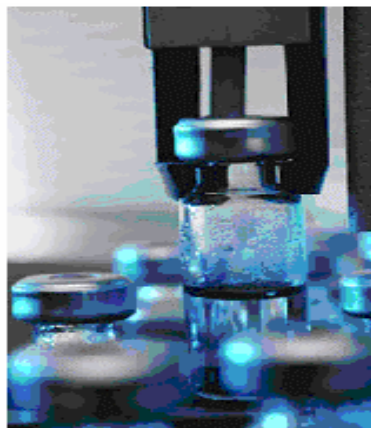


Diagnostic Study Report

on



Pharmaceutical Cluster - CUTTACK & BHUBANESWAR

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INDEX

1.	Pharmaceutical Industry - Structure and Performance	1
1.0	Evolution - A Global Perspective	1
1.1	International Scenario	2
1.1.1	Production	3
1.2	National Scenario	4
1.3	Details of the Cuttack-Bhubaneswar Pharmaceutical Cluster	5
2.	Evolution of the Cluster	6
3.	Structure of the Cluster	7
4.	Production Process – Description of Value Chain	8
5.	Analysis of Value Chain	12
6.	Analysis of Business Operation – Bottlenecks	12
6.1	Raw-material Procurement	12
6.2	Production Process	13
6.3	Credit Issues	13
6.4	Market Issues	14
6.5	Organisational Issues	14
7.	Presence of support institutions and their role	15
7.1	Promotional Institutions	15
7.2	Regulatory Bodies	15
7.3	Financial Institutions	15
8.	Presence of BDS within Cluster & their role	16
9.	Infrastructure analysis of the Cluster	16
10.	Credit analysis of the Cluster	16
11.	Mapping of Social Capital	17
12.	Present Custer Map	18
13.	SWOT analysis	18
14.	Vision for the Cluster	19
15.	Strategy for Cluster Development	19
16.	Action Plan	20
16.1	Activity-based Action Plan	21
17.	Pilot Initiatives	22
18.	Trust Building Activities Undertaking	22
Annexure-I	List of Core Firms	23-25

1. PHARMACEUTICAL INDUSTRY: STRUCTURE AND PERFORMANCE

1.0 EVOLUTION – A GLOBAL PERSPECTIVE

Today, the pharmaceutical industry, can be characterised as high-technology industry with very deep historical roots – which were less scientific at least when considered with today's measures - dating back to the ancient Egyptians. In 18th century Germany and France pharmacists worked in what at that time could have been regarded as well-equipped laboratories to produce remedies.

Mass production of drugs dates back to 1813 with the establishment of the first specialised pharmaceutical plant. In the late 19th century the foundation of firms like Merck, Squibb, Upjohn, Pfizer, and Eli Lilly marked the beginning of mass production of pharmaceuticals in the US. Approximately at the same time the Swiss and German based organic chemistry and dyestuff industry started making drugs. The first drug company in Finland was founded in 1899 and the most renowned product was Filicin capsules for the treatment of syphilis.

The development of deep-tank fermentation technology provided the US drug industry with large scale production facilities - the plants – but also valuable insights into research skills in screening for antibiotic activity in soil samples, organisms, and fungi. These skills showed that the development of synthetic antibiotics seemed possible. Hence the drug industry that evolved after World War II had its technology-based competencies originating from several streams of technology combined with the legal, economic and regulatory forces around them that would shape competition from the 1950s onward.

The period from 1950 to 1970 has been classified as the golden age for the drug industry, which stretches the period all the way to 1990. A steady flow of new drugs occurred up to the mid 1960s after which a clear slow down can be found with introduction of price regulation being one of the reason.

The reason for the steep rise in new drug discovery and development is clearly a result of the sheer magnitude of R&D opportunities and unmet needs. These factors coupled with little knowledge of the biological mechanisms of specific diseases, the R&D approach commonly known as “random screening” emerged. A large bulk of the discoveries came out of pure chance or as a side effect, which prompts interesting questions in terms of core competencies and competitive advantage.

But it is not only product innovation, which characterises the post-war era in the pharmaceutical industry. Parallel with product innovation we clearly see major developments in process technology. Thus, both product and process innovation were critical success factors from the start. Process innovation resulted in considerable productivity improvements resulting in significant savings in required plant and equipment investments. Yet, the US pharmaceutical industry spent USD 15 million annually between 1946 and 1950 on such investments.

Process technology was to become a critical bottleneck for the pharmaceutical industry again in developing genetically engineered drugs. Integrating knowledge from different disciplines is critical to high development performance of current and future success of the drug industry.

Rational drug design (RDD) became the dominating research trajectory of the drug industry in the 1970s replacing the previous trajectory, which was based on fermentation and soil screening. RDD starts with profound knowledge of the biochemistry of a disease and attempts to design a chemical compound, which will affect the chemical reaction, involved in the disease. Receptors are molecules on the surface of cells and are critical for reactions in the body – including those, which are associated with a disease and those that are not. The aim of RDD is to find a key, which will fit a particular lock (receptor) either inhibiting or catalysing a critical reaction. The increased knowledge of diseases has

improved research productivity, but also impacted competitive dynamics. RDD appear to require cross-disciplinary integration.

The invention of genetic engineering in 1973 opened up a new potential drug research field and shortly after this invention the first biotechnology firm was formed in a couple of years a large amount of similar type of firms had been founded. This marked the start of a new era in drug R&D and also the coming of a new R&D trajectory and simultaneously the beginning of the decline of RDD. In the 1990s the tide was, however, changing direction – it seemed. The competencies and strategies, which had contributed to the tremendous success of the industry, were becoming outdated and new ones were rapidly gaining terrain. Earnings and growth of sales in the drug industry were decreasing, which is seen as a result of declining pricing flexibility. However, the reduced pricing flexibility is seen as a symptom of much more fundamental changes in market dynamics, which are both technological and institutional. The former refers to the coming of biotechnology and genetic engineering as the emerging research trajectory replacing the previous *credo, rational drug design*. The latter refers to governmentally initiated reforms within national health care systems such as managed care and generic competition. Managed care has rapidly penetrated the US market and has won terrain in several European countries as well changing the traditional business system of pharmaceutical companies.

The emergence of biotechnology firms has impacted in numerous ways. Previously the issue of exclusivity, that is the time during which one particular new drug is the only drug available within a therapeutic group with a certain efficacy, has been central in determining the competitive dynamics of the industry. With biotechnology the time of exclusivity has been dramatically reduced. Thus several classes of biotechnology are subject to multiple entry. Biotechnology is a new field, but has been burdened with tremendous expectations during its entire existence that in many cases the emerging biotechnology firms have failed to deliver. Some early enthusiasts went as far as predicting the downfall of big Pharma and with the numerous mergers and acquisitions, which have taken place during the 1990s, it certainly looked to be true.

However, it appears as if the emerging small biotechnology companies and big Pharma have found themselves in a situation where they need one another and that some kind of love-hate relationship is developing. This has recently been called *coopetition*. The emergence of biotechnology has a strong potential of eroding rents from R&D of established firms but coopetition may be a potential means to stop this erosion. The term coopetition captures the tension between co-operation and competition typical in network industries. Network industries do not only mean information technology-based economies. To our minds networked industries can equally well mean various companies collaborating through alliances and partnerships inside or outside of cyberspace. Notwithstanding, when key players have to work together as a system, the fundamental strategic issue of concern is that of co-operation and competition, i.e. with whom should you collaborate, to what extent, and under what terms? Again the integration of cross-disciplinary competencies will be needed. Biotechnology clearly threatens the competence base in traditional pharmaceutical industry. However, the threat is mainly on the upstream competencies, the downstream competencies, i.e. clinical testing, evaluation, registration, sales, and distribution are essentially the same for RDD drugs and biotechnology drugs. Thus, the traditional pharmaceutical companies are still left with strong bargaining power and *coopetition* seems a very reasonable way to conduct business.

1.1 INTERNATIONAL SCENARIO

The pharma industry world over is fragmented given the vast array of therapeutic groups, spatially segmented markets, and alternative configurations of value chain for various dosage forms. The structure of market is oligopolistic at the level of therapeutics and highly competitive for OTC and

generic categories. The pharmaceutical industry worldwide is expected to grow between 6 and 8 per cent per annum during this decade or so. While price increases are responsible for nearly 60 per cent of this growth, while volume increases explain 25 per cent and sale of new drugs (sold at higher prices) result in 15 per cent of the growth. The generic component of the world pharma market is expected to experience a boom in the current decade, which could substantially increase the export prospects of developing countries like India.

