Research for the Sustainable Development of the Megacities of Tomorrow - Energy and Climate efficient Structures in Urban Growth Centres

Hyderabad as a Megacity of Tomorrow: Climate and Energy in a Complex Transition towards Sustainable Hyderabad – Mitigation and Adaptation Strategies by Changing Institutions, Governance Structures, Lifestyles and Consumption Patterns

Project funded by Federal Ministry of Education and Research (BMBF), Germany.

IN-DEPTH ANALYSIS OF CHANGES IN HYDERABAD'S FOOD SYSTEM AND FOOD CULTURE

Consumption patterns, food supply chains and impacts on sustainability and climate change

Sarah Nischalke

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Analysis and Action for Sustainable Development of Hyderabad

Hyderabad as a Megacity of Tomorrow: Climate and Energy in a Complex Transition towards Sustainable Hyderabad – Mitigation and Adaptation Strategies by Changing Institutions, Governance Structures, Lifestyles and Consumption Patterns

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In-depth analysis of changes in Hyderabad's food system and food culture

Consumption patterns, food supply chains and impacts on sustainability and climate change

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Background Study

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Abstract
This background study analyzes the current state and new dynamics in Hyderabad's food system as well as major drivers and trends. In order to understand structures, processes of change, new risks and potential vulnerabilities, transformation processes within the four sub-components of the food system (production, exchange, distribution and consumption) are examined and Hyderabad's food basket is inspected in detail. Consumption profiles, trading processes and infrastructure in Hyderabad and origin/supply chains of all five groups of essential commodities: Staples, fruits and vegetables, dairy products, meat and fish and processed/packaged food (including beverages) are investigated. Furthermore, new trends in retailscape and legislative and institutional foundations in India and Hyderabad are introduced, in odert to see how current food system changes are translated into policies and actions on government level (e.g. the food price crisis, biofuel, social safety nets etc.). The research aims at providing a knowledge base for the development of new food governance as well as mitigation and adaptation strategies.

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Doing research always is a challenge, doing comprehensive food system research is like reassembling an endless giant jig-saw puzzle. Many segments are highly interwoven and connected, while whole other components seem to be widely disintegrated. The longer I studied this “metabolic” system, the more interesting aspects and *worse* – relevant connections - came to light. At the same time, the list of people who contributed to this research became longer and longer: Major thanks goes to my translator and friend, K. Supriya who enthusiastically accompanied me through all spheres of the food system: Dusty and muddy market places, slaughterhouses, trading areas, households and administrative offices. She was very flexible and never short of ideas how to persuade busy businessmen or reluctant government officials to give an interview. Furthermore, I want to thank Christoph Dittrich, my supervisor, for his support, advice and patience in tolerating all up and downs of the research process. I express my thanks to Usha Rani, who prepared the ground for this work, Prof. Geetha Anant and Vikram A., who introduced me to the farmers’ world outside of Hyderabad and Krishna Bhagawan, whom I accompanied to Machilipatnam to trace the route of his fish. I am also thankful to Harshini Vinayaka for asking the same questions 300 times and her mother, Vijayalakshmi, who inducted me into the secrets of Hyderabad’s cuisine. Special thanks go to Rebecca Hofmann, Gernot Kist, Nina Osswald, Ingo Wagler, Anne Dahmen, Sanker Menon Naveen, Dr. Sudha Kishore, Radha Chada, Krishnaveni and Sujatha Surrepalli for mental support, company and fruitful inputs. And I am absolutely grateful to all my interview partners for their time and commitment to answer many questions, of which some must have seemed random to all the “food experts”. Last but not least, I want to express my thanks to the team of the Sustainable Megacities Project for keeping the project and communication alive and the BMBF for financing this inspiring project work.

INTRODUCTION

> "Then there were traders in eggs and oil who came to our doorstep. The powerful smell of gingelli oil came off him in waves as he approached the house. What joy it was to watch the golden flow of oil from its tin. As for the seller of eggs! His ponderously shaped basket was lowered to the ground as carefully as if there was a baby sleeping in it […]. I often wonder where all those suppliers and grocers went, and how they stitched themselves into the boom of a city which became unrecognizable in the last five years […]" (Krishnan 2008).

Hyderabad, an emerging megacity of seven million people, which might accommodate up to 15 million till 2025 faces fundamental transformation and restructuring processes. The food system is squeezed between social change and global developments as well as ecological limits. The urban population is not only exposed to processes of change though, but also generator itself. The urban space reflects new social configurations and structure and, therefore, also goes through transformations itself: Growing populations, land degradation, industrial growth, climate phenomena as well as more individualistic lifestyles, income growth and new occupational patterns all affect the food system. The new demands and retailscapes determine how and what kind of products are produced, new technologies and lifestyles encourage modernized distribution systems, consumers are exposed to mass media and advertisement and shape the system through their preferences: accepting or rejecting of products, concepts, shopping or eating environments. Furthermore, authorities contribute through regulations and programs by setting a particular course through decisions for certain priorities and against others. Hence, all those processes and configurations of the food system constitute (and restructure), a whole, what Bohle (1994) calls "metabolism". However, a more resource-intensive lifestyle is likely to result in adverse affects on resource consumption, CO^{2-} emissions and food security, especially of low income groups. The coexistence of a long period of high food prices in India and a severe global financial crisis already have contributed severely to millions of more people suffering from hunger and undernourishment (especially between 2006-2008). The FAO (2010) estimates that still 212 million undernourished live in India with major shifts towards urban areas.

However, the question, in how far the so called supermarket revolution has taken over Hyderabad's shopping sphere and displaced vendors, ranging from small-scale coconut oil collectors, buffalo milk distributor to countless kirana shops and street vendors, is followed up by this report. The assumption is that parallel worlds of food spheres exist, where different

socio-economic strata process, trade, sell, shop and consume food. However, there is no clear boundary between those spheres, because of the high interconnectedness and vast networks of interdependencies. Furthermore, the infrastructure, lifestyle patterns and consumption habits are relatively new phenomena and still of a very exclusive nature. Therefore, it is assumed that the new retail does not only coexist with traditional suppliers and grocers who majorly contribute to urban food security, but still highly depend on the approved structures. Nevertheless, the stakeholders in modern retail- and foodscape slowly attempt to gain more independence.

