

15.1 Details of Research Programmes Undertaken During the Last Three Years (MANTRA)

S. No.	Title & Scope of the R&D project along with the sponsoring agency, if any	Name of the Project Leader	Year in which started	Estimated Cost (Rs. in Lakhs)					Brief write-up
				Duration	Capital	Recurring	Total	F.E	
1	Development of commercial quality green-house shade cloth for low cost poly-house for controlled crop production (2008). Sanctioning Authority: Ministry of Textiles, Govt. of India. Scope: Agriculture and farming are one of the chief livelihood of large majority of the Indian population. It is necessary to develop low cost green house for better quality and larger quantity of yield. The project aims at developing low cost green house cloth based on polyester. The product will have export potential also.	Dr.S.K. Basu	18.08.08	1 ½ years	--	21.66	21.66*	Nil	Technical textiles, weaving. In the present work, objective is to manufacture low cost green-house based on polyester for particular green vegetables and flowers produced in South Gujarat and to increase yield and productivity of land.
2	Application of suitable cost effective technology for reuse of water jet effluent. Sanctioning Authority: Ministry of Textiles, Govt. of India. Scope: The use of water in weaving section is increasing by the use of water jet looms. Though unit size of industry is small, industry is decentralized. The main parameter contributing in the waste water are oil, grease and COD. Cost effective treatment is required to comply with local pollution authority norms. Scope also covers the reuse of water after treatment.	Dr.S.R. Naik	18.08.08	2 years	8.0	13.91	21.91*	Nil	Pollution control. Generation of effluent from water-jet loom is 2-3 m ³ /day. The main parameter is COD and emulsified oil in waste water. Pollution control authority has imposed stringent conditions for discharge water. The industry is highly decentralized and small. The main objective is to develop plant/treatment which is low cost and effective.

* Including 20% industry contribution.

Item No.15.1[Annexure-XXI] (Contd..)

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3	Smart fabric/garment products with smart colours for security label. Sanctioning Authority: Ministry of Textiles, Govt. of India. Scope: Thermochromic and photochromic colourant will be exploited for technical and industrial applications to develop sensor fabrics.	Dr.S.R. Naik, Dr.H.D. Joshi	18.08.08	2 years	5.0	16.44	21.44	Nil	Garment, chemical processing and technical textiles. The objective of this project is to develop sensor fabrics for analysis of pH, light, thermal, etc. In the present work photo-chrome colours will be used to make sensor garments/fabrics.
4	A value chain on utilization of banana pseudostem for fibre and other value added products. Sanctioning Authority: Indian Council of Agricultural Research(ICAR), New Delhi. Scope: Utilisation of pseudostem of banana, i.e., waste to extract fibre and make yarn and fabric there-of. Scope covers utilization of these fabrics made of banana yarn either individual or blended for fabrics suitable for apparel and technical applications. This will increase the income of farmers and partially replace natural fibre like cotton.	Dr.S.R. Naik	28.05.08	4 years, 2 months	29.0	32.18	61.18	Nil	Weaving and processing. Sole objective is to prepare fabrics from yarn made out of fibres extracted from pseudostem of banana. Fabrics blended with cotton, viscose, jute yarn will be prepared and chemical processing sequence will be standardized. Fabric constructions suitable for different end uses including apparel, decorative and technical textiles will be prepared.
5	Improvement in chemical processing technology of modified rayon (filament and modal fibre fabrics and enhance the realization and entire value chain. Sanctioning Authority: Ministry of Textiles, Govt. of India. Scope: Processing of viscose filament and modal yarns poses problems like crease, fibrillation, shrinkage and dimensional stability. Also uneven, patch and faulty process occur due to faulty preparatory process. The scope is to develop suitable processing technology to cover these defects and improve the quality of fabrics which are used mainly in garments which has tremendous export potential.	Dr.S.R. Naik, B.S. Pancholi	16.10.06	2 years	--	16.22	16.22	Nil	Technical textiles, weaving. In the present work, objective is to manufacture low cost green-house based on polyester for particular green vegetables and flowers produced in South Gujarat and to increase yield and productivity of land.