1.1.1 Production

The production of pharmaceuticals reached US\$ 296.4 billion in 1996. Of this, the OTC market accounted for US\$ 48 billion and generics US \$ 13.8 billion. The world market for pharmaceuticals in the year 2000 is estimated at US\$ 350 billion and that for bulk pharmaceutical chemicals at US\$ 3.5 billion. The dominance of the developed countries, especially, the USA and Japan, and large multi national companies (MNCs) is quite striking in the global pharmaceutical production and trade. The USA is the largest producer of pharmaceuticals, accounting for nearly 28 per cent of the world pharmaceutical production. Japan accounts for about 18 per cent, Germany 8 per cent, France 7 per cent, the UK 3 percent and Canada 2 percent of the global production. India's share in world production is estimated at around one per cent.

Best estimates put the current size of the global pharmaceutical industry at US\$ 492 billions. North America, Europe and Japan together accounted for 88 per cent of the worldwide sales last year. The USA is the major market for drugs, accounting for almost half of all global drug sales. The global market grew by 14 per cent last year.

Box – 1

Ireland Pharmaceutical Cluster

Ireland is a key global location for the pharmaceutical industry. Foreign Direct Investment for the Pharmaceutical sector in Ireland is 40 years old with Squibb (now Bristol-Myers Squibb) being the first pharmaceutical company to locate in Ireland in 1964. Currently thirteen (13) of the top fifteen (15) companies in the world have substantial operations in Ireland. In total there are eighty-three (83) facilities employing more than 17,000 people in Ireland.

Ireland is now one of the world's largest exporters of Pharmaceuticals with €34 billion of intermediates and finished pharmaceuticals exported in 2002. 6 out of 10 and 12 out of 25 of the world's top selling drugs are produced in Ireland including Lipitor and Zocor. Products are manufactured for global markets.

The Pharmaceutical cluster in Ireland is supported by a sophisticated infrastructure of serviced sites, public utilities as well as specialist support companies and services.

Many of the pharmaceutical companies in Ireland have established multiple activities in Ireland, including

- Fermentation e.g. Schering-Plough, Wyeth
- API e.g. Merck, Pfizer, Yamanouchi,
- Sterile Fill/Finish e.g. Genzyme, Allergan
- Formulation e.g. Wyeth, Takeda, Pfizer
- Shared Services/ Supply Chain Management e.g. Allergan, Pfizer, Novartis
- R&D/ Process Development e.g. Wyeth, GlaxoSmithKline, Bristol- Myers Squibb

The sector's satisfaction with Ireland is exemplified by several examples of repeat investment with major pharmaceutical companies having multiple plants; for example, Pfizer operates six manufacturing sites as well as a Corporate Bank and a European Financial Shared Services Centre.

The sector has become increasingly integrated in recent years. Early investment in fine chemical plants producing bulk active materials has been followed by investment in finished product pharmaceuticals. Many plants are now engaged in product development for Irish and other plants.

1.2 NATIONAL SCENARIO

India currently accounts for less than 8% of the world's pharmaceutical consumption and is the fifth largest producer of pharmaceutical products in the world, after China. The Indian retail pharmaceutical market stands at estimated Rs 200 billion with an annual growth rate of 7% in FY04. Significant growth was witnessed in the therapeutic segments like cardiac, diabetes and central nervous system in FY04. The pharmaceutical industry is viewed as an intellectual industry and investment in research and development has been enhanced. In 2001, the value of India's exports of medicines approached US\$1.7 billion. It ranks very high in the third world, in terms of technology, quality and range of medicines manufactured.

International companies associated with this sector have stimulated, assisted and spearheaded this dynamic development and helped to put India on the pharmaceutical map of the world. There are 20,000 laboratories in India's pharmaceutical industry and the scale of the pharmaceutical market amounts to Euro 5.3 billion. The leading 250 pharmaceutical companies control 70% of the market with market leader holding nearly 7% of the market share. It is an extremely fragmented market with severe price competition and government price control. Around 70% of the country's demand for bulk drugs, drug intermediates, pharmaceutical formulations, chemicals, tablets, capsules, orals and injections are met by home production. There are about 250 large units and about 8000 Small Scale Units, which form the core of the pharmaceutical industry in India (including 5 Central Public Sector Units).

The domestic pharmaceuticals industry output was expected to exceed Rs260 billion in the financial year 2002, which accounts for merely 1.3% of the global pharmaceutical sector. Of this, bulk drugs will account for Rs 54 bn (21%) and formulations, the remaining Rs 210 bn (79%). In financial year 2001, imports were Rs 20 bn while exports were Rs 87 billion. More than 85% of the formulations produced in the country are sold in the domestic market. Over 60% of India's bulk drug production is exported and Import of bulk drugs have slowed down in the recent years. The Indian pharmaceutical industry is also getting increasingly U.S. FDA compliant to harness the growth opportunities in areas of contract manufacturing and research. Indian companies such as Ranbaxy, Sun Pharma, and Dr. Reddy's are increasingly focusing on tapping the U.S. generic market. Recently, Ranbaxy Laboratories Ltd has received a tentative approval from the US Food and Drug Administration to manufacture and market Lamivudine tablets (150 mg), a medicine used in treating HIV infection. This tentative approval has been granted under the US President's Emergency Plan for AIDS Relief Initiative (PEPFAR). **The Indian government had recently passed Patents (Amendment) Bill on Tuesday, March 22, 2005, which implies that India has kept its commitment to the WTO to have a product patent regime in place.**

Expenditure on R & D by the Indian pharmaceutical companies is around 1.9% of the industry's turnover. This is very low when compared to the investment on R & D by foreign research-based pharma companies. They spend 10 - 16% of the turnover on R & D. However, now that India has entered into the Patent protection area, many companies are spending relatively more on R & D. The Pharmaceutical and Biotechnology Industry is eligible for weight deduction for R&D expense up to 150%. In fact India is increasingly becoming an attractive destination for clinical research for pharma

groups. The World Investment Report 2005 suggested that firms can reduce cost by 20-30% by moving their R&D activities to India by virtue of one-third reduction in the cost of hiring researchers, nurses and IT staff in addition to costs associated with patients. Major pharmaceutical clusters are located in Ahmedabad & Indore.

Box- 2

Drugs & Pharmaceutical Cluster of Ahmedabad

The evolution of the drugs and pharmaceutical cluster at Ahmedabad started off with the establishment of the first unit – Alembic Chemical Works Ltd. at Vadodara way back in 1907. Surge in demand for pharmaceutical products was associated with reduction in import after First World War and growth of textile industries, which led to large labour inflow.

At present, the pharma industry is undergoing a new phase of internationalisation. The process patent regime is being replaced by a product patent regime. This has injected uncertainty and is likely to impact the growth pattern of the cluster.

The major products manufactured in the cluster include (a) pharmaceuticals both allopathic and ayurvedic formulation, in different dosage forms (including tablets, liquid, capsules – also called orals; externals and injectables) and (b) medical disposable products like IV sets. There are around 450 drugs and pharmaceutical manufacturing units in Ahmedabad, Vadodara and nearby areas. Around 50 manufacturing units produce medical disposables and the rest are in formulations including ayurvedic products. Seven firms in the clusters are big, around 20-25 medium-sized and the rest are small. The total turnover of the cluster is estimated at Rs 40,000 million (approximately USD 800 million) as on 1999.

UNIDO took up cluster development programme during 2000 and the results of their interventions are as follows:

- a) 60 firms have gone for quality up-gradation. Of these, 32 firms have received one or more quality certifications, 6 firms who have already received one certification are now pursuing higher quality certifications. 28 firms are perusing one or more quality certifications.
- b) 41 firms that have gone for quality up -gradation made an estimated additional investment of Rs 76.6 million (USD 1.5 million).
- c) 20 firms have got export linkages or got exposed to new export destinations. Estimated additional export was generated for Rs 74.5 million (USD 1.5 million).

21 firms have generated additional business worth Rs 103.3 million (USD 2 million). Of these 12 firms have got connected to 13 large pharmaceutical manufactures for contract manufacturing.

1.3 DETAILS OF THE CUTTACK-BHUBANESWAR PHARMACEUTICAL CLUSTER:

Cuttack-Bhubaneswar region constitutes the most developed part of Orissa as while Cuttack is considered as the business centre of the state, Bhubaneswar is the state capital. There are 54 pharmaceutical units in the region manufacturing both generic as well as proprietary drugs and formulations. Most the industries are engaged in manufacturing of products taking into account the general ailments like malaria, filaria, gastro-entritis, diarrrohea, etc, which are prevalent in Orissa. As such they are much dependant on local market and government purchases, in particular. However, 4 units thrive exclusively on the open market and have their limited presence in neighbouring states like Andhra Pradesh, Bihar, Jharkhand, Chattishgarh, West Bengal etc.