This report analysis the current state and new dynamics in Hyderabad's food system as well as major drivers and trends. A brief introduction of food system research sheds light on the question of how changing foodscapes and new discourses also have reshaped food system research and how new foci such as urban spaces, vulnerability and impacts of social and climate change on food security have been integrated into the research framework (I). The subchapters 1.2-1.4 give some insights into changes within the four components of the food system, which affect the different aspects of food security, also fostering the return of urban hunger. The next section (2.1) starts off with a short glimpse of the history of Hyderabad's food culture, which is followed by an analysis of all relevant food commodities in Hyderabad's consumption (Chapter II). Their role and importance in consumption (usage and trends) is investigated as well as urban trading facilities and processes. In addition, knowledge on origin of products and supply chains is provided within this chapter. It is subdivided into five paragraphs that separately deal with the significant commodities: Staples, fruits and vegetables, dairy products, meat and fish and processed/packaged food (including beverages). In order to understand structures, processes of change and new risks/potential vulnerabilities, all four components of Hyderabad's food system (P,E,D,C) are analysed in depth with focus on impacts on urban food security (availability, access, utilization). The chapter ends with in details on the role and state of the retail revolution as well as the importance of street vending in Indian food systems. The aim is to create a knowledge base for the development of new food governance mitigation and adaptation strategies. Therefore, the last part (III) provides an overview on current instruments, programs and trends in food governance. The effects of the global (rice) price crisis and India's protection strategies are as well covered as national legislation on food, price mechanisms, market interventions and the institutional landscape in Hyderabad. Finally, the last chapter looks into discourses and debates centering on food security, food governance and climate change in Hyderabad's English press. The last

paragraph of that chapter presents some thoughts about the need for integral approaches to nutrition and sustainability education in schools. Finally, the conclusion summarizes central aspects and trends that have been found and gives some recommendations and inputs for further research and food governance in Hyderabad and India. The research showed that there is not yet much to report about mitigation and adaptation mechanisms to climate change, however, the compiled data in this study provides an essential starting point and base for the development of strategies and initiatives. New potential risks and vulnerabilities have hardly been absorbed into the mindsets of the stakeholders or people in Hyderabad.

Objectives of the study

- Providing a knowledge base on structure and functioning of all subcomponents of the food system for basic commodities in Hyderabad
- Conducting an analysis of structural change and transformation processes of consumption behavior as well as potential impacts on food security and sustainability
- Carrying out a multi-level review of the institutional landscape and recent discourses with regard to food and nutrition
- Providing case studies in order to visualize and understand compiled information better and indicate the strong connection to ground realities
- Giving recommendations for a manifold approach to food governance

Methodology

The study is based on two years of field research (2009/10), which touched all spheres of the food system. Interviews were conducted with the full spectrum of people, ranging from high-ranking officials to small vegetable street vendors in Hyderabad. Expert interviews with institutions, market authorities, manufacturers, wholesalers, retailers and vendors have been conducted and excerpts of household survey results and group discussions of the related dissertation project (forthcoming in 2011) have been used for this study. Glimpses into cooking pots, shopping carts and bags as well as into distributed shopping/eating diaries provided insights, which have been incorporated into this background study. Furthermore, advantage has been derived from the broad range of existing studies and results on food within the Sustainable Hyderabad Project and an attempt has been made to provide an all-embracing framework for the specific subjects. Furthermore, secondary sources and observations of price developments/comparisons and policy-processes have been deployed.

I. FOOD SYSTEM RESEARCH AND THE CONCEPT OF FOOD SECURITY

1.1 What is Food System Research?

While it is relatively easy to define what is meant by *food system*, it is much more complex to explain food system research and what this research object actually comprises of. Hence the system itself can be defined as the „spatial, functional, social and environmental integration of four sub-systems: production, exchange, delivery and consumption of food“ (covering all biophysical and socioeconomic processes and relationships within these systems) (see Bohle 2002:31, see also Crang 2000). Much research has been done across different disciplines, but especially in a research field, that deals with a *metabolism* (see Bohle 1994:245, referring to urban food systems), which is currently undergoing major changes, it is obvious that interdisciplinary approaches make a lot of sense, especially after aspects of resource consumption and climate change have become a new focus. There are detailed comprehensive anthropological studies on the changing food culture in India, tracing back traditions for many centuries, but little is said about how culture and system are interererelated and influence each other (Appadurai 1988, Achaya 1998, Banerji 2008 etc.). In contrast, economics deals with the field of agricultural and food economics or resource economics, which investigates agricultural crop/lifestock production for domestic and export markets, but also looks into retailing/marketing and consumption analyses. Sociological research usually tries to embrace the issue more comprehensively by covering social contexts of food and nutrition, socio-cultural, political, economic and philosophical perspectives. However, technical and economic aspects often are neglected or dealt with only in an over-critical way, disregarding potentials. Other active disciplines in the area of food research are history, philosphy as well as nutrition science and the whole medical field.

Geography as a discipline that comprehends itself as interdisciplinary has good preconditions for an integral approach to study food systems. However, researchers need to remain focussed to avoid pervasive superficiality. Therefore, geographical food system research again is divided among its subdisciplines (physical, economic, urban, rural, agricultural, etc.). Bohle (1994:245) highlights the evolvement from a *geograhpy of food,* which deals with the „spatial constitution of food systems“, towards a *geography of food systems* as defined by Cannon (2002). However, the description of an urban space as *food metabolism* (Bohle 1994), which is charaterized by “taking in people, food, resources and energy, transform these into a distinctive quality of life and emit people, products and waste” is rather new. It requires an

examination of arenas, where food is produced (peri-urban areas), distributed, exchanged and consumed (see Canon 2002:345ff.). The city as „dining room, market and farm is how Franck (2005) depicts it. Hence, in times of growing urban spaces and challenges, an emphasis on urban food system research is consequential as well as necessary. The focus on a spatial perspective of an economic activity has shifted towards an analysis of production to consumption along value chains by applying a spatial *and* a social lense. Considering dynamics and restructuring processes of a system that is determined by physical factors and shaped by a constructed social reality, new approaches and a prismatic way of looking at its components are essential in order to analyze an object that is „squeezed into a fault line between environment and society“ (Atkins 2001:13). Other new significant foci include power networks and relations as well as sustainability issues.

