

# The Complete Technology Book on Meat, Poultry and Fish Processing (2nd Revised Edition)

**Author:** NPCS Board of Consultants & Engineers

**Format:** paperback

**Code:** NI202

**Pages:** 488

**Price:** Rs 1475 | US\$ 150

**Publisher:** NIIR PROJECT CONSULTANCY SERVICES

**Shipping:** 5 days

## About the Book

India is endowed with the largest livestock population in the world. Livestock and poultry in Indian tropical and sub tropics play a critical role in agriculture economy by providing milk, meat, eggs etc and provide flexible reserves during period of economic stress and buffer against crop failure. Mutton and Chicken is an important livestock product which in its widest sense includes all those parts of the animals that are used as the food by the man. So, with increase in population there is also an increasing consumer demand for food products that are low in fat, salt and cholesterol at local, national and international levels. Food manufacturers need to be able to produce meat, poultry and fish products which are considered to be healthy and that can meet the consumer demands. Meat industry, although is a very developing stage in India, is the top food industry in the world. Processed meat products are poised for continuous growth in the country. Poultry is one of the fastest growing segments of the agricultural sector.

The main aim of this book is to provide complete guide on meat, fish and poultry processing. Owing to the wide variety of products and type of processes and treatments (curing, dry curing, fermentation, cooking smoking etc), this products need particular analytical methodologies for proper consumption. It examines the nutritional principles behind the drive for reductions in fat, salt and cholesterol in our diet, and illustrates formulations and procedures utilized to produce such products. The reader would get to explore brief discussion regarding the Indian meat industry followed by the next chapter which includes structure, composition and nutritive value of meat tissues, postmortem changes and some meat quality parameters are also added in the preceding chapters. It also discuss about meat cutting and packaging, processing of meat and meat products, microbial and other deteriorative changes in meat and their identification, chemical composition and nutritive value of poultry meat, pre slaughter handling, transport and dressing of poultry, fish products, freezing fish fillets, miscellaneous fish dishes, spreads, salads, loaves fish spreads for appetizers, sandwiches, shellfish and miscellaneous marine products, meat removal and pre freezing treatment, packing and freezing, classes and sizes of fresh and frozen oysters, freezing whole raw lobsters etc. The book contains manufacturing processes of various meat, chicken and fish products in much illustrative manner. Special content on machinery equipment photographs along with supplier details has also been included.

It is anticipated that, it turns out to be a resourceful book for entrepreneurs, technocrats, food technologists and others linked with this industry; as this would be an invaluable reference source for meat, poultry and fish processors, and food industry personnel involved in the development and marketing of new products.

## Contents

### 1. INDIAN MEAT INDUSTRY

Livestock Resource  
Meat Production  
World Scene  
Processed Meat Industry  
2. STRUCTURE, COMPOSITION AND NUTRITIVE  
VALUE OF MEAT TISSUES  
Structure of Muscle Tissue  
Skeletal Muscle and Associated Connective Tissue  
Smooth Muscles  
Cardiac Muscles  
Composition of Muscle Tissue  
Water  
Protein  
Lipids  
Carbohydrates  
Minerals  
Vitamins  
Nutritive Value of Meat Tissues  
3. POSTMORTEM CHANGES  
Loss of Homeostasis  
Postmortem Glycolysis and pH Decline  
Rigor Mortis  
Loss of Protection from Invading Microorganisms  
Degradation due to Proteolytic Enzymes  
Loss of Structural Integrity  
4. SOME MEAT QUALITY PARAMETERS  
Meat Colour  
Water Holding Capacity  
Marbling  
Quantum of Connective Tissue  
Firmness  
Meat Storage Conditions  
Cold Shortening  
Thaw Rigor  
Antemortem Factors Affecting Meat Quality  
5. MEAT CUTTING AND PACKAGING  
Wholesale Cuts of Lamb Carcass  
Wholesale Cuts of Buffalo or Beef Carcass  
Grading  
Packaging  
Overwraps  
Tray with Overwrap  
Shrink Film Overwrap  
Vacuum Packaging  
Modified Atmosphere Packaging  
6. PROCESSING OF MEAT AND MEAT PRODUCTS  
Basic Processing Procedures  
Cured and Smoked Meats  
Hams  
Commercial Processing of Ham  
Cooked Ham