The total annual turnover of the cluster is estimated to be about Rs. 18-20 crores during 2004 – 05. Out of this, about 4 units have a turnover of above Rs. 2 crore and the rest are having an annual turnover of less than Rs. 1 crore. Besides these mainly proprietor owned units, there is one state-run unit (ODCL) co-owned by IPICOL and IDPL which has been declared as a sick unit and referred to BIFR for compensation. The unit possesses huge plant and machinery resources lying un-utilized.

The estimated employment being provided by the cluster is to about 900 persons directly and to another 500 persons indirectly.

Box - 3

M/s Abcee Pharmaceuticals, Mancheswar Industrial Estate, Bhubaneswar

It is a transferred small scale industry taken over by Sri S.K.Dash during 1996. The proprietor is a qualified chemist having experience in running a pharmaceutical unit engaged in manufacturing of saline & injectables in a partnership firm at Berhampur, Ganjam. After taking up the present firm, he opted for the product range, which includes oral liquid, tablets & capsules. He firmly believes that quality ensures the sustainability of any industrial activity. He prefers to be in the retail market rather than depending upon government purchases. The unit has its own marketing personnel for promoting its range of branded products.

The firm is the first unit in the cluster to take up renovation towards compliance of the GMP norms during early 2004. The unit has already completed two sections namely oral liquid & tablet section with assistance from SIDBI. Civil construction for the capsule section has been completed & the machinery is being procured. So far an investment of about Rs. 40 lakh has been incurred for the purpose.

The unit has generated employment for nearly 40 persons and its turnover is well beyond Rs. 2 crores. The firm is willing to take up sub-contracting of Multi-National companies. In fact documentation like Site Master Plan (SMP) for the purpose is being carried out and it is expected that by March, 2006, the contract will be finalised. Besides, the firm proposed to produce proprietary drugs for cardiac ailments to cater the niche market.

2. EVOLUTION OF THE CLUSTER

The first pharmaceutical unit came up in the area in the early twentieth century under the patronage of Utkal Gourav Madhusudan Das. However, the existing oldest pharmaceutical industry of the cluster is M/s Novo Pharmaceuticals Pvt. Limited, Industrial Estate Cuttack. The unit was promoted by Sri Gopal Chandra Pattnaik and was incorporated on 7th April, 1958. While Sri Gopal Pattnaik was the founder Director of the firm, Sri Amol Ghosh (Doctorate in Chemistry) was the Technical Director. Dr. Birendra Kumar Pattnaik (Doctor by profession) was the other Director of the firm. The founder of the firm had business in Automobile sector and was the President of Orissa Chamber of Commerce. But the exposure gained by him during his foreign trips to abroad and influence of the friends, he decided to set up a pharmaceutical industry in Cuttack. The unit was a Pilot Project of state Industries Department and was provided assistance under State Aid Loan Scheme. The unit had commenced production during 1960 with product range consisting of saline & injectables. The present management is the second generation and took up the unit during 1977. M/s Bharat salt & Chemical Industries, Cuttack is the second oldest existing unit of the cluster.

The units started keeping in view the market of Orissa, which were thriving primarily through supply of drugs from outside the state. Besides, the state is most vulnerable to natural calamities and the government requires drugs for calamity-hit areas with a very short notice. Adequate supply of drugs within 1-2 days was not possible by the outside firms. The promoters of the unit appear to visualize the scenario and opted for setting pharmaceutical industry. The manufacturing process was purely manual. During mid-80's, semi-mechanised process was adopted for sealing of bottles, packing etc. Since then the number of units has been steadily increasing, owing to the orders received from the State government and other public sector institutions for their in-house hospitals and dispensaries as well the demand of medicines in the low-end rural markets of the state. Most units have been into production of routine generic drugs and formulations. However, as the number of units has grown, some of the units have been able to move into their own branded products and some of them have even set up their own marketing & distribution channels in states other than Orissa. But the target market of these firms has been low-end rural market of nearby states such as Bihar, Andhra Pradesh, Chattisgarh, Madhya Pradesh, West Bengal and some Northeastern states. Some of these units have also gone implementation of GMP compliance in order to reach out to better markets.

Favourable state industrial policy, 1980 induced a lot of entrepreneurs to the pharmaceutical field. Marketing executive of large pharmaceutical firm, pharma-graduates from reputed institutes, experienced persons in pharmaceutical firms and even qualified doctors were attracted to this sector. Till 1985, there were 15 pharmaceutical units in the association, which has been increased to 54 at present. It is to mention here that all most all the industrial units are running in the industrial sheds.

During 1985, the Utkal Pharmaceutical Manufacturers' Association (UPMA) came into being to take care of the problems of the firms. It was the brainchild of promoters of leading pharmaceutical firms and the Drug Controller, Orissa.

Good Manufacturing Practices (GMP) was included in 1986 as a special schedule "M" in the Indian Drug & Cosmetics Act, 1940. But the same was not enforced on the firms till 2001. Therefore the cluster witnessed hardly any change in technological front till 2004. Of late compliance to GMP is being considered as the key for the survival of the firms.

3. STRUCTURE OF THE CLUSTER

Firms, those are engaged in manufacturing of both generic as well as proprietary drugs and formulations, form the core of the cluster. There are 54 small scale units operating in the cluster. These industries are engaged in manufacturing of products taking into account the general ailments like malaria, filaria, gastro-entritis, diarrhoea, etc, which are prevalent in Orissa. As such they are much dependant on local market and government purchases, in particular. At present the capacity utilisation is around 40% in the cluster. However, four firms of the cluster have opted for the retail market for their range of products and are reluctant to do business with government institutions. Incidentally these are the firms, which have highest turnover in the cluster. Further these firms have marketing personnel for promoting their products.

Even though the pharmaceutical market size of the state is around Rs. 600 crores, the market share of the cluster is only 3%. The total annual turnover of the cluster is estimated to be about Rs. 18-20 crores during 2004 – 05. Out of this, about 4 units have a turnover of more than Rs. 2 crore and the rest are having an annual turnover less than Rs. 1 crore.

Utkal Pharmaceutical Manufacturers' Association (UPMA) was formed during 1985 primarily to take care of the problems faced by pharmaceutical industries. It was established with personal effort of Dr. S.B.Hota, M/s Chilika Pharmaceuticals, Bhubaneswar; Mr. Patel, Paras Pharmaceuticals, Sambalpur and Sri R.K. Pani, the-then-Drug Controller of Orissa. But its role was restricted to influence state government for administration of various incentives for the sector. There were hardly any group activities for betterment of the cluster. The association meetings to discuss the issues faced by its members were not held regularly. UMPA comprises of 75 pharmaceutical industries out of which 36 firms are engaged in manufacturing of drugs. 18 drugs manufacturing units are still beyond the purview of the association. After imposition of GMP norms, group dynamism in the association has been evolved and the association members are meeting every week to discuss the developmental issues.

4. PRODUCTION PROCESS – DESCRIPTION OF VALUE CHAIN

For capsules & tablets, the raw materials are weighed as per the recipes and the same is put as batches in a steel container. These materials are fed into dry mixture for proper mixing of ingredients. The mixed materials are manually carried and put in the granulating machine for granulation. The granulated materials are dried in electrical oven. For capsules, the dried granules are put in the capsule making unit, which are subsequently sent to strip packaging machine automatically. However, for tablet making the dry granules are fed into tablet pressing machine and subsequently to cellulose coating, if required. The tablets are packed through strip / blister packaging machine.

As regards, preparation of oral liquids similar flow is adopted till batching of the recipes. Then the liquid batch is mixed / blend in a steel container. The liquid mixture is passed through micro filter to arrest the suspended / colloidal particles. The filtrates are filled in the clean bottles, which are sealed and inspected before labeling. The labeled bottles are packed in cartoons and transported.

The labels of strips / bottles carry details of composition & relevant pharmacopoeia (IP / BP / USP), batch number, date of manufacturing as well as expiry and maximum retail price etc.

