the large production of crops (especially horticulture) commercially, there is need to invest in agriculture infrastructure. Financing for Agriculture Value Chain and Food Processing is new business area for banks that has significant growth potential.

Status of Agri Credit -

Ground Level Credit (GLC) Flow

The total credit disbursement has increased by 60.94 % from Rs.99934 crores in 2017-18 to Rs.160836 crores in 2021-22. GLC flow to agriculture and allied activities has registered a growth of 31.16% in 2021-22, a declining trend is observed in the Crop loan disbursement from Rs. 21,000 crores during 2017-18 to Rs.14094 crores during 2021-22.

Ground Level Flow of Credit - Bihar, Amount in Rs. Crores



GLC Flow in Agriculture - Agency - wise (%)





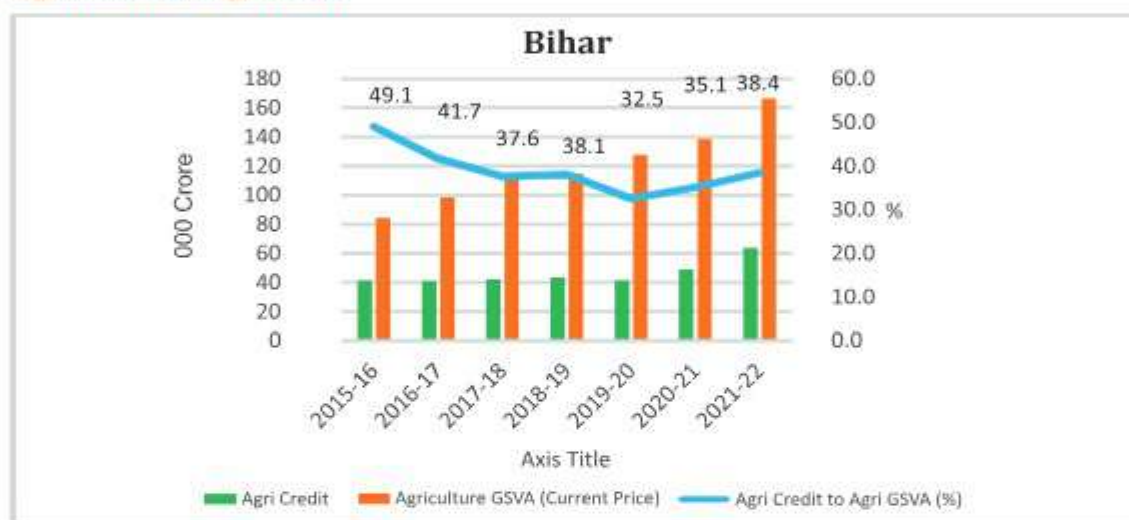
Fourth Agriculture Roadmap 2023-28



Contribution of Rural Financial Institutions

The share of RRBs, Coop Bank and Small Finance Banks in overall GLC flow was 13.57%, 6.36% and 2.72%, respectively as on 31.03.2022 and their share in Agriculture Credit flow as on 31.03.2022 was 28.32%, 15.61% and 5.71%, respectively. Small Finance Banks are emerging as important financial institutions in the State and have contributed 3.84% in priority sector and 5.72% in agriculture GLC and their CD ratio is at 388.06%.

Agri Credit to Agri GSVA



The share of Agri Credit (Disbursement) to Agri GSVA in the state has witnessed a declining trend during the last 7 years and it was approx. 38.4% during 2021-22, whereas it was 42.9 % at all India level



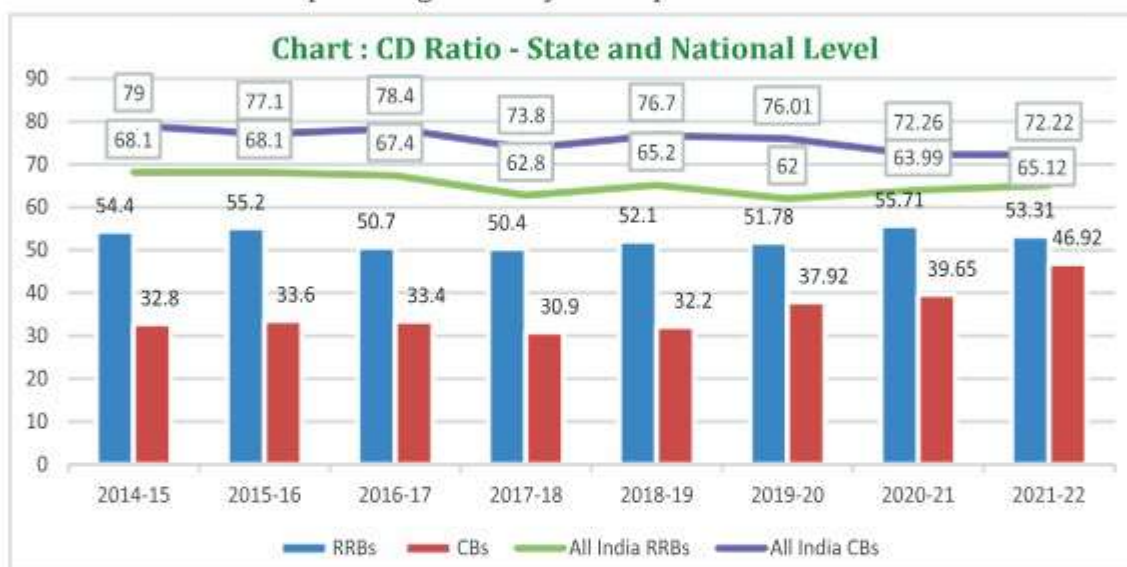


CD Ratio

The CD Ratio in the state (including the RIDF disbursements) has increased from 46.40% as on 31.03.2021 to 52.96% as on 31.03.2022 whereas the average CD ratio at all India level is continuously hovering around 72%.