Country Ham  
Proscicutto  
Bacon  
Commercial Processing of Bacon  
Sausages  
Classification  
Processing Steps  
Formulations of Some Sausages with Special Features  
Intermediate Moisture and Shelf Stable Meat Products  
Humectants  
Basic Processing Techniques  
Stability of Intermediate Moisture Meats  
Hurdle Concept  
Restructured Meat Products  
Other Popular Meat Products  
7. MICROBIAL AND OTHER DETERIORATIVE CHANGES  
IN MEAT AND THEIR IDENTIFICATION  
Sources of Microbial Contamination of Meat  
Growth of Microorganisms in Meat  
Deteriorative Changes in Meat  
Identification of Meat Spoilage  
8. FRAUDULENT SUBSTITUTION OF MEAT AND  
ITS RECOGNITION  
Recognition of Fraudulent Substitution or Adulteration  
Physical Methods  
Anatomical Methods  
Dentition  
Bone Percentage of Carcass  
Ribs on the Thorax  
Characteristics of Long Bones  
Histological Methods  
Chemical Methods  
Composition of Body Fats  
Immunological/Serological Methods  
Electrophoretic Methods  
Isoelectric Focusing  
Enzyme-Linked Immuno Sorbent Assay (ELISA)  
9. CHEMICAL COMPOSITION AND NUTRITIVE  
VALUE OF POULTRY MEAT  
Chemical Composition  
Moisture  
Protein  
Fat  
Carbohydrate  
Vitamins  
Minerals  
Nutritive Value  
10. PRE-SLAUGHTER HANDLING, TRANSPORT  
AND DRESSING OF POULTRY  
Pre-slaughter Care and Handling  
Transport

Dressing of Poultry  
Slaughtering  
Scalding  
Defeathering  
Singeing  
Washing  
Removal of Feet and Oil Gland  
Evisceration  
Chilling and Draining  
Washing  
Grading  
Packaging  
Storage

#### 11. ANTEMORTEM AND POSTMORTEM EXAMINATION OF POULTRY

Antemortem Inspection of Poultry  
Postmortem Inspection

#### 12. PROCESSING OF SOME CONVENIENCE POULTRY PRODUCTS

Tandoori Chicken  
Chicken Barbecue  
Chicken Seekh and Shami Kababs  
Chicken Kofta  
Poultry Pickle  
Chicken Samosa  
Chicken Sausage  
Chicken Patties  
Chicken Tikka

#### 13. ROLE OF MEAT AND POULTRY PRODUCTS IN HUMAN NUTRITION

#### 14. CURED MEATS

General Recommendations  
Thawing Frozen Cuts  
Sanitation is Important  
Curing Cellar Temperature  
Curing Methods for Large Meat Cuts  
Artery Pumping  
Injecto Curing  
Sweet Pickle Cure  
Dry Cure  
Curing Pickle Ingredients and Government Regulations  
Permitted Moisture Content  
Phosphates  
Ascorbates  
Flavourings  
Preparing Pickles for Curing  
Pumping Pickles  
Using Sodium Erythorbate (or Sodium Ascorbate)  
Without Phosphate and Sodium Erythorbate  
When Phosphates are Used  
Government Regulations Concerning Destruction of Trichinae