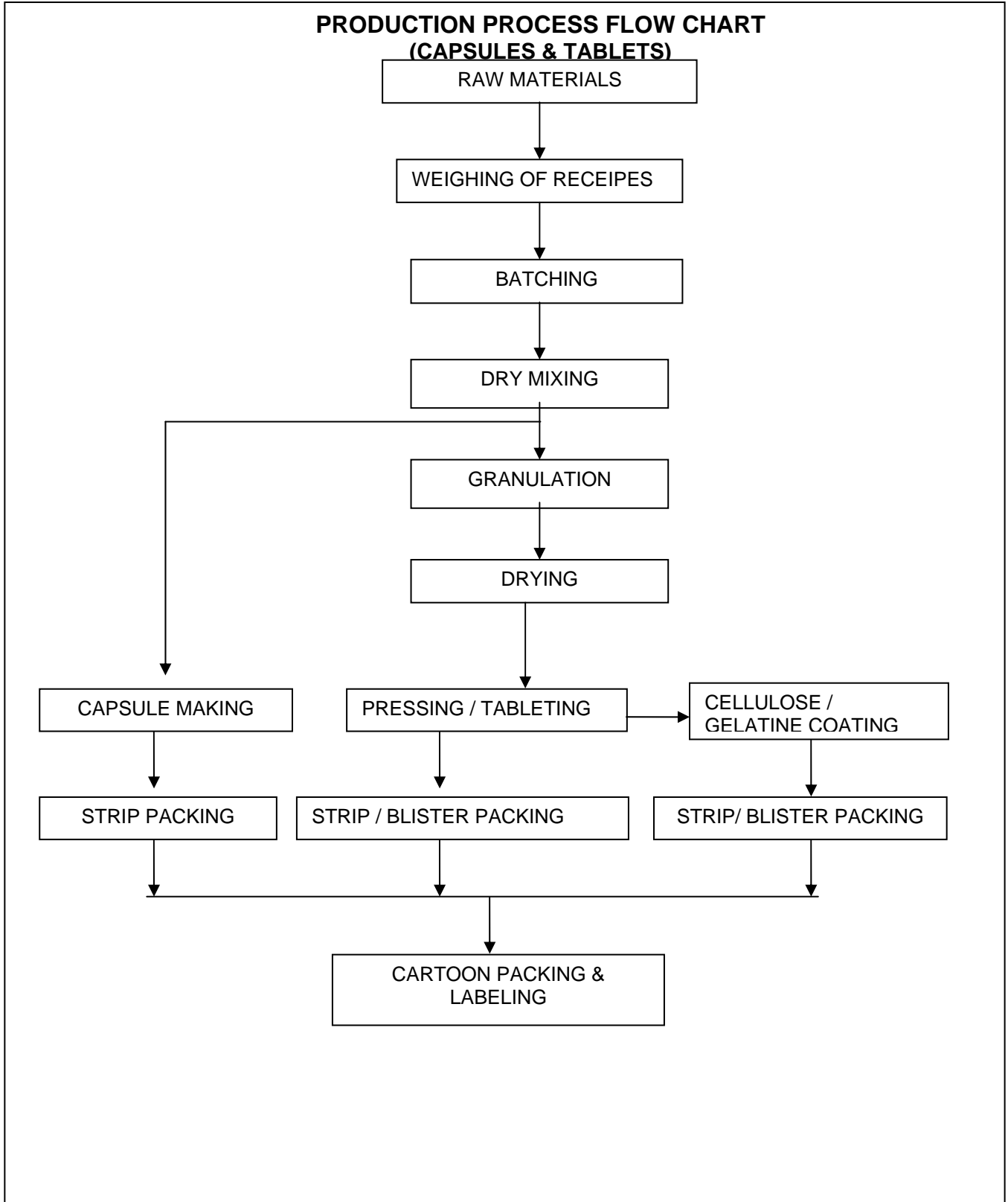
The details of production process are depicted in the flow chart (Box – 4, Box – 5 & Box – 6) for capsules & tablets, oral liquids and external preparations.

As per GMP norms, the quality of in-process materials as well as end products need quality testing in respect of micro-biological, instrumental & chemical tests. But the units of the cluster do not have either the facilities or skill for taking up these tests. At present the finished products are tested in the out-side laboratories and follow-up action is taken up by the manufacturers so as to meet the statutory requirements of the Regulatory Authorities.

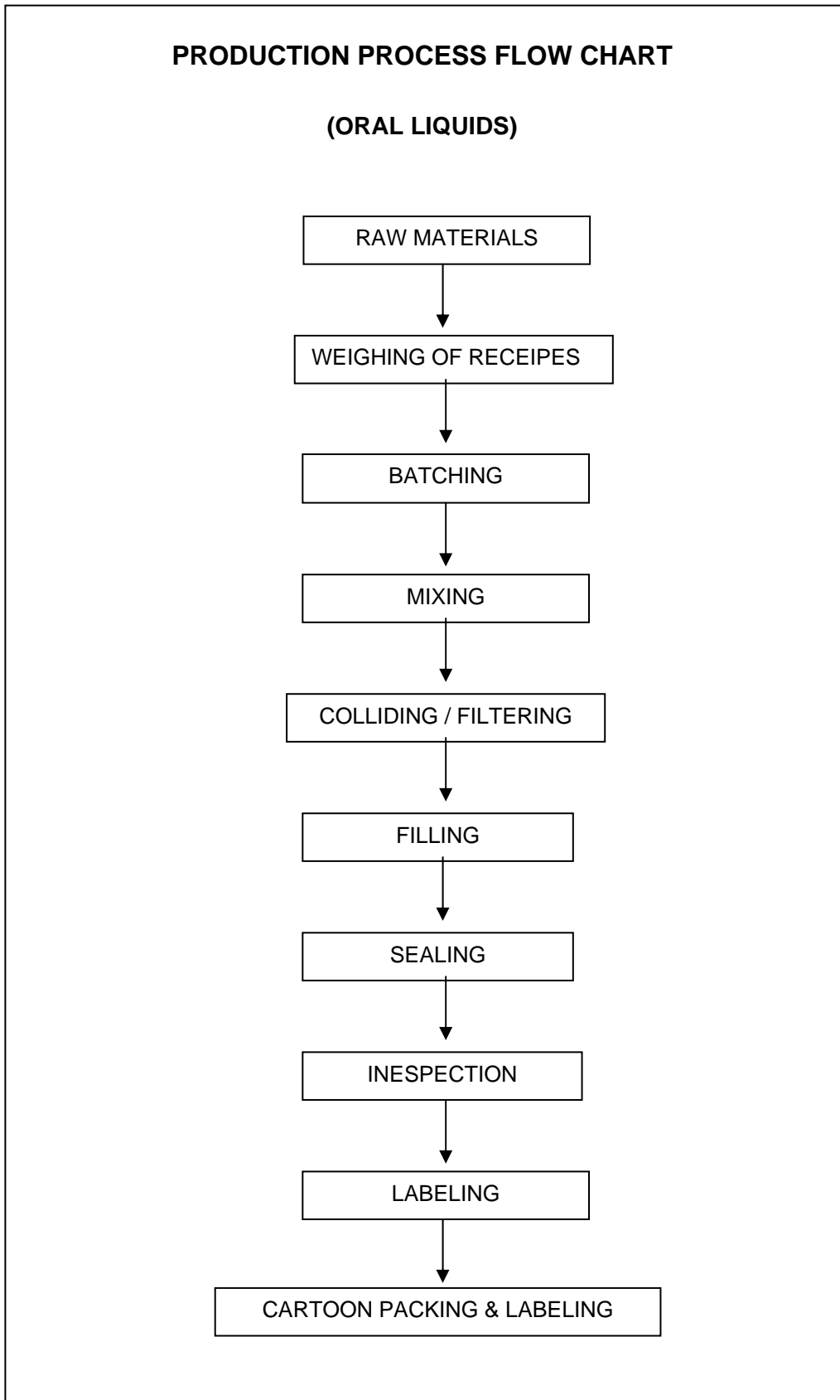
The machinery involved in the process of operation is electrical operative and semi-automatic in function with technology, which is obsolete in the present context.

As regards industrial safety, a developed standard of safety will be complied / available on implementation of GMP norms in respect to the present safety measures being followed by the industrial units of the cluster.

Box - 4
PRODUCTION PROCESS FLOW CHART

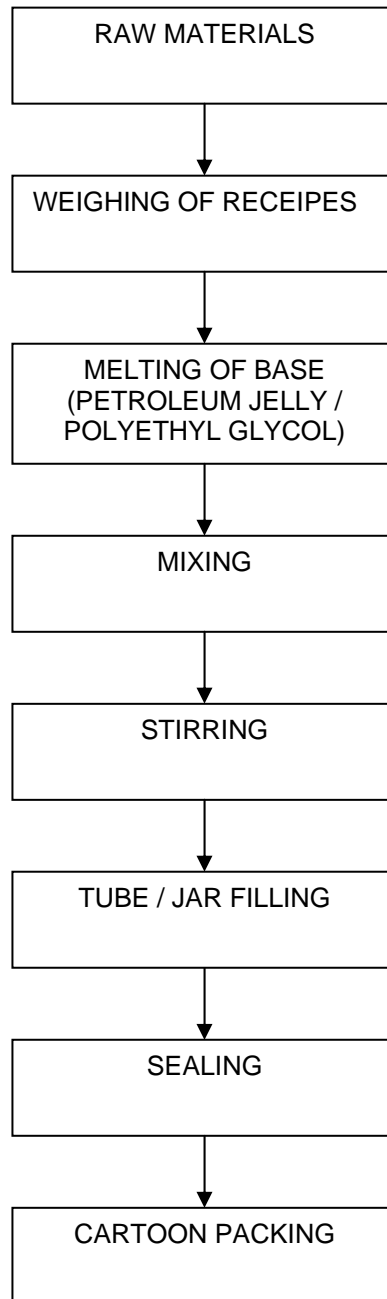


Box - 5



BOX- 6

**PRODUCTION PROCESS FLOW CHART
(EXTERNAL PREPARATION)**



5. ANALYSIS OF VALUE CHAIN

The value chain for a processing industry represents a series of activities those serve to deliver value to the transformed goods. The activities involved in the process have strong linkage and at each level there is a distinct value addition. The addition to value is reflected in the customer's willingness to pay for the goods after each activity.