Commercial Banks, RRBs, Coop Banks and Small Finance Banks share in deposits as on 31.03.2022 were 89.29%, 9.19%, 1.20% and 0.33% and their share in advances were 82.53%, 9.65%, 5.34% and 2.49%, respectively.

Keeping in view the network coverage and share in deposits, improvement in CD ratio of the State depends significantly on the performance of Commercial Banks.



(Source: SLBC, Bihar)

KCC & its Coverage

During 2021-22 only 15.6 lakh KCC accounts in the state, which accounts for 9.6% of the total landholdings, had availed crop loan whereas 39.56 lakh KCC accounts were having loan outstanding as on 31 March 2022, which works out to only 24.4% of the total landholdings in the state.

There has been increase in per account average KCC disbursement from Rs. 87,034 during 2020-21 to Rs. 90,043 during 2021-22. The average disbursement of loans by the Cooperative Bank was only Rs. 26,990.

The progress under KCC under Animal Husbandry and Fisheries is very low in the state. Only 17281 farmers availed loan under KCC - AH & 1722 farmers availed loan under KCC-Fisheries during 2021-22.

The agency wise achievement under KCC Scheme is given in following Table.



Table: Status of Kisan Credit Card (for crop loan) Disbursement

(Rs. Cr.)

Agency	2019-20			2020-21			2021-22		
	New	Renew	Total	New	Renew	Total	New	Renew	Total
Comm. Banks	1461.92 (133077)	5100.19 (500371)	6562.11 (633448)	2273.92 (224360)	4346.35 (563972)	6620.27 (788332)	2217.85 (158566)	4933.00 (609915)	7150.85 (768481)
RRBs	135.06 (32140)	10799.55 (1123360)	10934.61 (1155500)	173.9 (24990)	10095.3 (1077705)	10269.2 (1102695)	84.10 (18239)	6633.04 (694664)	6717.14 (712903)
Coop. Banks	3.34 (1217)	194.37 (76289)	197.71 (77506)	8.47 (1921)	195.76 (71066)	204.23 (72987)	10.46 (2632)	216 (81273)	226.46 (83905)
Total	1600.32 (166434)	16094.11 (1700020)	17694.43 (1866454)	2456.29 (251271)	14637.41 (1712743)	17093.7 (1964014)	2312.41 (179437)	11782.04 (1385852)	14094.45 (1565289)

Disbursements made under KCC accounts during last three years were Rs17694.43 cr (18.66 lakh KCC), Rs. 17093.7 cr (19.64 lakh KCC) and Rs 14094.45 cr (15.65 lakh KCC) during 2019-20, 2020-21 and 2021-22 respectively. Of the total no of KCCs disbursed during 2021-22, % share of CBs, RRBs and Coop. Banks were 49.09%, 45.54% and 5.36% respectively.

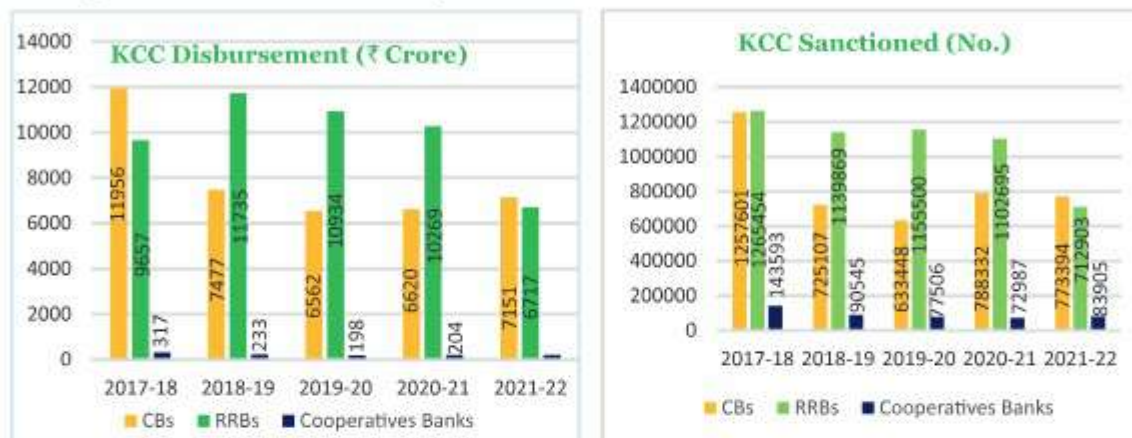
Table: Agency-wise Average Credit Limit Sanctioned per KCC (SLBC, Bihar)

Agency	Average Credit Limit sanctioned per KCC (Rs.)					
	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
Coop banks	47520	22106	25728	25509	27982	26990
RRBs	87205	76313	102970	95251	93128	94222
CBs	127610	94833	103334	106109	83978	95683
Average	96877	82128	99510	96100	87034	91349

Fourth Agriculture Roadmap 2023-28



Average credit limit sanctioned per KCC was less than Rs. 1 lakh.