Boneless Pork Loins and Loin Ends  
Coppa  
Freezing to Destroy Trichinae  
Management Assistance in Safeguarding Processed Meats  
Hams and Picnics  
Curing Whole Smoked Hams  
Arterial Pumping of Pickle  
Pumping Scales  
Pumping  
Fast Cure  
Full Cure  
Procedure for Smoking  
Marketed as Uncooked Hams  
Ready to Eat Fully Cooked Hams  
Artery-Pumped Smoked Picnics (Shoulders)  
Ready-to-Eat Fully Cooked Picnics  
Boneless Oval Shaped and Elongated Ready-to-Eat  
Smoked Hams in Fibrous Casings  
Processing Procedure  
Boneless of Bone-in-Pear-Shaped Ready-to-Eat Smoked  
Hams Processed in Stockinette  
Processing Procedure  
Export Hams and Picnics  
Processing Procedure  
Boiled Hams  
Processing Procedure  
Canned Hams (Pear-Shaped and Pullman)  
Processing Procedure  
Washing and Boning  
Smoke is Optional  
Filling and Pressing  
Cooking  
Cooling  
Keep Under Refrigeration  
Prosciutti (Italian-Style Hams)  
Processing Procedure  
Pork Butts and Loins  
Capocollo (Italian-Style Cured Butts) (Also Capicola, Capicola)  
Dry Cure Procedure  
Fully Cooked Ready-to-Eat Capocollo  
Curing  
After-Cure Treatment  
Smoking  
Final Treatment  
Twins Wrapping  
Smoked Boneless Butts  
Processing Procedure  
Dewey Hams (Loins)  
Processing Procedure  
Canadian-Style Bacon  
Curing

Stuffing (Encasing)  
Smoking  
After-Smoke Treatment  
Bacon (Bellies)  
Continuous Process with Overnight Cure  
Box Dry-Cured Bacon  
Processing Procedure  
Dry Penetronic-Cured Bacon  
The Penetronic Machine  
Processing Procedure  
Injecto-Cured Bacon  
Injecto Process  
Cured Beef Products  
Beef Bacon  
Dried Beef for Slicing  
Dried Beef for Slicing (Fast Method)  
Processing Procedure  
Kosher-Style Corned Beef Brisket  
Curing Pickle  
Curing  
Packaging  
Cooked Corned Beef Rounds  
Curing Pickle  
Curing  
Boning  
Aging and Flavour Development  
Molding and Cooking  
Chilling and Stuffing  
Peppered Beef Rounds  
Boning  
Aging  
Smoking and Cooking  
Packaging  
Pastrami  
Curing Pickle  
Curing  
Rubbing  
Smoking and Cooking  
Chill and Package  
Cured and Smoked Beef Tongues  
Artery Pumping and Curing  
Cover Pickle Curing  
Smoking  
Cured and Cooked Beef Tongues Canned in Tin or  
Glass Containers  
After-Cure Treatment  
Packaging  
Processing  
For Tin Containers  
For Glass Containers  
15. SAUSAGES

Fresh Sausages  
Low Temperatures are Important  
Practice Strict Sanitation  
Destruction of Trichinae  
Avoid Smeary Texture  
Use of Spices  
Shelf-Life  
Casings and Stuffing  
Processing Procedure  
Hot Whole Hog Sausage  
Processing Procedure  
Procedure  
Seasoning Formulas  
Meat Selection  
Grinding and Mixing  
Italian-Style Sausage  
Processing Procedure  
Fresh Chorizos  
Bockwurst (White Sausage)  
Bockwurst using Nonfat Dry Milk  
Dry and Semidry Sausages  
Government Regulations  
Selection of Meats  
Cleanliness of Kitchen and Equipment  
The Sausage Making Procedure  
Dry Salami  
Processing Procedure  
Genoa Salami  
Processing Procedure  
Salami De Milano  
Salami Dâ€™Arles  
Processing Procedure  
Dried Farm Sausage  
Processing Procedure  
Pepperoni Sticks  
Processing Procedure  
Dried Chorizos  
Processing Procedure  
Tiroler Landjager Sausage  
Processing Procedure  
Mortadella (Dry Process)  
Mortadella-Style Sausage using Nonfat Dry Milk  
Krakauer Dry Sausage  
Cervelat Summer Sausage  
Cervelat Sausage using Nonfat Dry Milk  
Thuringer-Style Sausage using Nonfat Dry Milk  
Semidry Sausages using Lactic Acid Starter Culture  
Suggestions for Producing a Semidry Sausage with Lactacel  
Lactic Acid Starter Culture  
Meat Formulation  
Spice Formulation