In the pharmaceutical sector, the produce in intermediary stages of processing hardly adds any value, as the same can not be utilised by the customer as such. The raw material & packaging material cost involves cost of material, transportation, storage, loss in transit / storage. Similarly, the processing expenditure takes into account the overheads like wages, power, insurance, interest on loans and depreciation. Marketing expenses includes the commission to wholesalers /retailers, payment to marketing personnel, advertisement and free samples to doctors and others for promoting business.

Therefore the analysis of value for components like cost raw materials & packaging materials, processing expenditure & marketing expenses is given below for oral liquid, tablets / capsules and external preparations in terms percentage of Maximum Retail Price (MRP) in respect of the cluster.

Sl.	Components	As percentage of MRP		
		Oral liquid	Tablets / Capsules	External preparation
1.	Raw materials & packaging materials	33	30	35
2.	Processing expenditure	24	25	25
3.	Marketing expenses	33	30	30
4.	Margin	10	15	10

The value chain analysis for the benchmark cluster is not available. However, it may be mentioned that all stakeholders within the benchmark cluster are present within the cluster, which is not the case with the Cuttack-Bhubaneswar pharmaceutical cluster. As such the value chain comparison of the benchmark cluster with the cluster in context may not be appropriate for reference.

6. ANALYSIS OF BUSINESS OPERATION – BOTTLENECKS

6.1 RAW MATERIAL PROCUREMENT

Since the cluster is into the production of mainly formulations, availability of bulk drugs from their licensed producers is a regular need of the cluster. Yet the non – availability of the suppliers locally or their agents can be attributed to lower capacity utilisation, comparatively lesser number of firms in the cluster in comparison to other clusters outside the state and also due to the lack of any sustained efforts on this front by the industry.

Generally, the raw materials are procured from metropolies like Mumbai, Kolkata, etc. However, only one local supplier of raw material is operating in the cluster. The core firms meet their immediate requirements, which are of small quantity, from the local supplier. The firms used to pay about 10% excess of the cost yet they are content with the services provided by the local supplier. Earlier, raw material supply through Orissa Small Industries Corporation (OSIC) – a state government undertaking – was mooted. But the idea failed because there was a mismatch between the procurement and supply. It may be mentioned that the raw materials loose their potency after a certain span of time. This resulted in huge loss for OSIC.

As regards packaging materials, which consists of aluminum foils, blister packing, glass as well as plastic containers, labels, wrapper & cartoons, are mostly procured from cities like Bangalore,

Hyderabad & Kolkata. There exist not a single firm with in the cluster or in the periphery, which is capable to cater the requirement as the specification. Because of the cost involved in transportation and other incidental expenses, the cost of production is not competitive with that of outside firms. As a result the firm are compelled to comprise with low cost as well as low quality packaging materials. Ultimately the products of the cluster loose its appeal in the market.

Similarly, the label manufacturers of the cluster, which constitute of host of DTP units & off-set printers, are essentially lack the basic skill to design and print the qualitative labels for the products. Here again, the core firms rely on the market outside the state. It adds to the cost of the product.

The list of raw material as well as packaging material suppliers is given below.

1.	M/s S.S Traders, Bajrakabati Road, Cuttack
2.	Raw material Suppliers of Mumbai, Kolkata etc
3.	M/s Orissa Packaging, Near Swagat Hotel, Bhubaneswar
4.	Packaging material Suppliers of Bangalore, Hyderabad, Kolkata etc

6.2 PRODUCTION PROCESS

Earlier, the machinery used in production process were arranged partly from the local fabrication units and major items were procured from Kolkata, Mumbai, Ludhiana, etc. The support services were managed locally. As the local service providers lack adequate skill to render necessary support services, the continuity of the production process was hampered substantially. Even if the machinery is made available by the manufacturing companies locally; machine suppliers tend to pay less attention on regular maintenance and repairs of the machinery due to the low volumes of sales and high opportunity costs. In fact, the firms revealed that they informally agree to use only a few machinery suppliers so as to get better support services. While this indicates towards the availability of some element of social capital existing in the cluster, it, at the same time, also tells about the missing element of strategic decision making to solve the common problems on a long-term basis. There has been no effort to train the local technicians or their own workforce to handle such issues and thus not only provide quicker service but also to create employment for such persons.

Consequent upon compulsion for compliance to GMP, the firms are procuring sophisticated machinery from centres like Ahmedabad. They are not provided with adequate services due to absence of technical personnel of machine suppliers.

Besides, the cluster did not have any Business Development Service (BDS) providers. They had to depend on markets outside the state for technical advises on product & process selection and marketing (in case of retail market). The market information was available only to few individual firms and the same was not shared with others. As a result of each individual unit remain isolated in this context. This can be one of the reasons for over dependence on institutional purchase programme particularly relating to government organisations.

6.3 CREDIT ISSUES

The firms have faced difficulties in availing the formal credit in the past. Most of the firms have to go for GMP certification compulsorily and this requires huge investments in changing the layout plans, putting up of machinery, air-conditioning, air-handling units and suctioning ducts, water handling plant etc. besides the in-house testing facilities and training of the workforce. In a situation when most of these firms are surviving either on low-end local markets or government / PSU purchases, the investments in such kind of refurbishing is not within the reach of most of the firms. Thus availability of

credit for carrying out such changes in the firms is of utmost necessity. While, on one hand, there are firms, which are going for GMP and other certifications, there are also a larger number of firms, which are incapable of these certifications and may have to close their operations if no support is provided to them.

At present nine firms are taking up the credit issue with Small Industries Development Bank (SIDBI).

6.4 MARKETING ISSUES

The cluster has a predominant disposition towards government hospitals / institutions or the PSUs as their buyers. This has led towards a complacent attitude towards overall marketing strategy for survival and growth in the highly competitive pharmaceutical industry, which spends a substantial amount on the promotion of its products, incentives to the supply chain partners and related institutions. For the cluster, it is pertinent to grow in areas besides the government purchase so to be able to face the competition from other firms. It has to gear up its marketing activities to plough back the investments to be made in GMP and other certifications, which are now more of a compulsion rather than an option. It may be mentioned here that the Not-of-Standard-Quality (NSQ) for the cluster products is at par with that of developed cluster and MNCs. The list of stakeholders providing marketing support is given below.

1.	Directorate of Export Promotion & Marketing, Ashoka Building, Master Canteen, Bhubaneswar
2.	State Drug Management Unit, Near Ram Mandir, Bhubaneswar
3.	Federation of Indian Export Organisation (Ministry of Commerce), Ashoka Building, Master Canteen, Bhubaneswar
4.	Dy. Director, Director General for Foreign Trade, Badambari, Cuttack
5.	Utkal Chemist & Druggist Association, Budha Nagar, Bhubaneswar.
6.	Health & Family Welfare Department, Government of Orissa
7.	Women & Child Development Department, Government of Orissa
8.	Public Sector Undertakings like RSP, NALCO, HAL, Paradeep Port etc.
9.	Central Government organisations like Postal Department, SE Railway, ESI etc.

Utkal Chemist & Druggist Association is a strong association, which controls retailers & wholesalers engaged in marketing of pharmaceutical products in Orissa. A particular drug entering into orissa market needs the approval of the Association. Thus the relationship between UPMA and this association needs to be strengthened in the area concerned to the marketing.

6.5 ORGANISATIONAL ISSUES

UPMA (Utkal Pharmaceutical Manufacturers Association) is the only sector-specific association in the state. In the past, it had no active agenda for the development of the industry. Thus there was a lack of group dynamism to provide necessary support to the sector. The association is being strengthened by a group of 9 industries, which is likely to go up to 16.

7. PRESENCE OF SUPPORT INSTITUTIONS & THEIR ROLE

The list of support institutions operating in the cluster is given below.