One major aspect that is dealt with centers around food security. The three components availability, accessibility and utilization (see chapter 1.4) are interwoven with the four components of the food system. Hence, examining changes within the system components can provide information on changes in food security patterns. However, a strong focus on food security in food system research does not explain, why the growing middle segments of societies in the developing world rather has been neglected in reserach It is particularly problematic, if sustainability, resources and climate change mitigation/adaptation attract notice and the future course is still to be set.

The four subsystems, however, are not distictly defined and might overlapp. While *production* is closely linked to assets, *exchange* covers sales, income and other transactions and *consumption* deals with the nutrition situation of housholds and general diet patterns. Distribution rather plays an intermediary role between those three components, and, therefore is most difficult to grasp or define. Logistical aspects as well as political factors can be included here, which might have major influence on the foodscape or food security.

The five most significant aspects in geography of food, in accordance to Bohle (2002), are the present *food regimes* and their political, economic and cultural determinants, regime transformations, spatial distribution, power relations within the institutioanl landscape and social as well as ecological impacts of food regimes. Vulnerability as well as feedback effects (adaptive strategies/adaptation etc.) serve as reference point across disciplines (Bohle 2002:342).

One major question in food system research is the question of scale. The necessity to include various spatial and disciplinary dimensions as well as vertical and horizontal linkages is preset by the complexity of the system.

Within Indian administration and institutions, Hyderabad, as a megacity, is not dealt with seperately for some comprehensible reasons. Due to the fact that in food production networks, food products move from rural to urban areas and cross „constructed“ district and state boundaries make it unfeasible to collect data solely for the city of Hyderabad. It is not just a centre of consumption, but also a reloading and trading point of Andhra Pradesh. Hence, all statistical data collected by the government focusses on state or district levels and detailed information on Hyderabad's urban consumption, production and distribution is not available. Instead quantities of products (and prices), going through the markets, are recorded by authorities. But large amounts of fruits, for example, go into export to other Indian states (see p.35) and vendors, traders and commission agents from other districts stock up supplies in Hyderabad. Therefore, does the available data in major markets not indicate the twin cities consumption. However, in order to comprehend resource consumption and develop strategies to increase sustainabilty or climate protection, data on Hyderabad's ecological footprint (and the individual footprints of its inhabitants) would be very useful for the Sustainable Megacities Project.

Official statistics usually distinguish between rural and urban spaces (and socio-economic groups), because vast differences in expenditures and consumption have been recognized. However, a modernizing megacity center, influenced by a vital IT-sector and high in-migration from all over India, is likely to have a different resource consumption, waste output and contribution to climate change than a medium provincial city in Andhra Pradesh.

1.2 New dynamics of the food system

The whole process of social change implies a lifestyle transition from production to consumption society. Hence, change is not only affecting consumption, because all subsystems of the food system are closely interlinked. Agricultural production has expanded immensely and has been intensified, especially in the course of the green revolution, since mid 1960s. In order to increase productivity, modern technologies have been introduced: Especially high yielding seeds, mechanization, pesticides, fertilizer and irrigation systems. Increased productivity came at high costs and caused severe soil degradation, resource

depletion, chemical pollution and diminishing biodiversity, because sustainability had been neglected. Agrotechnology and later the genetic revolution increased dependency and costs for small farmers as well (Vaidyanathan 2010:58). Furthermore, this type of conventional agriculture can be characterized by decreasing nutritional values and threats to food safety. Within the subsystem of distribution, the supply chains have become longer, the number of supermarkets and changing retail formats has increased and with it energy usage as well as transportation and storage requirements (lighting, cooling etc.).

The subsystem exchange also faces certain changes. Due to the increasing influence of modern large-scale retail formats, whole value chains are changed. Power asymetries and new requirements of the market are reflected in new concepts of trading as, for example contractfarming (see p.34), and determine production processes. Furthermore, new information technologies enabled electronic point of sale, barcodes etc., which changed the way of planning and trading.

Regarding consumption dietary habits and processes of preparation as well as preferences (in food and lifestyle) have changed and increase energy consumption as well. One important change reflecting consumerism is the trend of eating out (or taking food home from outside: the popular alternative). New domestic appliances encourage more convenience (food consumption and shopping frequencies), enable the storage of dairy and meat or also other perishable items such as fruits and vegetables. Increased consumption in dairy and non-vegetarian products again requires additional resource inputs and energy for production purposes (Singh 2004). Health concepts of Indian consumers only are catching up at a slow pace with modern dietary changes and urban realities. They are still based on a rural lifestyle with high phyical workloads and traditional knowledge (rooted in Ayurveda) and natural production processes All those changes might translate to some extent into food insecurity. This is followed-up by the dissertation project to be published end of 2011/12.

1.3 The concept of Food Security

The commonly used definition of FAO (1983) “ensuring that all people at all times have both physical and economic access to the basic food they need” is still useful to define a framework for food security. The definition of UN (1975) “availability at all times of adequate world supplies of basic foodstuffs […], to sustain a steady expansion of food consumption […] and to offset fluctuations in production and prices” experiences a revival in

times of food price crises, rice crisis and domestic inflation as well as shortages on the world market. The definition introduced by Kennes (1990): "the absence of hunger *and* malnutrition" is also useful in the Indian context, where despite of government food subsidies, high malnutrition rates and even hunger exist. Sen[1] introduced the important aspect of access (food entitlements) into the debate as well as the control over resources, so that the discourse developed over time from a focus on feeding people to a livelihood-approach, which did not only take short-term nutritional intake into account, but coping and adaptive strategies on the micro-level as well as the measurement of sensitivity (Binns 2004). The aim of post-modern approaches "is not merely to supply adequate quantities of food, but to create conditions in which people are capable of feeding themselves self reliantly with healthy and cultural acceptable foodstuff - a state of nutritional sovereignty" (Sagar 2005:29).