Grinding and Mixing  
Addition of Starter Culture  
Stuffing  
Smoking Schedule  
Cervelat Summer Sausage with Lactic Acid Starter Fermentation  
Smoking Procedure for Both Methods  
Thuringer Summer Sausage with Lactic Acid Starter Fermentation  
Thuringer Sausage using Lactic Acid Starter Culture  
Meat Formulation  
Spice Formulation  
Hot Bar Sausage using Lactic Acid Starter Culture  
Critical Factors Related to the Use of Starter Culture (Lactacel)  
Cooked Smoked and Unsmoked Sausages (Frankfurters, Weiners, Bologna Types)  
MID Regulations Concerning Added Materials in  
Sausage Products  
New FDA Ban on Premixed Commercial Seasoning Containing Sodium Nitrite  
Outline of Rapid Processing Procedure for Skinless Frankfurters Through Conveyor System  
Bologna-Type Sausages: Jumbo, Long, and Ring  
Chopping Operation using Grinder  
and Conventional Chopper  
Chopping Operation when High-Speed Chopper is used  
Chopping Operation when Grinder, Conventional Chopper,  
and an Emulsifier are used  
Chopping Operation when High-Speed Chopper and  
an Emulsifier are used  
Chopping Operation using Grinder, Mixer, and an Emulsifier  
Other Added Materials  
Stuffing  
Smoking and Cooking  
Fast Process using Combination of Glucono Delta Lactone or Sodium Acid Pyrophosphate and Sodium  
Erythorbate  
Frankfurter Sausages (Wieners)  
Chopping Operation using Grinder and Conventional Chopper  
Chopping Operation when High Speed Chopper is used  
Chopping Operation when Grinder, Conventional Chopper and Emulsifier are used  
Chopping Operation when High Speed Chopper and  
Emulsifier are used  
Chopping Operation using Grinder, Mixer, and Emulsifier  
Added Materials  
Stuff  
Smoke and Cook  
Fast Process using Combination of Glucono Delta Lactone with or without Sodium Acid Pyro-phosphate and  
Sodium Erythorbate  
Oil Spice for Smoked Meat Flavor  
Ring Bologna using Nonfat Dry Milk  
Large Bologna using Nonfat Dry Milk  
Bologna Formulas using Soy Protein  
High Grade Frankfurter using Nonfat Dry Milk  
Processing Data  
Frankfurter using Soy Protein Concentrate  
Hot Dogs Extended with Textured Vegetable Protein