Potential Credit Outlay-

The credit potential outlay for the year 2023-24, for the agriculture sector is Rs. 94,149.53 crores for the state of Bihar. The sector/sub-sector-wise projections are as under:

Sub-Sector-wise Credit Potential of Agriculture for 2023-24

(in lakh Rs.)

Sl. No.	Sector	Estimation for 2023-24
1	Credit Potential for Agriculture	
1.1	Farm Credit	
I	Crop Production	5311085
ii	Water Resources	407635
iii	Farm Mechanisation	550267
iv	Plantation & Horticulture (including Sericulture)	212901
V	Forestry & Waste Land Development	17133
Vi	Animal Husbandry- Dairy	671196
Vii	Animal Husbandry- Poultry	314222
Viii	Animal Husbandry- Sheep, Goat, Piggery, etc.	119331
Ix	Fisheries Development	188881





Sl. No.	Sector	Estimation for 2023-24
X	Others – Bullock, Bullock Cart, etc.	36572
Xi	Integrated Farming System	53102
Sub Total		7882327
1.2	Agriculture Infrastructure	
I	Construction of storage facilities (Warehouses, Market yards, Godowns, Silos, Cold Storage units/Cold Storage Chains)	605734
li	Land development, Soil Conservation, Watershed Development	49332
lii	Others (Tissue Culture, Agri Bio-technology, Seed Production, Bio pesticides/ Fertilizers, Vermi Composting)	63028
Sub Total		718094
1.3	Ancillary Activities	
I	Food and Agro Processing	499922
li	Others (Loans to FPOs, Agri Clinics/Agri Business Centres)	314611
Sub Total		814532
Total Agriculture		9414953

(Source- NABARD,Patna)

On the basis of CAGR of Agriculture during past six years and credit potential outlay of 2023-24, estimates for coming five years is assessed at the rate of 10% growth in credit requirement per annum.

Year	Credit Requirement (Lakh Rs)
2023-24	9414953
2024-25	10356448
2025-26	11392093
2026-27	12531302
2027-28	13784433





Annual Growth Rate (%) of GSDP & GDP (At Constant 2011-12 prices)

Sector	2020-21	2021-22	CAGR (2016-17 to 2021-22)
GSDP Growth Rate % Bihar	-3.15	10.98	6.07
GDP All India	-6.59	8.68	3.67
GSVA growth - Agri (Including AH, Forestry and Fishing)	8.36	9.59	5.08
Livestock (Growth Rate)	10.61	6.92	8.94
Fishing and aquaculture (Growth Rate)	6.57	11.49	8.39

Source: Directorate of Economics & Statistics GOB, MoSPI, GoI, Bihar Economic Survey 2021-22, indiastat.com,

Issues and Challenges related to Agriculture Credit

Low KCC Coverage

- The Total land holdings in Bihar - 164 lakh but KCC having loan outstanding as on 31 March 2022 - 39.56 lakh (24.4% of total landholdings) and the number of KCC availed loan during 2021-22 - 15.6lakh (9.6% of total landholding). Therefore, a huge gap is still to be filled for achieving KCC saturation.
- Average disbursement of credit under KCC is relatively low in Bihar as compared to national average.
- Only few farmers have taken KCC loan for allied activities. Hence, there is also need to enhance the Agriculture term loan for Dairy, fishery and poultry.

High NPA

Overall NPA is 11.30 % with Commercial Banks (8.80%), Cooperative Bank (2.84%), Small finance Bank (5.75%) and RRBs having highest NPA of 37.95% as on 31 March 2022.

Beside this, NPA under KCC has been showing an increasing trend in the state and as on 31 March 2022 overall NPA was 43.78%, whereas agency wise NPA was 38.62%, 49.79% and 44.51% for PSBs, RRBs and Cooperative Banks respectively.

Weak Financial Health of RRBs

- Both the RRBs have GNPA higher than 15% and their return on Assets (RoA) is negative. Hence, they are in "RRB in focus" category and under Prompt Corrective Action (PCA).





- The CRAR of UBGB and DBGB was 6.94% and 3.40% (as per IR) respectively as on 31 March 2022. Thus, both RRBs could not maintain the stipulated RBI norm of 9% CRAR during 2020-21.
- Both RRBs have accumulated losses and have incurred losses during 2021-22.

Better financial health of RRBs is required for increasing Institutional credit.

Low CD ratio-

The six districts (Munger, Saran, Jehanabad, Nalanda, Bhojpur, Darbhanga) still have CD ratio less than 40% as on 31st March 2022.

The ground level credit flow in the state has increased, but there is vast credit potential in the State yet to be tapped. There is also need for sanitation and transparency in data flow.

Weak Financial Health of Cooperative Institutions

There is a State Cooperative Bank (BStCB) and, 23 District Central Cooperative Banks (DCCBs). The Cooperative structure permeates the social fabric of the state through a sizeable network of 8463 Primary Agriculture Credit Societies (PACS).

The cooperative credit structure in the state is weak. Long Term Cooperative Credit Structure is defunct in the state and the Short Term Cooperative Credit Structure suffers from governance issues, manpower shortage, technology deficit and financial weakness. Their share in Agri credit disbursement, though increasing is still very low (15.61% during 2021-22).