In order to create sustainable livelihoods in an urban environment, activities need to go beyond "maintaining adequate stocks and flows of food and cash to meet basic needs by maintaining or enhancing of resource productivity on a long term basis" (Mohammad 2004:302). To achieve livelihood security, approaches need to consider the significant role of ownership of land or property and stable employment and networks, which is somehow different from rural reality. Vyas (2005:22) highlights the importance of "the entitlement which largely depends on the household endowment structure. […] "The urban consumers have to depend on incomes from wages, salaries and, in case of a small section, profits from their entitlement".

The three aspects of food security interact and are not static, but might result in acute insecurity, causing famine conditions, temporary fluctuations or also assure stable food security to individual households (WFP 2001:3):

Availability investigates agricultural production, covering food crops, cash crops and livestock as well as aggregate supply. It is determined by sustainability in production or imports and the stability in food supplies acquired through domestic production and trade (see WFP 2001:10f.)

[1] See for example Drèze/Sen (2008:50ff.)

Access implies entitlements or preconditions for entitlements to adequate food, acquired through production, labor, trade or transfers (see WFP 2001:13ff.; Sagar 2005:29). Measurements try to grasp, for example, purchasing power as one key aspect to meet basic needs in relation to prices in the local market place, minimum daily energy supplies in order "to remain active and healthy" or minimum standards of development based on the HDI-indicators (WFP 2001:15).

Utilization integrates cultural factors such as dietary patterns, absorption and intra-family distribution in order to obtain an overall picture of food security. Dietary patterns as well as child care practices, nutrition knowledge and consumption practices are all determined by culture and traditions. Regional differences and socio-economic factors might also affect the nutritional status of a family.

While Sagar (2005:29) also adds **sustainability** to be included in the list of food security components (referring to conservation of natural resources), WFP (2001:3), adds **vulnerability** (indicating external factors and risk exposure of households and their ability to cope with shocks or stress). However, both components can as well be included into the three major components of food security.

In most South Asian countries, as well as in India, availability is not as big a problem in achieving food security as access and utilization (see also WFP 2001:10). Interlinkages between household entitlements/endowments and utilization need to be looked at particularly.

Sagar (2005:31) shows that nowadays malnutrition is the major problem in urban India, while *total hunger* (lacking a proper definition), has been eradicated in the *urban* areas at 0.4 percent in 2002 - including chronic and seasonal hunger. India is self-sufficient in food grain production at the macro-level, but the Public Distribution System is not reaching the poor. Despite immense procurement activities, which resulted in growing buffer stock, Sagar (2005:24) points out that "these measures have not gone beyond tokenism. There have to be adequate provisions for accessing food to them [destitute households], and equally important, dependable mechanism to reach them". However, food intake in an unhealthy environment will not ensure nutritional security (see the detailed study on environmental health, Padma 2010:14).

In very poor hygiene conditions (e.g. rainy season and lack of sewers and safe drinking water) resistance to diseases is low and nutrient reserves are likely to decrease. Microbiological contamination through food and water also contribute to morbidity and mortality due to diarrhea. Padma's study (2010), conducted in Hyderabad, underlines the problem of enabling assimilation of nutrient intake under conditions which are characterized by a

> "lack of amenities, housing, safe water and sanitation in poorer sections of the city, [which] cause water related diseases such as jaundice, viral fevers and mosquito related typhoid, chickungunya, malaria and other fevers as well as air polluted diseases like asthma, skin allergies, lung infection and other infection diseases" (see also Drèze/Sen 1989).

The research showed limited access to clean drinking water and lack of proper drainage facilities (around 10% of interviewees had none; others were not well maintained and functioning). Those conditions provide a suitable habitat to mosquitoes, which are spreading vector-borne diseases and aquatic pathogens which can cause food poisoning and water-borne diseases as well (especially at higher temperatures caused by climate change) (Griffiths 2009).

However, a shift in disease profile is recorded by Chadha (2009), from infectious to lifestyle diseases, which can be attributed to the urban lifestyle patterns. Padma's results (2010) have also shown that health and environment are not jointly tackled through government strategies and programs. The National Urban Health Mission (NUMH), for example, has not proceeded beyond the design stage and been shelved till 2012 (11^{th} five year plan ends). Hence, health problems of the urban sphere are not addressed in a coherent way yet.

Another problem in nutritional security is based on cultural practices and values. Gender discrimination in household food distribution, usually is controlled by particular members. Often calorie intake is just met by staple foods, whereas access to more expensive items such as animal foods or fruits is restricted. This threatens nutritional security of discriminated family members, which is not only a question of individual undernourishment, but affecting future generations also, because malnourished women give birth to offspring who again is underweight (see WFP 2001:22ff.). Harris (1993:224ff.) describes the problem context in the following way: "[…]Some members of households with inadequate aggregate food intake may not be malnourished, and not all malnourished individuals come from households with inadequate aggregate food intake". All in all, their extensive study showed that large

variations in places, timings and the company a family shares the food with as well as trade-offs and substitutions within household environments make generalizations very difficult. However, "evidence of discrimination in feeding practices and nutrient allocation within the family in South Asia certainly exists […]". Diverse sets of regional studies showed that women generally eat last, while for children there are lots of different practices to be found (from eating before the males to not disturb the meal to eating after the husband or with the mother at the end). "Study results did not only reveal that "young children and the elderly are the groups most generally discriminated against" but also that "nutrient allocation is certainly problematic under conditions of scarcity" (Harris 1993:282). In general the important role of educating women has been highlighted and should be recognized, because they act as multiplicators of knowledge and habits, but might also contribute to derestricting of archaic rules, which negatively affect household food security.

1.4 New challenges to food security in Hyderabad

1.4.1 Availability

Overall trends in population growth rates of 1.38 percent in India (Indexmundi 2010) coupled with other drivers of urban growth is estimated to result in a population of 15 million people by 2025 in Hyderabad (Sustainable Hyderabad Project). Land degradation is prevalent and industrial growth rates of 16.8 percent in India in 2009 also put major pressure on peri-urban agriculture around Hyderabad (cp. Sagar 2005:40f.) and, therefore, affect availability and prices. Furthermore, growth rates of the IT-sector are projected at 30 percent (CAGR) over the next two to three years and real estate for office space requirements as well as other enabled servicing industries might put additional pressure on land and prices (cp. Incubate 2008). Other industries such as pharmaceuticals, biotechnology, food processing, automobiles etc. do also show interest in Hyderabad's attractive market. An additional burden can be seen in regional climate phenomena (which are damaging agricultural production), new bio-fuel-demands in and outside India (see p.61) as well as mismanagement in the implementation of agricultural/ consumer policies, which all affect availability of food.