Skinless Frankfurters using Nonfat Dry Milk  
Skinless Cheesefurters using Nonfat Dry Milk  
Cooked Salami (Salami Cotto)  
Cooked Salami Cotto (Perishable) Finest Quality Cooked  
Salami in 3- or 6-LB Cans  
Salami Cotto using Nonfat Dry Milk  
Kosher and Kosher-Style Salami  
Minced Ham  
All Meat Smoked Sausage  
Smoked Link Sausage with 3½ % Cereal and Nonfat Dry Milk Added  
• Pork Sausage  
New England Style Smoked Sausages  
Smoked Italian-Style Hot or Mild Sausage  
All Meat Polish Sausage  
Polish Sausage in Vinegar Pickle  
Polish Sausage Containing 3½ % Cereal and Nonfat Dry Milk  
Polish Style Sausage with Textured Soy Protein  
Polish-Style Sausage using Nonfat Dry Milk  
Blood Sausage  
Cure Pork Tongues  
Cure Beef Blood  
Cure Beef Shank Meat  
Cure Pork Snouts  
Cure Pork Jowls or Backfat  
Precook Meats  
Grind, Chop, and Mix  
Stuff and Tie  
Cook  
Chill  
Smoke Bung-Encased Sausages  
Keep Product Refrigerated  
Liver Sausage Smoked or Unsmoked  
Keep Product Refrigerated  
Braunschweiger Liver Sausage  
Braunshweiger-Style Liver Sausage with Soy Protein  
Braunschweiger with Isolated Soy Protein  
Braunschewiger-Style Liver Sausage using Nonfat Dry Milk  
Kosher-Style Liver Sausage  
Farmer-Style Liver Sausage  
Bohemian Liver Sausage  
Homemade German-Style Liver Sausage (Housmacher Leberwurst)  
Hungarian-Style Rice Liver Sausage  
Ring Liver Pudding  
Cooked Krakauer Sausage  
Berliner Sausage using Nonfat Dry Milk  
Knockwurst  
Thuringer Knockwurst  
Knoblauch Sausage using Nonfat Dry Milk  
Acme Sausage using Nonfat Dry Milk  
Miscellaneous Sausages  
Heat-and-Serve Pork Sausage

Best Quality Canned Pork Sausage  
Canned Bulk Breakfast Sausage with 3½ % Cereal Added  
Sausage Canned in Vegetable Oil (Good Quality)  
Suggested Process

Final Chill

Canned Chorizos in Lard

Canned Vienna Sausages

Canned Imitation Vienna Sausage

Canned Vienna Sausages with Beans and Tomato Sauce

Prepare Vienna Sausages

Prepare Beans

Prepare Sauce

Fill Cans

Suggested Process

Vienna Sausages Packed in Barbecue Sauce

Canning Procedure

Suggested Process

Cocktail Frankfurters in Glass Jars

Retort

Suggested Process

## 16. FISH PRODUCTS

Separating Fish Flesh from Bones and Skin Mechanically

Yield of Flesh and Waste from some Pacific Ocean Fish Passed through a Laboratory-Model Flesh Separator

Reducing Drip Loss in Fish Fillets

Treatment for Freezing

Results of Tests on Fresh Fish

Manufacturing Fish Flour (Fish Protein Concentrate)

Salted and Pickled Fish

Salting Fish

Salting of Cod, Lusk, Haddock, Hake, and Pollock

Cleaning

Salting

Drying

Skinning and Boning

Salting Mackerel

Salting Salmon

Salting Mullet

Dry-Salting

Brine-Salting

Bismark Herring and Variations

Cut Spiced Herring

Pickled Herring for Rollmops, Cut Spiced, or Bismark Herring

Herring in Wine Sauce

• Scotch-Cured • Herring

Rollmops

Herring in Sour Cream Sauce

Matjeshering

Gaffelbiter

Gabelebissen

German Delicatessen Anchovies

Scandinavian Anchovies

Russian Sardines  
Potted Herring  
Fish Pickled in Wine  
Pickled Haddock Fillets  
Pickled Salmon  
Pickled and Spiced Mackerel Fillets  
Pickled Eels  
Canning Frozen-at-Sea Tuna  
Canning Fresh Tuna  
Canning Salmon  
Canning Mackerel  
Canning Sardines in Oil  
Canning California Sardines  
Canning Herring  
Canning Shad  
Canned Salmon Caviar Canape Spread Base  
Canned Fish Chowder  
Make a Fish Broth First  
Fill Cans  
Suggested Process  
Canned Norwegian-Style Fish Balls (Fiskeboller)  
Suggested Process  
Canned Salmon or Tuna Loaf in 12-oz or 3-or 6-Lb Oblong Cans  
Canned Fish Cakes  
Frozen Fish  
Freezing Minced-Fish Blocks  
Preparation of Minced Fish Flesh  
Preparation of the Frozen Blocks  
Freezing Ready-to-Heat-and-Eat Fish Sticks  
Forming Fillet Blocks  
Freezing Fillet Blocks  
Cutting the Fish Sticks  
Coating the Sticks  
Frozen Foods Dipping Batter Mix  
Frozen Foods Breading Mix  
Cooking the Sticks  
Cooling and Packaging the Cooked Sticks  
Freezing  
Freezing Fish Fillets  
Fillets or Pieces of Breaded Fish  
Freezing Halibut and Salmon Steaks  
Steaking the Frozen Whole Fish  
Freezing  
Frozen Heat-and-Eat Fried Fish  
Frozen Fish Chowder  
Frozen Fish Stew  
Frozen Tu-Noodle  
Frozen Swordfish au Gratin  
Smoked Fish  
Smoking Salmon  
Hard-Smoked Salmon