7.1 Promotional Institutions

1.	Directorate of Industries, Orissa, Killamaidan, Cuttack
2.	District Industries Centre, Khapuria, Cuttack
3.	District Industries Centre, Rasulgarh, Bhubaneswar
4.	Small Industries Service Institution, College Square, Cuttack

These are state / central government industries promotional organisations. They implement the industrial policies announced by the government and administer the incentives for growth of industrial activities. After adoption of cluster approach by the government, these organisations have identified the clusters and are taking up necessary measures for the growth of the cluster. Besides, SISI also offers training for skill development.

7.2 Regulatory Bodies

1.	Drugs Controller, Orissa, Bhubaneswar
2.	State Drug Testing & Research Laboratory, Bhubaneswar
3.	National Pharmaceutical Pricing Authority, New Delhi

The first two state regulatory authorities ensure the compliance to the norms under relevant Acts in respect of production process as well as quality of the product. The role of Drug Controller has assumed importance after GMP has been made mandatory. However, an exposure visit of a group of 9 firm of the cluster to Ahmedbad was initiated the Drug Controller, Orissa.

NPPA is a national level authority, which dictates the price of raw materials as well as final price of the scheduled drugs. It is ascertained from the firms that the suppliers are claiming handling charges in addition to the cost of raw materials. As the retail price is also decided by the NPPA in accordance to Drugs (Prices Control) Order 1995, the manufacturers are being compelled to absorb the additional charges.

7.3 Financial Institutions

1.	Orissa State Financial Corporation, OMP Square, Cuttack
2.	Small Industries Development Bank of India, Near Ram Mandir, Bhubaneswar
3.	Commercial banks

OSFC was the pioneer financial institution for extending financial assistance to the small-scale sector. But the institution is on the verge of sickness at present. The process of revival of the corporation is going on. SIDBI is a national Development Financial Institution (DFI) for providing credit facilities to the SSI sector both directly and through refinance. Similarly, the commercial banks extended financial support, though meagre, to the SSIs.

After initiation of the cluster approach, SIDBI has come forward to play a pivotal role in extending finance to a network of 9 firms required for implementation GMP in the cluster. The active participation of SIDBI is likely to influence and attract another 7 firms for availing credit facilities.

8. PRESENCE OF BDS IN THE CLUSTER & THEIR ROLE

There is a dearth of any suitable BDS to provide services on several issues ranging from marketing to technology, quality, legal issues such as GMP & ISO certifications and packaging. Many firms revealed that they had to restructure their units a number of times due to the lack of knowledge of the GMP stipulations by their architect while designing the factory layout. The absence of any guidance from the local drug controller authorities in this regard has led to a lot of wasteful expenditure. The list of BDS providers for the cluster is given below.

1.	SISI Workshop (Mechanical), Industrial Estate, Cuttack.
2.	M/s Khan Engineering, Kolkata (Machinery repairing)
3.	Machine Suppliers from Mumbai, Kolkata, Ludhiana, etc
4.	Pharmaceutical Experts from MNCs and other cluster like Ahmedabad

Activity of SISI workshop is limited to sort out mechanical problems. It also does not deliver timely services due to inadequate workforce. Hiring of experts in pharmaceutical field is a recent development.

Experience of the firms with the aforesaid BDS providers suggests that timely services are not available, which ultimately affects the operation of the units in the cluster. Distance & opportunity cost implicitly results in poor services.

9. INFRASTRUCTURE ANALYSIS OF THE CLUSTER

Though the GMP stipulations advise the availability of in-house testing facilities in each factory, yet there are some tests, which are not possible within the domain of the individual firms. The firms have to utilise the facilities available at Hyderabad and Kolkata for quality testing of their products. Thus a common facility for testing the quality of not only the raw material but also that of the excipients, final formulations is the need of the cluster. It would also ensure adherence to the specifications of Indian Medical Association or similar certifying bodies like IP / BP / USP at a comparable low cost. Further, creation of such a centre with additional facilities like library and training centre will facilitate information sharing and skill up-gradation. This centre would also become a common rallying point for the cluster actors.

10. CREDIT ANALYSIS OF THE CLUSTER

OSFC was the only Developmental Financial Institute (DFI) to finance small scale industries in the state. It was providing the term loan component and the working capital was financed through commercial banks. However, on subsequent development OSFC provided loans for both the components. At present the DFI is in the verge of sickness and does not extend any financial assistance to the SSI sector. During interaction with commercial banks, it was revealed that the pharma-sector has the potential for development but the margin of profit is not alluring at present.

The requirement fund for renovation towards compliance to GMP norms is of the order of Rs. 40-50 lakh. Financial assistance for the purpose would require nearly Rs. 15 lakh as promoters'

contribution. In order to reduce the margin the network of 9 units, intending to go for GMP in the first phase, are interested for availing loan under National Equity Fund (NEF) scheme, which normally refinanced by SIDBI and routed through commercial bank. But commercial banks are not interested to availing refinance as they have surplus fund of their own. Therefore UPMA has represented SIDBI to provide finance under NEF through its local office at Bhubaneswar. This requires policy change and SIDBI, Bhubaneswar has to submit a detailed note in this connection to their head office.

11. MAPPING OF SOCIAL CAPITAL

UPMA is the sector-specific association having pharmaceutical products manufacturing industries as its member. Currently it has 75 members engaged in manufacturing of products like drugs, formulations, gauge & bandages, phenyl etc. The representation of drugs manufacturing units in the association is 36. The founder members of the association are no more in active leadership, even though they are in business at present. Sri Damodar Nayak & Sri Shyam Bhagat are the president and secretary of the association respectively. Sri Ashok Kumar Patnaik, Sri Manas Das & Sri B. C. Jena of Cuttack and Sri Anupam Agrawal of Bhubaneswar are taking active participation in the present context.

Orissa Small Scale Industries Association (OSSIA), Orissa Young Entrepreneurs' Association (OYEA), Orissa Assembly of Small & Medium Enterprises (OASME), Utakal Chamber of Commerce & Industry (UCCI), Orissa & Orissa Industries Federation (OIF) are the prominent state level industries associations. They put forth the problems faced by industrial units and helping the state government for suitable policy formulation.

Besides the state level association, the list of national level pharmaceutical association is given.

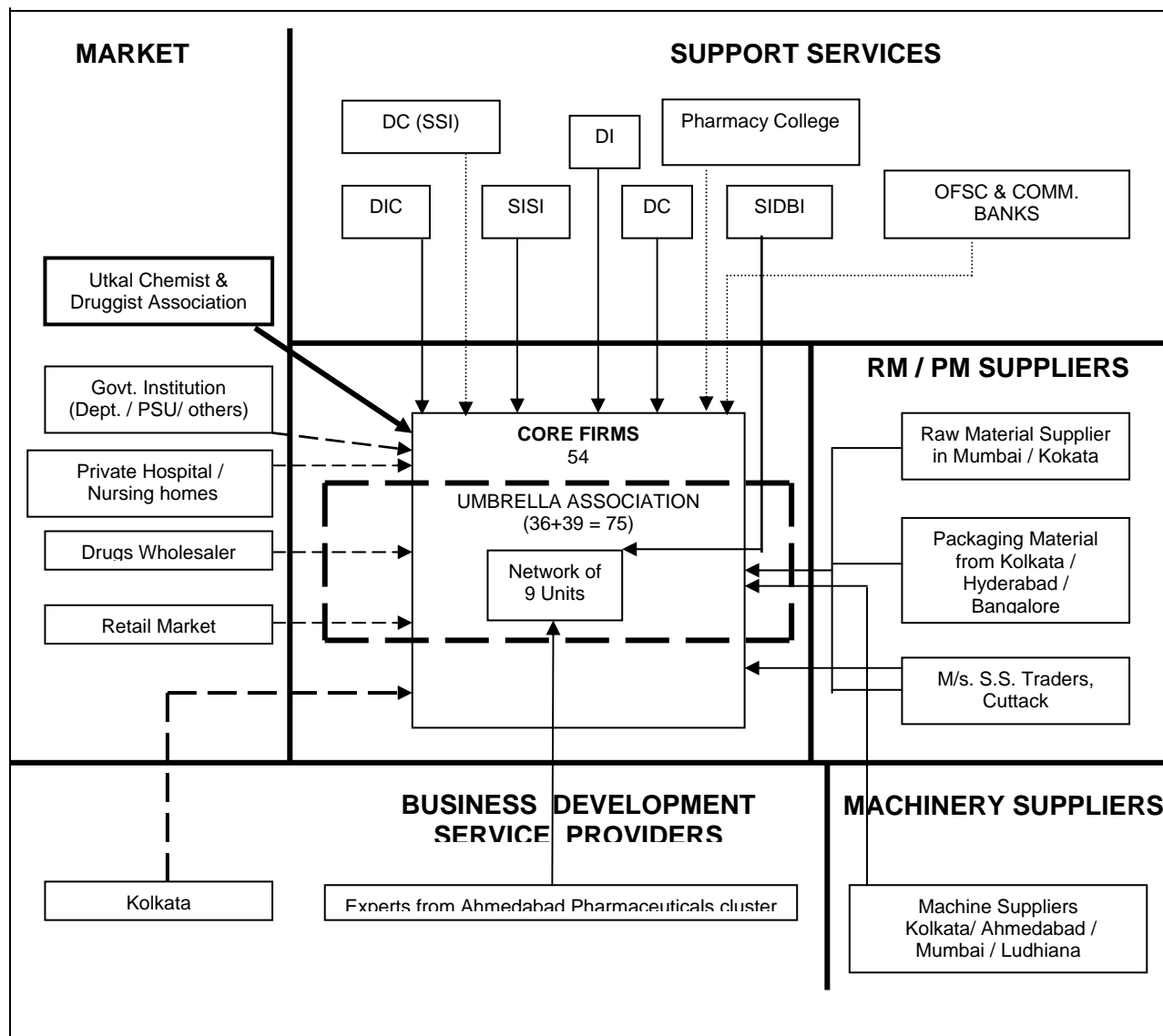
Sl	Name & address of the association
1.	Indian Drug Manufacturers Association, 102-B, Poonam Chambers, A-Wing, Dr. A .B.Road, Worli Mumbai-400018
2.	Organisation of Pharmaceutical Producers of India, Cook's Building, 324, Dr.Dadabhay Naroji Road, Mumbai-400001
3.	Bulk Drug Manufacturers Association, A-24, 2nd floor, View Towers, Lakadi Ka Pul, Hyderabad-500004
4.	All India Small Scale Pharmaceutical Manufacturers Association, 26, Bhargav Lane, Vivil Line, Nityanand Marg, Delhi -54
5.	Federation of Indian Chambers of Commerce and Industry, Federation House, Tansen Marg, New Delhi-110001
6.	Confederation of Indian Industry, 23, Industrial Area, Lodi Estate, New Delhi - 110 003
7.	Confederation of Indian Pharmaceutical Industries