Out of around 1.6 crore members of PACS, only around 4 lakhs are borrowing members and the number of members to whom disbursements were made during last 3 years under KCC has come down from 1.43 lakh to 0.84 lakh. The cooperative credit structure needs technology introduction / upgradation, new business strategies, membership enhancement and better governance.

Lack of Post-Harvest Infrastructure -

The estimated storage capacity available in Bihar would be 20-25 lakh MT while rice and wheat procurement alone would need 28 lakh MT of storage capacity. Hence, it is safe to assume that a considerable investment in storage infrastructure would be required to meet the capacity gap in the state.

Similarly, Fruits and vegetables being seasonal products need to be stored for future consumption. Assuming 10 % of the produce (fruits, vegetables, fish, meat, and milk) is stored in cold storages, Bihar would require an approximate 35.47 lakh MT of cold storage capacity. As per the available data, in 2019-20, the available capacity of





cold storage in Bihar was only 14.79 lakh MT. Thus, there is considerable need for investment in cold storage infrastructure in Bihar.

Financial Inclusion

In the RBI's FI Index, where the all India rating is 56 percentile, 17 out of the 38 districts of Bihar fall in bottom 10 percentile. In view of the low level of the State in FI index, there is a huge credit potential in banking the unbanked, securing the unsecured and in funding the unfunded.

Way forward-

Though there has been significant development in the agriculture sector of the state, there are issues that need to be addressed-

- Collectivization of Farmers and Formation of an FPO Policy for the state.
- Saturation of KCC, including KCC for Animal Husbandry and Fisheries.
- Setting-up/promoting e-NAM compliant infrastructures and development of Grameen Agricultural Markets (GrAMs) and its electronic linkage with e-NAM.
- Expansion and Modernization of existing Dairy Processing Infrastructures under cooperative sector and promotion of new processing / marketing infrastructures under cooperative as well as private sectors.
- Promotion of High-tech agricultural practices through incentivisation, adoption and intensification of extension services.
- Solarisation of rural energy needs.
- Development / promotion of food parks in each district.
- GI tagging – expansion and upscaling.
- Streamlining of Credit Planning, Delivery, Reporting and Monitoring mechanism.
- Formulation of risk mitigation tool to address NPA issues in farm credit.
- Credit – Deepening, Widening and Regional / Sectoral Balancing of Credit.
- Strengthening the Cooperative Credit Institutions through Capital Infusion, Technology, New Business Strategies and Professional Governance.
- Enhancing credit flow for agriculture and allied activities through JLG Mode.





Fourth Agriculture Roadmap 2023-28



Budget requirement for Fourth Agriculture Road Map (2023-28)

(Amount in Crore Rs)

Name of Deparments	DPR	Ongoing schemes	Total
Agriculture-Crop & Horticulture	11648.07	10718.11	22366.18
Animal and Fisheries Resources	13042.15	2307.25	15349.40
Rural work	393.98	00	393.98
Department of Water Resources	500.00	18696.17	19196.17
Minor Water Resources	5308.00	00	5308.00
Cooperatives	00	444.50	444.50
Sugarcane Industries	63.25	666.69	729.94
Revenue and Land Reforms	13.53	1187.21	1200.75
Food and Consumer Protection	5638.94	78128.00	83766.94
Energy	6190.75	00	6190.75
Environment, Forest& Climate Change	3875.98	00	3875.98
Food and processing industries	3446.20	00	3446.20
Total	50120.85	112147.93	162268.78





Milestone of Fourth Agriculture Road Map

Agriculture-Crop and Horticulture Development

(Production – In thousand metric tons / Productivity - kg / hectare)

Sr No.	Crops	Current Production (2021-22)	Current Productivity (2021-22)	Targeted Production (2027-28)	Targeted Productivity (2027-28)
1	Rice	7717.30	2496.41	9377.17	3162.12
2	Wheat	6889.83	3077.51	7739.71	3396.88
3	Maize	3470.90	5236.33	4339.62	6529.34
4	Nutri cereals	20.90	1382.28	26.67	1596.36
5	Pulses	387.94	891.06	495.12	920.47
6	Oilseeds	121.50	1048.05	155.07	1060.06
7	Fruits	4986.70	13707.26	5809.02	14657.18
8	Vegetables	17845.00	19584.06	19427.04	20565.26

Animal based products

(For Fish, Meat and Milk Production – In thousand metric tons & Eggs production- Number in Lakh)

9	Fish	762.00		1270.00	
10	Meat	392.44		494.00	
11	Milk	12118.50		15990.00	
12	Eggs	30665.62		62025.00	





बिहार सरकार
कृषि विभाग

संकल्प

विषय:- कृषि रोड मैप 2023-2028 का 162268.78 करोड़ (एक लाख बासठ हजार दो सौ अड़सठ करोड़ अठहत्तर लाख) रुपये की लागत पर योजना कार्यान्वयन की सैद्धांतिक स्वीकृति।