Barbecued Sablefish (Kippered Black Cod)  
 Canned Smoked Salmon Spread  
 Suggested Process  
 Processing Kippered Salmon  
 Processing Kippered Herring  
 Canning Kippered Herring  
 Smoking Herring  
 •Bloaters•  
 Smoking Halibut  
 Smoking Haddock (Finnan Haddie)  
 Finnan Haddie (Scotch Method)  
 Smoking Alewives or River Herring  
 Smoking Mackerel  
 Smoking Sturgeon  
 Smoking Eels  
 Smoking Carp  
 Miscellaneous Fish Dishes, Spreads, Salads, Loaves  
 Fish Spreads for Appetizers, Sandwiches  
 Fish Loaf  
 Fried Fish Cakes  
 Marinating Fried Small Fish  
 Fish Sausage  
 Salmon Salad  
 Alternatives  
 Tuna Salad  
 Tuna Salad with Textured Vegetable Protein  
 Smoked Herring Salad  
 German-Style Herring Salad  
 Italian-Style Herring Salad  
 Alaska-Style Herring Salad  
 Tuna Souffle  
 Salmon Loaf  
 Tuna Noodle Casserole  
 Lutefisk  
 Standard Cooking Procedure  
**17. SHELLFISH AND MISCELLANEOUS MARINE PRODUCTS**  
 Shrimp  
 Freezing Shrimp  
 Preparation of Raw Shrimp  
 Blast Freezing Shrimp  
 Freezing Glazed Shrimp  
 Freezing Cooked Shrimp  
 Canning Shrimp  
 Suggested Process  
 Frozen Shrimp in Creole Sauce  
 Frozen Shrimp Bisque  
 Frozen Shrimp Creole  
 Frozen Curried Shrimp  
 Frozen Shrimp Patties with Textured Vegetable Protein  
 Flavour Base for Rice Pilaf with Freeze-Dried Shrimp  
 Smoked Shrimp

Pickled Spiced Shrimp  
Clams  
Preparing Clams for Freezing  
Soft Clams  
Hard Clams (Quahog)  
Surf Clams  
Freezing  
Canning Razor Clams  
Canning Clam Extract  
Canning Clam Nectar  
Maryland Fried Clams  
Canned Clam Chowders  
For Manhattan Chowder  
For New England Chowder  
Batch Process  
Canned Clam Stew (Hot Pack)  
Frozen New England Clam Chowder  
Made from Fresh Clams  
Made from Canned Clams  
Packaging  
Canned Manhattan Clam Chowder  
For Condensed Canned Chowder  
Frozen Manhattan Clam Chowder (Batch Process)  
Frozen Clam Patties  
Crabs  
Canning Pacific Crab Meat  
Freezing Blue Crab Meat  
Cooking  
Meat Removal  
Freezing Soft-Shell Crabs  
Freezing King Crab Meat  
Freezing King Crab Legs in the Shell  
Freezing Dungeness Crab in the Shell  
Freezing Dungeness Crab Meat  
Cooking  
Meat Removal and Prefreezing Treatment  
Packing and Freezing  
Frozen Crab Cakes  
Frozen Deviled Crabs  
Packaging  
Frozen Crab Cakes  
Frozen Deviled Crab Pastries  
Frozen Crab Imperial  
Prepare White Sauce  
Prepare Crab  
Package and Freeze  
Chesapeake Bay Crab Imperial  
Frozen Crab Cocktail Balls  
Frozen Crab Patties  
Frozen Crabburgers  
Oysters