Some of the members of UPMA have affiliation with IDMA & CIPI.

12. PRESENT CLUSTER MAP

The cluster map is given in box – 6.

BOX - 6
Cluster Map - Pharmaceutical Cluster of Cuttack & Bhubaneswar



13. SWOT ANALYSIS

A) Strength

- Mature industry with adequate manufacturing base and capacity to produce quality drugs at relatively lower costs.
- A very rich base of traditional knowledge in Ayurvedic therapy
- Experience in process chemistry as well as in trading.
- Capability to compete with reputed pharmaceutical industries
- Ability to produce the products in a short span of time for the state government.

B) Weakness

- Under-developed infrastructure
- Presence BDS providers, raw material, machine, packaging material suppliers far away from the cluster
- Hardly any investment in R&D.
- Poor networking among constituents in the innovation chain.
- Inadequate trained manpower in emerging areas.
- Weak engineering base to produce wide range of pharmaceutical equipment and machinery.
- Lack of testing facilities.

C) Opportunities

- Expertise to blend knowledge of traditional medicines with modern science.
- Increasing awareness in molecular biology, immunology, and biotechnology.
- Assured growth of the sector with increase of health awareness.
- Potential for clinical research and initiating clinical trials in private sector.
- Opportunity to improve manufacturing process & quality standards.

D) Threat

- Inability to cope-up with the rapidly changing new drug discovery technologies and processes at the global level
- Rapidly changing standards of quality and manufacturing at the international level.
- Lack of clearly articulated and facilitative national / state Intellectual Property Rights (IPR) policies.
- Lack of strategy to bring convergence between aspirations of the `small' and `big' players.

14. VISION FOR THE CLUSTER

“ To develop the cluster as the most favoured destination for outsourcing by Multi-National Companies and increase the output in ten-fold in next 5 years. “

15. STRATEGY FOR CLUSTER DEVELOPMENT

The cluster development envisages horizontal cooperation between related units to increase collective efficiency either solve common problems like implementation of GMP or to explore new market opportunities like linkage with MNCs & export in order to enhance business. It is a participatory developmental programme with varying financial management and time contribution by the cluster actors. The programme also aims towards sustainable development that can lead towards continuity of

such business development services. The prospects for sustainable development and continuity in business development services lie necessarily in the empowerment of organisations and strengthening linkages between the various complementary organisational forces. The business linkages provide the clues to groupings and the necessary trust level for joint action.

16. ACTION PLAN

Necessity

The Cuttack-Bhubaneswar cluster needs:

1. Strengthening of UPMA
2. Awareness about Good Manufacturing Process;
3. Hiring of expert / consultant
4. Exposure to benchmark cluster;
5. Sourcing of finance
6. Improving the quality of the product
7. Exploring new market.

Expected outcome

Adoption of GMP, enhancement of firm capacity utilisation, increase in market share and attracting MNCs for out-sourcing, Creation of Common Testing Centre.

Target group

Pharmaceutical units and BDS providers

Executing responsibility

Utkal Pharmaceutical Manufacturers' Association

Financial Aspects

1.	Organisation of training programs / seminars / workshops / lectures (15 programs @ approx. Rs25,000/-)	3.75
2.	Study tours to other cluster / demonstrations of technology / equipment including expert fee, travel, lodging / boarding etc. (15 programs @ approx. Rs. 20,000/-)	3.00
3.	Cost of external consultants (150 Person–days @ Rs. 4,000/- including lodging boarding local travel etc.)	6.00
4.	Miscellaneous developmental costs (translation, publications)	3.00
5.	Technical Equipment Cost for common testing facility	300.00
Total		315.75

16.1 Activity-based Action Plan

Sl	Activities	Expected completion by end of Quarter	Executing responsibility
1.	Policy formulation by SIDBI for assistance under NEF	3 rd - 2005-06	SIDBI
2.	Facilitating finance by SIDBI to the network of 9 firms	3 rd - 2005-06	UPMA / SIDBI / CDA
3.	Joint procurement of machinery (Buyer- Seller Meet)	3 rd - 2005-06	Network within the UPMA / CDA
4.	Renovation of firms towards compliance of GMP	4 th - 2005-06	Network within the UPMA
5.	Awareness & Motivation through frequent meeting of UPMA & other firms for GMP compliance	1 st - 2006-07	CDA / UPMA
6.	Facilitating higher capacity utilisation through loan license	1 st - 2006-07	UPMA / CDA
7.	Identification of items to be covered under rate contract out of items purchased by government through open tender	3 rd - 2005-06	CDA / UPMA
8.	Submission of proposal in respect of item 7 to Govt.	4 th - 2005-06	UPMA / CDA
9.	Hiring of consultant for feasibility report on Common Testing Centre (CTC)	4 th - 2005-06	UPMA / UNIDO / CDA
10.	Finalisation of proposal at item 8	1 st - 2006-07	State Government
11.	Finalisation proposal on CTC and sourcing of funds	2 nd - 2006-07	Consultant / UPMA/ CDA / UNIDO
12.	Identification of agency to implement CTC	3 rd - 2006-07	Consultant / UPMA/ CDA / UNIDO
13.	Hiring of consultant for preparation of Site Master Plan (SMP) for franchise	2 nd - 2006-07	UPMA / UNIDO / CDA
14.	Hoisting of website & preparation of brochures	3 rd - 2006-07	Consultant / UPMA / UNIDO / CDA
15.	Negotiation with MNCs for franchise	3 rd - 2006-07	Consultant / UPMA / UNIDO / CDA
16.	Buyer – Seller Meet (Six meetings)	3 rd - 2006-07 to 4 th - 2007-08	Consultant / UPMA / UNIDO / CDA
17.	Arrangement for exploring export potential	4 th - 2006-07	Consultant / UPMA / UNIDO / CDA
18.	Implementation of CTC	4 th - 2007-08	Implementing agency

17. PILOT INITIATIVES

1. A network of 9 firms has been formed within the Association. This group has already visited Ahmedabad pharmaceutical cluster with the initiative of Drug Controller, Orissa.
2. A consultant from Ahmedabad has been hired to provide necessary technical guidance for implementation of GMP in consultation with UNIDO.
3. Arrangement has been made for availing credit facilities from SIDBI.

18. TRUST BUILDING ACTIVITIES UNDERTAKEN

Date	Activity
07.07.05	Declaration of cluster
01.09.05	Meeting of core firms with DI, Orissa, SISI, SIDBI & UNIDO
05.09.05 to 28.10.05	Interaction of CDAs with core firms,
06.10.05	Sensitization programme by UNIDO
21.10.05	Submission of cluster documents to SIDBI
28.10.05	Visit of UNIDO to core firms
29.10.05	Validation of diagnostic study with stake holders in an informal meeting

MATERIALS COLLECTED FOR ANALYSIS & IMPLEMENTATION IN FUTURE.