1.4.2 Access

Regarding change in access to food, particularly spatial differentiation and restructuring need to be mentioned. While 15 new malls have opened during 2008/2009 in Hyderabad alone (Incubate 2008), decentralized commercial centers are popping up in many affluent and middle-income residential areas as well and might become a threat to the kirana-format and

street food vendors (see p.51). Especially, because restrictions for the street food sector (zoning system) have been tightened at the same time and harassment by police and authorities has been given new legitimacy through the National policy (see chapter III).

Because food is slowly freed from moral and social restrictions, marketing strategies and new shopping, eating out and entertainment environments, have spread from residential areas of IT-employees/new middle classes to common middle-income areas (Kukatpally, Dilsukhnagar, Uppal etc.). The liberalization of FDI has triggered the mushrooming of western-style supermarkets as well as fast-food restaurant, which experience a "higher social desirability" (Mendez/Popkin 2003:56), because of their atmosphere as well as choice in variety, quality, convenience or prices. Inside new restaurants and fast food outlets religion and caste hardly matters anymore, instead capital is a decisive factor of where and what people eat together. It creates „a feeling of belonging to the same world of taste" (cp. Hofmann 2010:89ff.). Furthermore, urban inhabitants (especially middle classes) gradually become more cosmopolitan, because of growing knowledge about the outside world. However, many youngsters can only afford to frequent those outlets from time to time or families go there once in two months for a special occasion.

Another trend that is affecting access to food in Hyderabad is the displacement of traditional markets (see figure 1), caused by high traffic congestion as well as residential complaints and spatial constraints. Therefore, wholesale market areas as well as meat processing are slowly moved towards the outskirts of Hyderabad. The Monda market has been shifted to Bowenpally 10 years ago, while the Old Sabji market has been transformed into a retail market space and Gudimalkapur became a second centre of vegetable wholesale trading in Hyderabad 15 years ago. The wholesale market for fruits has been shifted from the heart of the city (Jam Bagh, close to Mozamjahi Market) to Dilsukh Nagar/Kothapet in 1990 and authorities are again thinking about changing its location within the next two to three years. The plan of shutting down five slaughter houses also was a result of conflicting spatial interest in the urban area of Hyderabad (meat business vs. residential area). Now, the modernization of four slaughterhouses has been agreed on as a compromise, after meat traders, vendors and butchers did not comply with GHMC-decisions and continued their business, because the newly built slaughter house in Chengicherla was not located conveniently (for details see chapter 2.5). Also, the mill area (rice) in Kharmanghat is facing complaints from residential areas regarding noise and air pollution and the discussion of shifting the area is in process.

Moving market areas towards the outskirts again increases costs and effort for small vendors to access them to purchase supplies.[2]