कृषि रोड मैप 2023-2028 अंतर्गत प्रमुख उद्देश्यों यथा खाद्य एवं पोषण सुरक्षा, समावेशी विकास के तहत रैयत किसानों के साथ-साथ गैर रैयत एवं महिला किसानों को बढ़ावा, सतत विकास की परिकल्पना, कृषि क्षेत्र में आधुनिक तकनीक का प्रयोग, पर्यावरण को अक्षुण्ण रखने का संकल्प, छोटा किसान-बड़ा फार्मिंग अर्थात् किसानों का संगठन बनाकर उनके विकास का कार्य, कृषि उत्पादन के दौरान एवं उत्पादन के पश्चात क्षति को कम करने के लिए विशिष्ट कार्यघटक, टाल एवं दियारा तथा चौर के विकास के लिए विशिष्ट कार्यक्रम, आधारभूत संरचना आदि क्षेत्रों में व्यापक निवेश इत्यादि को परिलक्षित किया गया है।

इस रोड मैप के कार्यान्वयन के फलस्वरूप कृषि उत्पादों के उपज में वृद्धि होगी, कृषि उपज के भंडारण, प्रसंस्करण क्षमता का विस्तार होगा, कृषि उपादानों यथा बीज, सिंचाई, तकनीकी परामर्श आदि सुलभता से किसानों को प्राप्त होगा, पर्यावरण संरक्षण के लक्ष्य को पूरा करने में मदद मिलेगा, जलवायु परिवर्तन की परिस्थितियों से मुकाबला करने में किसान सक्षम होंगे एवं किसानों की आमदनी बढ़ेगी।

कृषि रोड मैप का सूत्रण दो भागों में किया गया है -

- **कृषि रोड मैप का विजन डोक्यूमेंट** - विजन डोक्यूमेंट में विभाग के चालू योजनाओं के साथ-साथ प्राथमिकता क्षेत्र के डी.पी.आर. को अंकित किया गया है।
- **डी.पी.आर.** - कृषि रोड मैप के प्राथमिकताओं को डी.पी.आर. (विस्तृत परियोजना प्रस्ताव) के रूप में आलेखित किया गया है।

चतुर्थ कृषि रोड मैप में शामिल विभिन्न विभागों के प्रमुख हस्तक्षेपों/कार्यघटकों का संक्षिप्त विवरण निम्नवत है-

- ❖ **कृषि-फसल एवं बागवानी प्रक्षेत्र का विकास** के अधीन बीज विकास / फसल विविधिकरण एवं सघनीकरण/दलहन एवं तेलहन हेतु मिशन/ पौधा संरक्षण/जैविक प्रोत्साहन कार्यक्रम/ कृषि बाजार व्यवस्था सुधार/ भूमि एवं जल संरक्षण कार्यक्रम/ कृषि यांत्रिकरण/ जलवायु अनुकूल कृषि कार्यक्रम/ बागवानी विकास/ कृषि में आधुनिक तकनीक का प्रयोग/ कृषि शिक्षा/ कृषि अनुसंधान/ कृषि प्रसार/ जोखिम शमन/ प्रबंधन/ निगरानी एवं मूल्यांकन सेल का गठन से सम्बंधित कार्यक्रम कार्यान्वित किये जायेंगे।

2





- ❖ **पशु एवं मत्स्य संसाधन विभाग** के अधीन गव्य विकास/ कुक्कुट विकास कार्यक्रम/ बकरी प्रक्षेत्र का सुदृढीकरण एवं विकास/ सूकर विकास योजना/ भैंस अनुसंधान एवं प्रशिक्षण केन्द्र की स्थापना/ अनुवांशिक सुधार केन्द्र की स्थापना/वन हेल्थ प्लेटफॉर्म की स्थापना/देशी मवेशियों के संरक्षण और अनुवांशिक सुधार केन्द्र की स्थापना/गोजातीय नस्ल सुधार कार्यक्रम का सुदृढीकरण/ राज्य स्तर पर सोसायटी का गठन-बिहार सोसाइटी फॉर एनिमल हेल्थ मैनेजमेंट एंड ट्रेनिंग (B-SAHMAT) / पशुपालन प्रशिक्षण और प्रसार की योजना/ बेहतर पशु स्वास्थ्य प्रबंधन हेतु आधारभूत व्यवस्थाएँ/ मात्स्यिकी विकास से सम्बंधित कार्यक्रम कार्यान्वित किये जायेंगे।
- ❖ **ऊर्जा विभाग** के अधीन 4.80 लाख विद्युत पम्प सेटों को मुफ्त कृषि विद्युत संबंध प्रदान किया जायेगा/मुख्यमंत्री कृषि विद्युत संबंध योजना – 2 अन्तर्गत 12430 सर्किट कि०मी० डेडिकेटेड 11 के०मी० फीडर, 31078 वितरण ट्रांसफॉर्मर (25/63 के०मी०ए०) तथा 22717 सर्किट कि०मी०एल०टी० लाईन का निर्माण किया जायेगा/कृषि के लिये सभी 1354 अदद मौजूदा डेडिकेटेड फीडरों के सोलरइजेशन का कार्य से सम्बंधित कार्यक्रम कार्यान्वित किये जायेंगे।
- ❖ **राजस्व एवं भूमि सुधार विभाग** के अधीन राज्य के 30 जिले जिनका Geo-Referenced मानचित्र उपलब्ध नहीं है वहाँ कुल 36020 राजस्व ग्रामों के 104252 शीट/मानचित्रों पर Geo-referencing का कार्य किया जायेगा /इसके अतिरिक्त चालू योजनाओं अंतर्गत सर्वेक्षण एवं बंदोबस्त कार्यक्रम आदि से सम्बंधित कार्यक्रम कार्यान्वित किये जायेंगे।
- ❖ **पर्यावरण, वन एवं जलवायु परिवर्तन विभाग** के अधीन प्राकृतिक वनों में हरित आवरण का विकास/ प्राकृतिक वनों के बाहर सरकारी भूमि पर हरित आवरण का विकास/ कृषि वानिकी एवं अन्य/बाँस रोपण/ पौधशालाओं का विकास/ प्राकृतिक वनों में मृदा एवं जल संरक्षण/ बाँस परियोजना/ बिहार वानिकी शोध एवं प्रशिक्षण महाविद्यालय, मुंगेर/ आर्द्रभूमियों का संरक्षण एवं विकास/ वन उत्पाद आधारित उद्योग का विकास/ कृषि वानिकी और गैर इमारती वन पदार्थों के उत्पाद के लिए विपणन और प्रबंधन आदि से सम्बंधित कार्यक्रम कार्यान्वित किये जायेंगे।
- ❖ **लघु जल संसाधन विभाग** के अधीन आहर पईन का जीर्णोद्धार / वीयर/चेक डैम का निर्माण/नवीकरण/ उद्भवह सिंचाई योजनाओं का निर्माण एवं जीर्णोद्धार/ निजी नलकूप योजना/ शैलो नलकूप योजना/ राजकीय नलकूप की मरम्मत एवं जीर्णोद्धार योजना से सम्बंधित कार्यक्रम कार्यान्वित किये जायेंगे।
- ❖ **जल संसाधन विभाग** के अधीन प्रस्तावित पम्प नहर योजना/ प्रस्तावित जलाशय योजना/ नदी जोड़ योजना/ प्रस्तावित बाढ़ नियंत्रण योजना/ प्रस्तावित जल निस्सरण की योजनायें / हर खेत तक सिंचाई का पानी का कार्यक्रम/ निर्माणाधीन बराज योजना/ निर्माणाधीन वीयर योजना/ निर्माणाधीन पम्प नहर योजना/ निर्माणाधीन नहर पुनर्स्थापन/विस्तारीकरण