Freezing Oysters  
Classes and Sizes of Fresh and Frozen Oysters  
Canning Oysters  
Frozen Oyster Stew  
Prepare Base  
Prepare Oysters  
Package  
Chesapeake Bay Oyster Stew  
Frozen Oyster Patties  
Virginia Pickled Oysters  
Lobsters  
Freezing Whole Raw Lobsters  
Freezing Spiny Lobsters  
Canning Lobster  
Frozen Lobster Chowder  
Frozen Lobster Newburg  
Frozen Lobster Bisque (Batch Process)  
Miscellaneous Marine Products  
Freezing Sea Scallops  
Shucking and Washing  
Bagging and Icing  
Freezing and Storing  
Frozen Seafood Croquettes  
Crayfish Bisque  
Prepare the Crayfish  
Prepare a Dressing  
Prepare the Bisque  
Fill and Process  
Canning Mussels  
Pickling Mussels  
Pickled Mussels  
Canned Pickled Mussels  
Preparing Abalone Steaks  
Frozen Batter-Dipped Abalone Patties  
Fresh-Grain Russian Caviar  
Pickled Grainy Caviar  
Pasteurized Caviar  
Preparation of the Roe  
Pasteurization  
Dried Mullet Roes  
Freezing Sea Urchin Roe  
Freezing Turtle Meat  
Canned Terrapin Stew  
Suggested Process  
Canned Snapping Turtle Stew  
Preparation of Agar-Agar  
Dried Shark Fins  
Shark-Flesh Paste

---

**NIIR PROJECT CONSULTANCY SERVICES (NPCS)** is a reliable name in the industrial world for offering integrated technical consultancy services. NPCS is manned by engineers, planners, specialists, financial

experts, economic analysts and design specialists with extensive experience in the related industries.

Our various services are: Detailed Project Report, Business Plan for Manufacturing Plant, Start-up Ideas, Business Ideas for Entrepreneurs, Start up Business Opportunities, entrepreneurship projects, Successful Business Plan, Industry Trends, Market Research, Manufacturing Process, Machinery, Raw Materials, project report, Cost and Revenue, Pre-feasibility study for Profitable Manufacturing Business, Project Identification, Project Feasibility and Market Study, Identification of Profitable Industrial Project Opportunities, Business Opportunities, Investment Opportunities for Most Profitable Business in India, Manufacturing Business Ideas, Preparation of Project Profile, Pre-Investment and Pre-Feasibility Study, Market Research Study, Preparation of Techno-Economic Feasibility Report, Identification and Section of Plant, Process, Equipment, General Guidance, Startup Help, Technical and Commercial Counseling for setting up new industrial project and Most Profitable Small Scale Business.

NPCS also publishes varies process technology, technical, reference, self employment and startup books, directory, business and industry database, bankable detailed project report, market research report on various industries, small scale industry and profit making business. Besides being used by manufacturers, industrialists and entrepreneurs, our publications are also used by professionals including project engineers, information services bureau, consultants and project consultancy firms as one of the input in their research.

Our Detailed Project report aims at providing all the critical data required by any entrepreneur vying to venture into Project. While expanding a current business or while venturing into new business, entrepreneurs are often faced with the dilemma of zeroing in on a suitable product/line.

---

**NIIR PROJECT CONSULTANCY SERVICES**, 106-E, Kamla Nagar, New Delhi-110007, India. **Email:** [npcs.india@gmail.com](mailto:npcs.india@gmail.com) **Website:** [NIIR.org](http://NIIR.org)