1. Approved list of drugs and medical consumables & Drug Management Policy of H & FW Dept.
2. Year-wise procurement of drugs & medical consumables for 2002-03 to 2004-05
3. Name & address of the firms issued with Drug Licence from Drug Controller, Orissa
4. Materials on Export Management from FIEO
5. List of rate contract items in respect of Drugs & Medicines (25 items) along with Govt. notification.
6. Indicative list of Private & Public Sector Pharmaceutical Companies.

LIST OF CORE FIRMS

Sl	Name & address of the Industrial Units	Item of production
1.	M/s The Bharat Salt & Chemical Industries Ltd, Director- Sri R.K. Modi Office- Nayasark, Cuttack	Tablets/ Liquid orals / External preparation
2.	M/s Novo Pharmaceuticals Pvt. Ltd, Industrial Estate, Cuttack	Tablets / Liquid orals / Powder / External preparation
3.	M/s Bubuna Chemicals Prop- Sri Manas Das D/2/2,New Industrial Estate, Jagatapur, Cuttack	Tablets/ Liquid orals / External preparation
4.	M/s Jagannath Chemical & Pharmaceutical(P) Ltd Director - Sri Sanjay Kumar Modi Plot.No.A-29,30 & 31,Indl.Estate, Cuttack-10	Tablets/ Capsules/ Liquid orals / External preparation
5.	M/s Swaraj chemical & Pharmaceutical Works, Plot.No-21422, New I.E, Jagatpur.	Tablets/ Liquid orals / Powder
6.	M/s Hema Chemicals, Plot.No.A/41-42, Indl.Estate, Cuttack	Tablets/ Liquid orals / External preparation/ injectables
7.	M/s Fleming Pharmaceuticals Pvt. Ltd, Director- Sri Pranab Tripathy I.E, Cuttack	Tablets/ Liquid orals / External preparation
8.	M/s Chemie India, Prop- Sri Damodar Nayak 56 & 58,I.E,Cuttack	External preparation
9.	M/s I.D.D.Pvt.Ltd, Sri G. C. Nayak Madhupatna Industrial Estate,Cuttack	Capsules / External preparation
10.	M/s Trimurty chemicals Industries, Plot.No.B-27,New Industrial Estate,Jagatpur	Tablets/ Liquid orals / External preparation
11.	M/s Oro Pharmaceutical s, New Industrial Estate,Jagatpur,Cuttack	Tablets
12.	M/s J.R.Pharmaceuticals Pvt.Ltd Sri Bishnu Charan Jena Plot No.27,New I.E, Jagatpur, Cuttack	Tablets/ Capsules/Liquid orals
13.	M/s Ultra Pharmaceuticals. Jagatpur, Cuttack	Liquid orals / External preparation
14.	M/s Welfare Pvt. Ltd, Jagatpur	Capsules / Powder/ Liquid orals / External preparation
15.	M/s MBM Laboratories Plot No.53,B-50 New Indl. Estate, Jagatpur, Cuttack	Tablets/ Capsules/ Liquid orals
16.	M/s Gayatree Pharmaceuticals Pvt. Ltd, Sri Gouri Sankar Das I.E,Cuttack	Liquid orals / External preparation
17.	M/s Phyto pharmaceutical Pvt. Ltd Plot No.21 & 22,New Industrial Estate, Jagatpur, Cuttack	Tablets/ Capsules/Liquid orals / External preparation

18.	M/s Milton Chemicals & Pharmaceuticals Co. Jagatpur, Cuttack	Tablets/ Capsules/ Liquid orals
19.	M/s Poospak Pharmaceuticals Badambadi, Cuttack	Tablets/ Capsules/ Liquid orals
20.	M/s Panacea Private Limited Plot No.184 & 185,New Industrial Estate, Jagatpur, Cuttack	Tablets/ Capsules/ Liquid orals
21.	M/s Manner pharmaceuticals work Plot No.121(B)New I.,E Jagatpur, Cuttack	Tablets/ Liquid orals
22.	M/s Indole Pharmaceuticals, Mg. Part.- Sri Pradeep Kumar Bal 158(P) Fakirpur Old I.E Jagatpur, Cuttack	Tablets/ Liquid orals
23.	M/s Suvam Pharmaceuticals, Prop- Sri Rashmi Ranjan Khatua 165,New I.E, Jagatpur, Cuttack	Formulations
24.	Eastern chemicals, Nimpur, New I.E, Jagatpur, Cuttack	Formulations
25.	M/s Balgopal agrovet & chemicals industries Pvt.Ltd M. D. -Sri R. B. Mohanty Plot no 41, New I.E, Jagatpur, Cuttack	Formulations
26.	M/s Eastern chemical industries Pvt.Ltd, M. D. Sri Gouri Sankar Das B-36,I.E,Cuttack	Formulations
27.	M/s Universal chemicals & pharmaceuticals industries Plot.No.49,New I.E,Jagatpur,Cuttack	Formulations
28.	M/s Usha Chemicals & Pharmaceuticals , Meria Bazar, Buxibazar, Cuttack	Formulations
29.	M/s Dawn Pharmaceuticals & Chemicals ,Muradakhan Patna, Jobra, Cuttack	Liquid orals
30.	M/s Chilika Pharmaceuticals Lab Prop- Dr. S. B. Hota Plot.No.B-19,Industrial Estate, Bhubaneswar	Tablets/ Liquid orals / External preparation
31.	M/s Eastern India Pharmaceutical Laboratory, Mg. Part. -Sri Umakanta Rath B-22,I.E,Bhubaneswar	Liquid orals / External preparation
32.	M/s Kingsy Pharmaceutical works, Sri Anupam Agrawal Mancheswar,I.E, Bhubaneswar	Tablets
33.	M/s Kusum chemicals & pharmaceuticals Plot No.s-3/21,Mancheswar Industrial Estate, Nucleus- A Bhubaneswar	Tablets/ Liquid orals / External preparation
34.	M/s Abicee Pharmaceuticals, Prop Sri S. K. Dash 217, Mancheswar, Bhubaneswar	Liquid orals / External preparation

35.	M/s Abhoy chemicals & pharmaceuticals Mg. Part. - Sri Sabyasachi Parija Plot No.A-20/35,Sector-A,Zone-A, New Mancheswar Industrial Estate	Tablets/ Liquid orals / Capsules
36.	M/s Banani Health Care Plot No.204/962,Jagamohan Nagar, Bhubaneswar	Liquid orals
37.	M/s OM Pharmaceuticals & Chemicals, Industrial Estate,Cuttack	Liquid orals injectables
38.	M/s Brussels Pharmaceuticals, G.P. Das Lane, Dagarpara, Cuttack	Formulations (Oral liquids)
39.	M/s Supreme Pharmaceuticals, Jagatpur, Cuttack	Tables / Liquid Orals / External Preparation
40.	M/s Leo Pharma, Sri S. Chatterji PI No.B-27, IE, Madhupatna, Cuttack.	Tables / Liquid Orals / External Preparation
41.	M/s Subham Laboratories, Jagatpur, Cuttack.	Tables / Liquid Orals / Ear Drops
42.	M/s PMP Herbs & Pharmaceuticals, D-2/4, New IE, Jagatpur, Cuttack.	Tablets /External Preparation
43.	M/s Trans-Pab. Laboratories Ltd., Kajidiha, Madhupatna, Cuttack.	Diagnostic Reagents
44.	M/s Easter Drug, Satyanagar, BBSR	Liquid Orals / Capsules / Powder
45.	M/s Arogya Pharmaceuticals, MIG-136, Sailashree Vihar, C.S. Pur, BBSR	Liquid Orals
46.	M/s Anupama Chemcial, Hansapal, BBSR, Khurda.	External Preparation
47.	M/s Orissa Biological products Institute, BBSR	Vetenary vaccines & Sera
48.	Chandan Drugs & Pharmaceuticals, A/1, New IE, Jagatpur, Cuttack.	Formulations
49.	M/s Arach India Consumer Health Care (P) Ltd. H.No.17, W. No.-29, Nimpur, IE, Jagatpur, Cuttack.	Formulations
50.	Avon Laboratories, Bijipur, Khandagiri, BBSr, Tamando.	Formulations
51.	Rahul Industries, PI. No.40, Sector-A, Zone-D, MIE, Bhubaneswar.	Formulations
52.	Genjo Vials, MIE, BBSR	Formulations
53.	Rahul Industries, MIE, Bhubaneswar.	Formulations
54.	Laxmi Health Care, MIE, Bhubaneswar.	Formulations