2





योजना/ निर्माणाधीन जलाशय योजना/ टाल विकास योजना/ निर्माणाधीन बाढ़ नियंत्रण योजना/ निर्माणाधीन जल निस्सरण योजना से सम्बंधित कार्यक्रम कार्यान्वित किये जायेंगे।

- ❖ **उद्योग विभाग** के अधीन विकिरण इकाई की स्थापना/ पैक हाउस की स्थापना/ उत्पादन समूहों में प्रसंस्करण इकाई/ मक्का स्टार्च इकाई/ मिश्रित फीड इकाइयों की स्थापना/ इथेनॉल इकाइयों (मक्का/टूटा हुआ चावल)/ छोटे पैमाने पर पोल्ट्री और पशु आहार इकाई की स्थापना/विस्तार/नए उबले चावल मिलिंग यूनिट कर उन्नयन/ मल्टीमॉडल लॉजिस्टिक्स पार्क की स्थापना/ ग्रेड ए गोदामों की स्थापना/SIPB से मंजूरी के तहत गोदामों की स्थापना/ मेगा फूड पार्क की स्थापना/ खाद्य प्रसंस्करण इकाइयों की स्थापना से सम्बंधित कार्यक्रम कार्यान्वित किये जायेंगे।
- ❖ **ग्रामीण कार्य विभाग** के अधीन अनजुड़े योग्य बसावटों को विभिन्न योजनाओं के तहत संपर्कता प्रदान करना/ ग्रामीण क्षेत्रों में जल-जमाव वाले क्षेत्रों से जल निकासी कर कृषि योग्य बनाने के लिए ग्रामीण पथों में अतिरिक्त संरचना का निर्माण से सम्बंधित कार्यक्रम कार्यान्वित किये जायेंगे।
- ❖ **खाद्य एवं उपभोक्ता संरक्षण विभाग** के अधीन धान की अधिप्राप्ति @45 लाख मिट्रीक टन/वर्ष, गेहूँ की अधिप्राप्ति @20 लाख मिट्रीक टन/वर्ष, प्राइस सपोर्ट स्कीम के तहत तिलहन की अधिप्राप्ति, दलहन की अधिप्राप्ति/ भंडारण क्षमता का विकास – विभागीय/भंडारण क्षमता का विकास – पी.ई.जी. से सम्बंधित कार्यक्रम कार्यान्वित किये जायेंगे।
- ❖ **गन्ना उद्योग विभाग** के अधीन गुड़ विकास कार्यक्रम (डी.पी.आर.) एवं कतिपय चालू योजनायें कार्यान्वित किये जायेंगे।
- ❖ **सहकारिता विभाग** से संबंधित शहद उत्पादन का डी.पी.आर. बागवानी के साथ कन्वर्जेंस के माध्यम से कार्यान्वित किया जायेगा।

2. कृषि रोड मैप में शामिल विभाग/कार्यक्रमों के डी.पी.आर. एवं चालू योजना का कुल अनुमानित व्यय निम्नवत है –

(राशि करोड़ रु० में)