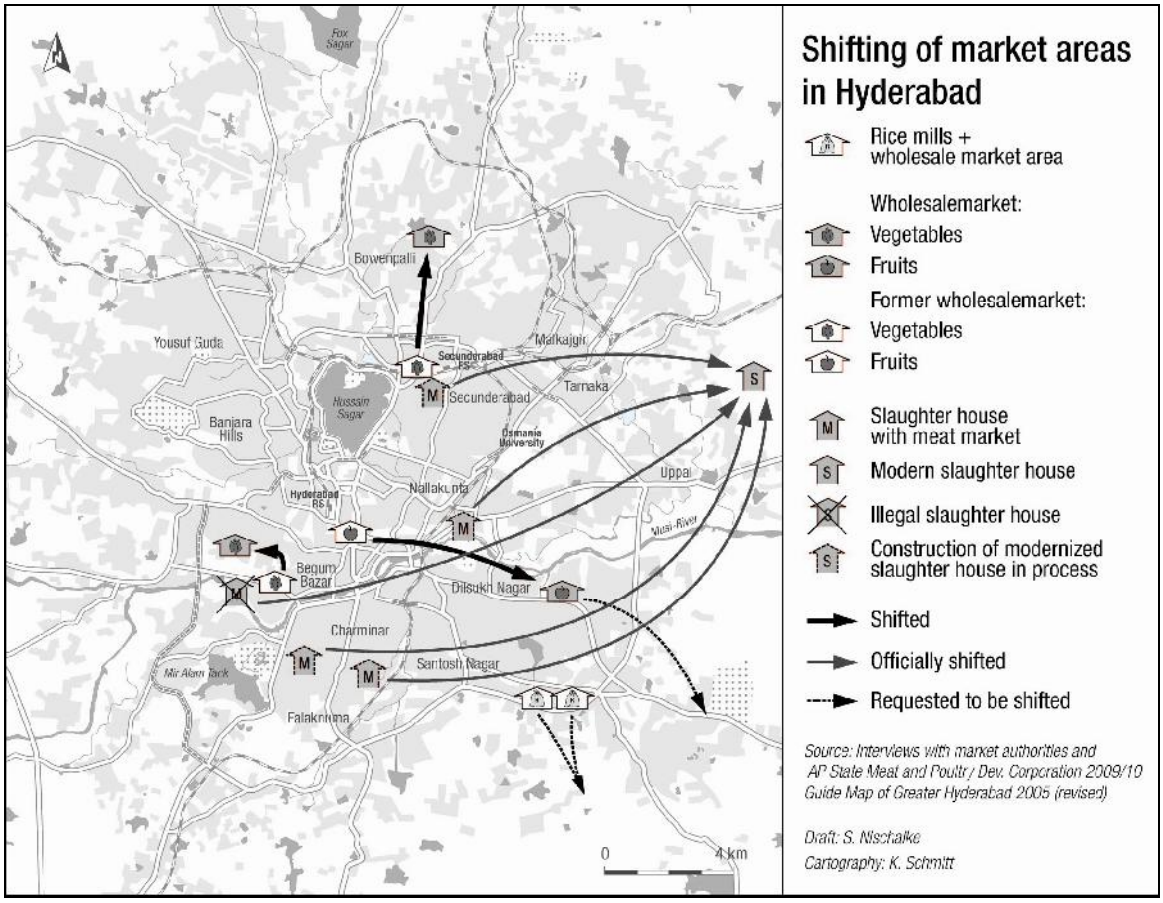


Figure: Shifting of market areas in Hyderabad

1.4.3 Utilization: The double nutrition burden

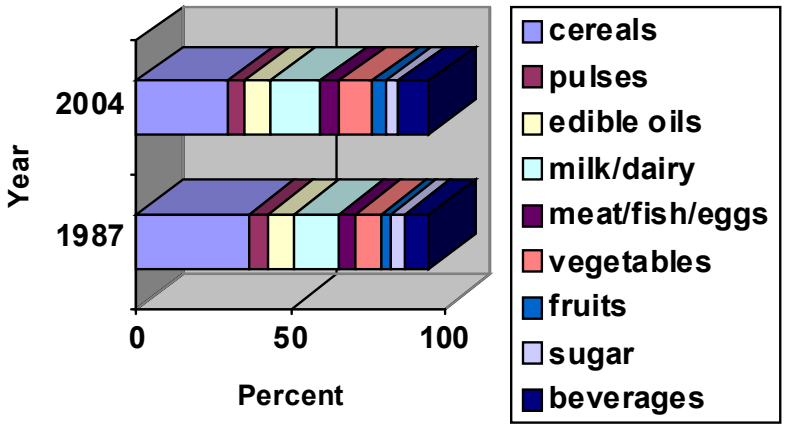
Chada (2009) has investigated the impacts of diet globalization among different income groups in Hyderabad and underlines the trend of diversification of diets with rising incomes (see figure 2 for changes in diet composition from 1987 to 2004). Dittrich (2009:293) explains that

> "with more single working youth, nuclear families, working mothers, and generally faster-paced, mobile, metropolitan lifestyles, Hyderabad's affluent middle class is increasingly prepared to spend on eating out, ready-to-eat food and experimenting with alternative cuisines and more diverse food and beverage products".

[2] Information received from Andhra Pradesh Sheep & Goat Development, interview with Managing Director D. Venkateswarlu conducted 1.10.10, Agricultural Market committee, Gaddiannaram Director of Marketing, K.R.S. Reddy on 16.9.10 and Agricultural Market Committee Bowenpally Selection Grade Secretary S.K. Vali on 11.05.2009 as well as research in Kharmanghat 2009/10.

With that „shifts away from meals to snacks and from-at-home to away-from-home meals, energy intake of people has gone up“ (Sudershan/Subba Rao 2008:155). All in all, do urban diets tend to include higher levels of polished grains, fat and more animal products, sugar, outside food and processed food (see figure 2, see also Dittrich 2009). The major problem of changing diets is that they become “irreversible” as soon as the young generation considers the new diet as their traditional one (Mendez/Popkin 2003). If those trends are taken up by media/commercial advertisements people become highly vulnerable to manipulation, especially because commercial interests are not focused on health, but on making profits. Dittrich 2009:293 points out that “the process of diet globalisation is clearly assisted by the globalisation of the mass media. The proliferation of global entertainment through popular television programmes or block-buster movies permits the wide-scale advertising of global products“ (see also Mendez/Popkin 2003:55). But Hofmann (2009:43) does not only refer to spreading of new food trends via TV, but also beauty ideals, which again influence diet patterns. This is particularly alarming, because Chada (2009) showed the high significance in watching television as leisure time activity among all age groups. 50 percent of her interviewees watched TV for at least three hours per day (see also Hofmann 2009 or Padma 2010). While modernization can be seen as cause for that kind of diet transition, westernization rather is a symptom, whereas processes of hybridity and indianization are counter-reactions or outcomes. However, those concepts are permeable at the same time (see p. 17-18).

Figure 2: Consumption composition in urban India 1987 and 2004



Source: National Sample Survey Organization 2007

Hence, new consumption habits are prone to increase obesity rates and diet-related diseases such as diabetes, coronary heart disease and hypertension. While Europe and the US are still leading in diabetes rates, the number of diabetes and pre-diabetes patients has immensely increased in India (also China and other Asian countries). The American Medical Association published a study in 2009 with recent estimates of 40 million Indians who suffer from

diabetes (type 2). The number might rise to 70 million within the next five to ten years, because another 100 million people finds themselves at a stage of pre-diabetes. A major difference between diabetes in Asia and Western countries is that it mostly occurs among the age group between 20-60 years (vs. beyond 60 years in the West). One reason might be the fast process of diet transition in Asian countries (Chan et al. 2009). Hyderabad was described as the diabetes capital in India with a prevalence of 16.6 percent (see Murthy 2009).

At the same time, Vepa (2004:215) emphasizes positive nutritional effects of more diversified food baskets containing pulses, fruits, vegetables, dairy and meat products. However, the average urban poor even has a more meager diet than his/her counterpart in rural areas (cp. Ahmed et al. 2007, cited in Cohen and Garett 2009). Protein-rich foods (pulses, dairy or meat) and fruits are not consumed to an adequate extent among lower income groups in urban areas. While the average monthly cereal intake decreased for almost all income groups in urban A.P. (1970: 11,36 kg to 2000: 10,42 kg) it slightly increased for the lowest 10 percent and still did not meet the average intake for the state itself (1993/4: 9,51 kg to 2000: 9.55) (NSSO 2001). Additionally, the state is among the ones with the lowest calorie intake among urban inhabitants (lowest income group), who already are prone to protein-energy deficient diets. NSSO (2010:19) calculated that urban households (per capita/month) spend a large bulk of their incomes (39.6 percent) on food. However, Chada's study (2009) in Hyderabad showed that families with low monthly incomes between 3000 and 7000 Rupees spend 44 percent on food, while income groups between 15.000 and 20.000 Rupees only spend 20 percent (for a comparison between poor and lower middle class groups in Hyderabad, see Kist 2009). Therefore, Vepa (2004:229) suggests "a three-pronged strategy of nutrition education, food fortification and enhanced safety nets for the poor".