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6	Development of anti-allergenic protective clothing for use in bed sheets, pillows and mattress casing. Sanctioning Authority: Ministry of Textiles, Govt. of India. Scope: Anti-allergenic curtains, bed sheets are the need of the day. Such fabrics are imported and hence very costly. The project aims at the development of such cloth/fabric which will prevent allergies that causes asthma, in particular.	Dr.S.R. Naik, Dr.H.D.Joshi	16.10.06	2 years	--	16.32	16.32	Nil	Pollution control. Generation of effluent from water-jet loom is 2-3 m ³ /day. The main parameter is COD and emulsified oil in waste water. Pollution control authority has imposed stringent conditions for discharge water. The industry is highly decentralized and small. The main objective is to develop plant/treatment which is low cost and effective.
7	Setting-up of Centre of Excellence in Technical Textiles. Sanctioning Authority: Ministry of Textiles, Govt. of India. Scope: Projected growth rate of technical textiles in India is 10-11% and these products have good export as well as domestic potential. The project covers testing, quality control and product development activities. Testing and R&D equipments/facilities in particular for agro-textiles will be procured for the project and a Knowledge Centre will also be set up under this project.	Dr.S.K. Basu	28.03.08	2 years	254.50	10.0	264.50	Nil	Garment, chemical processing and technical textiles. The objective of this project is to develop sensor fabrics for analysis of pH, light, thermal, etc. In the present work photo-chrome colours will be used to make sensor garments/fabrics.

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8	Development of canvas fabric from high tenacity air textured synthetic yarns. Sanctioning Authority: Ministry of Textiles, Govt. of India. Scope: Aim of the project is to substitute cotton based tent fabrics by high tenacity air textured polyester based tent/cover fabrics, which can be more durable and cheap and flexibles. It was also aimed to develop FR (fire retardant) fabric. Such fabrics have good domestic and overseas demand.	Dr.S.K. Basu	07.01.05	1 ½ years	--	7.37	7.37	--	In this project canvas fabrics were made from high tenacity polyester air-textured yarns and coated are found to be superior than that of normal air textured yarns. This is a technical textile product and can be used as cover fabric, tarpaulin, tent and protective fabric & is cheaper substitute having high shelf life and good stability. Product is also having excellent flame retardancy and fabric is well accepted.
9	Development of viscose & lyocell project. Sanctioning Authority: Govt. of Gujarat. Scope: Tencel is new generation yarn. The objective was to develop diversified range of products such as dress material and garments by blending tencel with synthetic as well as natural fibres/ yarns. These fabrics will be comfortable. These types of fabrics will be having high demand in garment sector.	Dr.S.R.Naik Dr.H.D. Joshi	01.04.05	1 year	--	10.13	10.13		Dress materials & sarees made from synthetic filament yarns are very popular due to their easy care properties, durability & lower cost. However, due to lower natural moisture regain values of synthetic filament yarns, they are not comfortable. Therefore, an attempt was made to develop dress material fabrics using both synthetic filament yarns and man-made, cuprammonium rayon & tencel so as to take advantage of the characteristics of both the fibre types & hence, to produce more comfortable fabrics. In addition to this, influence of various constructional parameters such as weave type, cover factor, etc., on the comfort related properties were studied. By the appropriate use of the findings of this study, fabrics with improved wear properties can be developed.

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10	To phase out CTC from decentralized textile processing sector. Sanctioning Authority: Govt. of Gujarat. Scope: Carbon tetra chloride used in textile is used in huge quantity in scouring and processing of synthetic textiles. CTC is ozone depleting and has been banned internationally. In India also it is being phased out. The need of the day is to develop suitable alternative to CTC, which is eco-friendly and cost effective. The aim of the project is to develop CTC free scouring and stain removing aids suitable for processing of synthetic/polyester fabric in particular.	Dr.S.R.Naik, M.G.Parikh	21.12.06	1 year	1.13	8.35	9.48		CTC has been banned in western countries and its use is being phased out in India too, as CTC is ozone depleting compound and very hazardous and toxic. Under the project 'To phase out CTC from decentralized textile processing sector', MANTRA has identified safer cleaning solvents which can be used against CTC. These are less hazardous solvents. Out of these solvents, a suitable mixture of solvents is identified which when mixed with surfactant/detergent gives a product which acts as efficient scouring agent/stain remover. We may apply for patent.
11	Development of micro-organisms detecting fabric disc. Sanctioning Authority: Govt. of Gujarat. Scope: At present, such products are not manufactured. Other slides available are costly and material used is plastic. The project aims at utilizing non-woven fabric/woven fabric as a base material for immobilizing culture. Such culture can be stored and used in different media for testing of the presence of bacteria in media. The product has tremendous scope for industrial, hospital, household applications.	Dr.S.R.Naik, Mohsin Patel	21.01.07	1 year	2.74	4.54	7.26		Under the project, 'Development of micro-organisms detecting fabric disc', MANTRA developed fabric slide which is cheaper than other available slides in the market for detection of presence or absence of micro-organisms required for conventional microbiological test method and need of microbiologist to do media presentation, sterilization, etc. Instead of these, using fabric slide disc, we can detect presence of micro-organisms in air, water, environment directly.