चतुर्थ कृषि रोड मैप शामिल विभाग/क्षेत्र का कार्यघटक	डी०पी०आर०	चालू योजना	अनुमानित व्यय
कृषि-फसल एवं बागवानी क्षेत्र विकास	11648.07	10718.11	22366.18
पशु एवं मत्स्य संसाधन	13042.15	2307.25	15349.40
ऊर्जा	6190.75	0.00	6190.75
राजस्व एवं भूमि सुधार	13.53	1187.21	1200.75
पर्यावरण, वन, एवं जलवायु परिवर्तन	3875.98	0.00	3875.98

(Handwritten signature)





चतुर्थ कृषि रोड मैप शामिल विभाग/क्षेत्र का कार्यघटक	डी०पी०आर०	चालू योजना	अनुमानित व्यय
उद्योग	3446.20	0.00	3446.20
गन्ना उद्योग	63.25	666.69	729.94
जल संसाधन	500.00	18696.17	19196.17
लघु जल संसाधन	5308.00	0.00	5308.00
ग्रामीण कार्य	393.98	0.00	393.98
खाद्य एवं उपभोक्ता संरक्षण	5638.94	78128.00	83766.94
सहकारिता	0.00	444.50	444.50
कुल	50120.85	112147.93	162268.78

- राज्य मंत्रिपरिषद् द्वारा कृषि रोड मैप पर प्राप्त सैद्धांतिक स्वीकृति के उपरांत कृषि रोड मैप में शामिल कार्यक्रमों को चालू योजना के रूप में संबंधित विभाग कार्यान्वित कर सकेंगे। इसके लिए संबंधित विभाग द्वारा योजना उद्ध्य एवं बजट उपबंध के अधीन स्वीकृत्यादेश निर्गत किया जायेगा। विभागों के द्वारा कृषि रोड मैप के डी.पी.आर. के कार्यान्वयन को प्राथमिकता दी जायेगी। तदनुसार उपलब्ध योजना उद्ध्य एवं बजट उपबंध का व्यय सर्वप्रथम डी.पी.आर. के कार्यान्वयन के लिए किया जायेगा। डी.पी.आर. के कार्यान्वयन के उपरांत राशि अवशेष रहने पर ही चालू योजना कार्यक्रमों का कार्यान्वयन किया जायेगा।
- जिन कार्यक्रमों/डी.पी.आर. में पद सृजन अथवा वाहन क्रय का प्रस्ताव होगा, उन्हें राज्य सरकार के द्वारा विहित प्रावधान के आलोक में लोक वित्त समिति एवं मंत्रिपरिषद् की स्वीकृति प्राप्त की जायेगी।
- योजना कार्यान्वयन के संबंध में यथावश्यक निर्णय मुख्य सचिव की अध्यक्षता में कृषि रोड मैप से संबंधित समिति के द्वारा लिया जायेगा।
- उक्त प्रस्ताव में मंत्रिपरिषद् की स्वीकृति दिनांक 12.05.2023 को प्राप्त है, जो संचिका संख्या —पी. पी. एम. 26/2023 के पृष्ठ सं०—16/टि० पर संघारित है।
- प्रारूप में आंतरिक वित्तीय सलाहकार का सहमति दिनांक 13.05.2023 को प्राप्त है, जो संचिका संख्या —पी.पी. एम. 26/2023 के पृष्ठ सं०— 17/टि० पर प्राप्त है।

आदेश : आदेश दिया जाता है कि इस संकल्प को बिहार राजपत्र के अगले अंक में सर्वसाधारण की जानकारी हेतु प्रकाशित किया जाय।

बिहार राज्यपाल के आदेश से,

(Signature)
13.5.2023

(डॉ० बी० राजेन्दर)

प्रधान सचिव
कृषि विभाग, बिहार, पटना।





Fourth Agriculture Roadmap 2023-28



ज्ञापांक— पी.पी.एम. 26/2023-12 / कृ०, पटना, दिनांक 13.05.2023 प्रतिलिपि : अधीक्षक, राजकीय मुद्रणालय, गुलजारबाग, पटना / उप सचिव, ई-गजट, वित्त विभाग, बिहार, पटना को संकल्प की प्रति (सी.डी. एवं दो हार्ड कॉपी सहित) बिहार गजट के अगले असाधारण अंक में प्रकाशन हेतु प्रेषित।

M. J. J. J.
13.5.2023

प्रधान सचिव
कृषि विभाग, बिहार, पटना।

ज्ञापांक— पी.पी.एम. 26/2023-12 / कृ०, पटना, दिनांक 13.05.2023 प्रतिलिपि : मुख्य सचिव, बिहार, पटना / विकास आयुक्त, बिहार, पटना / अपर मुख्य सचिव, वित्त विभाग / अपर मुख्य सचिव, योजना एवं विकास विभाग / सभी विभागीय अपर मुख्य सचिव / प्रधान सचिव / सचिव को सूचनार्थ एवं आवश्यक कार्रवाई हेतु प्रेषित।

M. J. J. J.
13.5.2023

प्रधान सचिव
कृषि विभाग, बिहार, पटना।

ज्ञापांक— पी.पी.एम. 26/2023-12 / कृ०, पटना, दिनांक 13.05.2023 प्रतिलिपि : कृषि निदेशक / सभी प्रमंडलीय संयुक्त कृषि निदेशक (शष्प) / संयुक्त कृषि निदेशक (पौधा संरक्षण) / सभी जिला कृषि पदाधिकारी / मुख्यालय में योजना से संबंधित सभी नोडल पदाधिकारी को सूचनार्थ एवं आवश्यक कार्रवाई हेतु प्रेषित।