Chada's study showed that the epidemic of chronic diseases has also reached the urban slum areas while at the same time malnourishment is very present in the city. The double burden of nutrition became obvious among the researched group. Among the females of whom more than 60 percent (men: 70) had a normal BMI, more than 10 percent (men: 8) were undernourished, while 30 percent (men: 22) were overweight or obese. The changes in food intake of lower income groups (less chili, increased oil consumption, more meat, changing eating times, more noodles vs. less traditional millets as well as more wheat (mainly for chapatti), deep fried dishes, curries and more salt as well as almost no exercising (Radha 2009:33) might reveal explanations for secondary malnutrition.

MODERNIZATION

M. is closely linked to industrialization and urbanization as well as the spread of education. Modernization of societies means a process of „economic, political, social and cultural change occuring in undeveloped countries as they move towards more advanced and complex patterns of social political organization“ (Outwaite 2003:405). Usually the family and community as well as their traditions and customs slowly loose relevance and the individual evolves into the reference point for society. „The essential difference between modern and traditional society […] lies in the greater control which modern man has over his natural and social environment“ which fosters a belief in the „possibility and desirability of change“ as well as „the ability of humans to control it“. (Roberts/Hite 2000:145). Modernization is assumed to be an evolutionary process, where a similar course is followed towards differentiation and complexity of social structure by all communities. However, Appadurai (1996) underlines that it is not a single moment, when people break up with tradition and become modern, but rather an uneven process. Even though the concept, which often is used synonymous with westernization, does not (necessarily) entail westernization (Pieterse 2009). Often perceptions are constructed in a very selective way by media, literature, NRIs etc. and become „imagined worlds“, people are striving for, which are in accordance to Anderson (2005:164) „*voluntary* socially constructed alteration in the tastes of whole peoples“ (see also Lewellen 2002: 52, Appadurai 1996). However, there still is a uniform consumption pattern visible across the world (cultural standardization), which reproduces archaic hierarchies: „Diets have a political history framed by class, cultural and imperial relations. Animal protein consumption signals rising affluence and emulation of western diets. Movement up the food chain hierarchy (from starch to grain to animal protein and vegetables) is identified with modernity“ (Mc Michael 2004 cited in Nandy 2004). This trend is visible in Hyderabad as well.

Box 1: Modernization

WESTERNIZATION

Misleadingly also referred to as *Americanization*, means the adoptation of western lifestyles and values by other communities (industries, technology, politics, economics, lifestyle, diet, etc.) with the aim of achieving a *western* life (often life quality and wealth) or certain qualities, which are associated with it. It also is assumed that it is part of current globalization processes, which implies that western thought generated globalization and propagates western culture (see Pieterse 2009). Two main characteristics are economic liberalization and individualized culture. The trend of developing *individual* taste, likes and dislikes in food (instead of filling a stomach) and relishing in consumerism by having an *individual* choice of where to go for eating with the people of your choice, reflects the adoption of new individualist principles in India. Marshall (1995:3) describes that transformation „from food as feed to food as substance and symbol“. In context of food, this does not only relate to import of western products, retail formats and eating-out-facilities, but also to adopting independent lifestyles, resulting in large numbers of nuclear families, single working youngsters and women, who frequent a broad range of restaurants, bars and other entertainment facilities. Time constraints due to tight working schedules and new recognition of leisure time leads to increased convenience-seeking behaviour in living, transport and eating, while the new time is used to explore new hobbies.

Box 2: Westernization

HYBRIDIZATION

H. is described as „ways, in which forms become separated from existing practices and recombine with new forms of new practices“ (Rowe/Schelling 1991:231cited in Pieterse). The process of hybridization is also defined as a negotiation of local and global forces, resulting in hybrid lifestyles: New commodities or values are introduced and get absorbed (or rejected) by existing cultures and their consumption and constitute new identitites (Cwiertka 2001). However, the assumption that „The important lessons that the Indian type of modernity offers is the manner in which the positive aspects of modernity is absorbed into the mainstream society while discarding the unsavoury aspects of it: India welcomes microchips but not potato chips“ (Sunday Observer.lk 2009) is a missapprehension, considering the rising obesity rates and that each and every kirana shop sells countless brands of different kinds of (potatoe) chips nowadays. The process is shaped by the specific composition of a community. Therefore, relations of power hegemony might be reproduced as much as assymetries in cultures (see Lewellen 2002:52 or Appadurai 1996). The Indian Food Report 2010 (154), for example, shows how the mainstream trends in food culture suits the mainstream palate (different, yet familiar: spicy, saucy, well-cooked, fried, starch-based, aspirational) differs from what appeals to the elite (exotic, trend-setting, healthy).

Box 3: Hybridization

INDIANIZATION

The process of indianization can be described as an outcome of the conflict between homogenization and cultural heterogenization. Nandy (2004:2) describes it in the following way: „Indianess as a form of ethnicity that is being reimported from the diaspora into India to reshape many domains of life, including the cultures of food within the country“. In times of increasing numbers of females (males mostly abroad) who show interest in cooking, take cooking classes in ethnic cuisines, watch countless cooking programs on TV and buy cooking books as well as the newspapers, which are flooded by recipes, reflects a counter-trend of indigenization against an „Americanization of diets“. However, cooking is to some degree detached from its institutionalized role within society.

Indian Chinese Food has evolved to an institution in Indian food culture, but other current trends such as chicken tikka on pizza or some sushi pepped up with spicy paprika and oregano, baked beans with chili powder and coriander leaves (see Chakravorty 2011) can not only be explained by the non-availability of ingredients, but is also is a product of an interplay of cuisines and fusion of tastes. Even the fast-food outlet of Mc Donalds in India has introduced paneer wraps and eggless mayonaise instead of beef burgers. Traditional concepts of nutrition or health are left behind and “the distinctive cultural styles of food are paradoxically becoming more autonomous from the cultures from which the cuisines come and civilizations or lifestyles they represent“ (Nandy 2004:18). The process can be described as an „intercultural osmosis“ (Pieterse 1991:7), merging global values and local loyalties.