M. J. J. J.
13.5.2023

प्रधान सचिव
कृषि विभाग, बिहार, पटना।

ज्ञापांक— पी.पी.एम. 26/2023-12 / कृ०, पटना, दिनांक 13.05.2023 प्रतिलिपि : माननीय मंत्री, कृषि विभाग, बिहार सरकार के आप्त सचिव / प्रधान सचिव के प्रधान आप्त सचिव को सूचनार्थ एवं आवश्यक कार्रवाई हेतु प्रेषित।

M. J. J. J.
13.5.2023

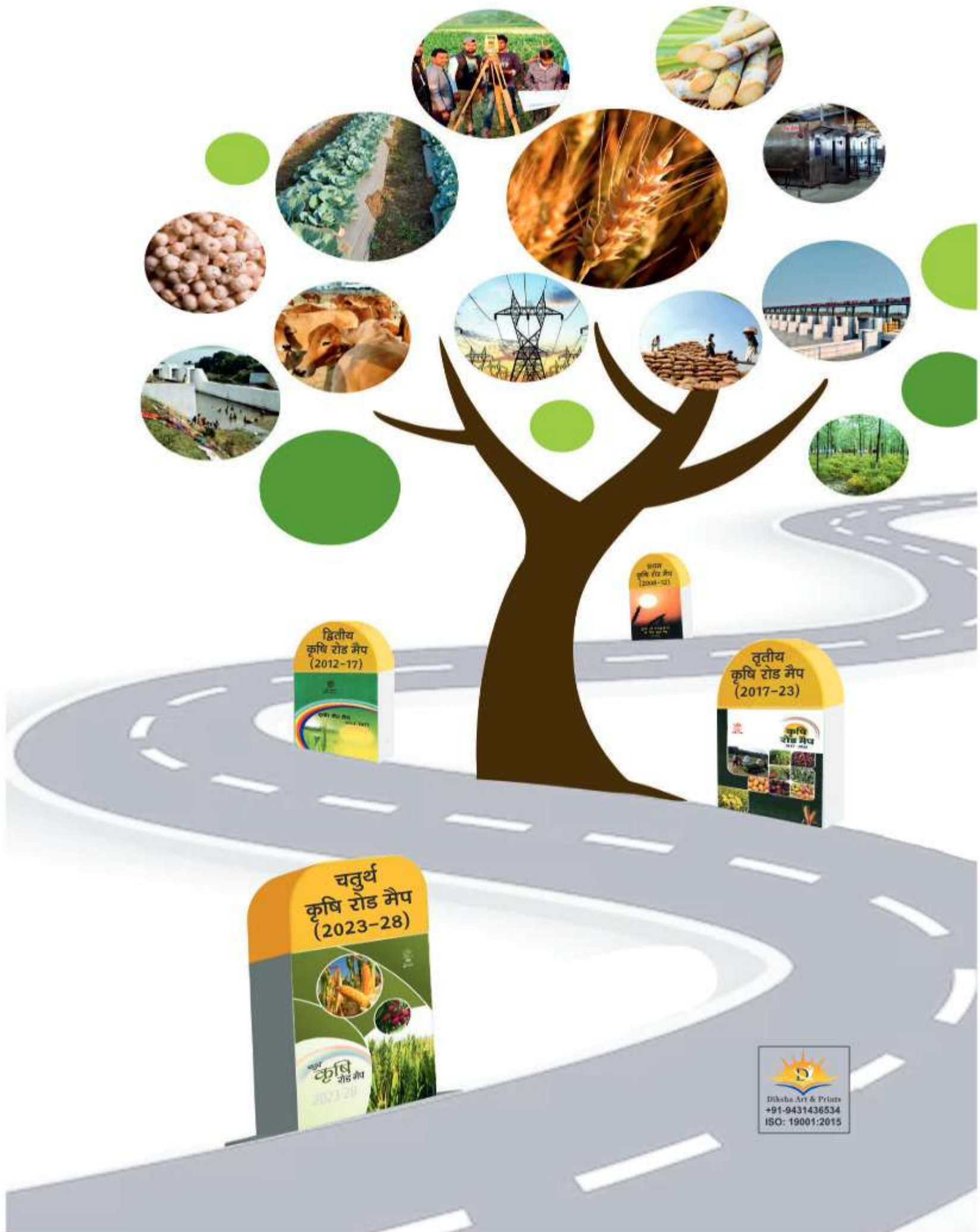
प्रधान सचिव
कृषि विभाग, बिहार, पटना।

ज्ञापांक— पी.पी.एम. 26/2023-12 / कृ०, पटना, दिनांक 13.05.2023 प्रतिलिपि : अपर मुख्य सचिव, मुख्यमंत्री सचिवालय, बिहार, पटना को सूचनार्थ प्रेषित।

M. J. J. J.
13.5.2023

प्रधान सचिव
कृषि विभाग, बिहार, पटना।







Publisher
Department of Agriculture, Government of Bihar

e-mail : itkrishibihar@gmail.com

website : <https://state.bihar.gov.in/krishi>