Box 4: Indianization

However, it is interesting to investigate, whether risks and challenges to food security are also interpreted as problematic situations/crisis or whether they belong to the ‘normal’ routine in life, where certain ‘risky’ paths need to be chosen due to limited options. Hofmann (2010:89f.) conducted an elaborate study on (food) risk perceptions in Hyderabad. She showed that

„In the emerging Indian megacity of Hyderabad with its fast changing society, the people's definition of food related risk depends heavily on their economic and social position […] The costs of social events – paired with new desires – and education have gone up, and the urban environment is first of all monetary, while the support from the extended family is in decline [therefore] responsibility is handed over to next higher instances, such as governmental institutions or the religious pantheon" (Hofmann 2010:90).

1.4.4 Why urban hunger returns…

While sources such as Sagar (2005:31) attempt to show that total hunger has been eradicated or never been prevalent to a significant extent in urban spaces, current **domestic** price hikes and inflation in Indian food prices make the topic more current than ever. Cohen/ Garett (2009:4) point towards the process of rapid urbanization, which is „pulling the balance of poverty into the cities", by showing that the share of extreme poor living in an urban environment has risen to 25 percent in 2002. The FAO (2010) comments in this context that „as the cities expand, and as more people will migrate from rural to urban areas, the number of the urban poor will rise. Urban hunger and access to affordable food in cities will therefore be an increasingly important issues".

Urban inhabitants are net buyers of (staple) food, do usually face higher fixed expenses for general living and can hardly grow their own food or buffer any stocks to feed their families during crisis, which makes them highly vulnerable (see Ahmed et al. 2007; Cohen and Garett 2009). The availability of adequate sanitation infrastructure and safe drinking water is much more problematic in overcrowded urban environments, which is likely to negatively affect nutritional absorption.[3] Wood (2009) states that „access not availability drives urban hunger" because of concentrated urban poverty coupled with food price hikes and an economic downturn. However, this does not excusively affect the poor, but also lower middle class groups, especially if their income base is not secure and assets are still limited (cp. Hofmann 2010).

Because of high food prices for basic commodities in Hyderabad, food that actually *was available*, was not affordable to low income groups, whose bulk of expenditures can be

[3] A survey on urban food security in India 2010 (M.S. Swaminathan Research Foundation) has showed that „the [official] data on access to safe drinking water and to toilets may in many cases overstate the actual access on the ground, in view of the reality of non-functioning or provision, or inadequate functioning or provision" (Athreya 2010).

attributed to food purchases. Stage et al. (2009:4) argues that one important way in which urbanization in poor countries may affect food prices, at least potentially, is that it increases the number of households who depend on commercial food supplies, rather than own production, as main source and, hence, are likely to hoard food if they fear future price increases. However, studies of Kist (2009), Chada (2009) and Hofmann (2010) showed that Hyderabad's low income groups do not have the means to even buy in bulk, while the wealthier middle class segments usually name *time*, *spatial constraints in maintaining staples* and *non-existence of future planning strategies* as reasons for not buying bulk amounts.

Athreya (2010) notes that „high urban economic growth need not by itsef imply improved living starndards for all urban residents". Lack in productive assets and the high dependency on casual, uncertain and low-paying labor (or marginal self-employment) further threatens access to food and reflects poor social protection among this group. Cohen/Garett (2009) add deteriorating networks and community cohesion, which reduce access to informal safety nets:

> „Losses in social capital as a form of social resilience (cp. Adger 2000: 349), are common in a living situation where younger generations can no longer resort to their parents' and grandparents' wealth of experience and where neighbours often share neither origin nor past and where instead mistrust is the ruling factor" (Hofmann 2010:97).

This void is, to a small extent, filled by public and private institutions such as PDS, NGO-Programmes, or temples (see case study 1).

Box 5: Case study 1: Sai Baba Temple

Case Study 1: Sai Baba Temple – Food Distributions

It is Thursday, the day when Sai Baba devotees fast for their gurus (spiritual teachers) and skip non-veg food or one to two full meals for fruits. Today a large queue has formed in front of the entrance of the Sai Baba temple in Baghlingampally. Many slightly underweight looking children are passing through the gate towards the temple, running around and screaming. It is a bit chaotic; hundreds of shoes are piling up in front of the temple. Some water and small plastic cups with a little bit of food inside have been distributed to the children already. Finally the doors are opened and people enter in a hurry, in order to receive some free food. They all sit down along the walls, holding the distributed steel plates in their hands and wait for the helpers to go around and distribute rice, dal and curries, sometimes a sweet to everybody. Especially the children gobble the food as fast as possible and take a second serving.

In 1995 the temple started the food distributions. „Whenever we have enough contributions, we serve food for the poor" says the temple manager. People come to the temple to do pooja and give donations. One donor recently gave 20.000 Rupees, which fed between 1200-1400 people. People come from surrounding areas: Usually 400 from the tribal slums, 400 from the waste picking areas around the corner. However, it is also open to the middle classes. From small donations they can usually arrange food every two weeks for around 600 people (10.000 Rs.). One of the temple employees goes to the slum in order to inform the people. If there is more money available they set up a tent, so that people from outside can see that free food is distributed on that day and join. Inside the temple the kitchen is set up. Huge steel pots are used for cooking in order to feed all the hungry mouths. The temple managers and special guests are eating inside the manager's office. After two hours several rounds of people have eaten their lunch and the temple premises are clean and quiet, as if nothing had happened there today (Interview 4.4.2010, Sai Baba Temple).

Cohen/Garett (2009:1) underline that

> „Yet most policy prescriptions [are] focused on addressing constraints to rural-based food production. In addition to strengthening of social protection schemes, the declarations called for increased investment in smallholder agriculture, attention to macroeconomic and trade measures, and the development or rebuilding of national and regional food stocks“ (see also Stage et al. 2009).

Andhra Pradesh is among the states that are more urbanized, but still, it has not performed well in improving urban food security in comparison to poorer states (see study of M.S. Swaminathan Research Foundation 2010). A universal PDS-system and community kitchens are recommended by the study in order to „address the special needs of the vulnerable sections“. Additionally, „designing and implementing a nutrition literacy movement across all urban centers will also be worthwhile“. He also suggest to promote urban and peri-urban agriculture (esp. horticulture) in order to achieve nutritional security and create sustainable livelihoods as well as decentralization and capacity-building on local policy level (see also Athreya 2010).

II. FOOD SYSTEM ANALYSIS

2.1 A short history of Hyderabad's food culture

Gupta (1993) analyzes that the rich food culture in Hyderabad is also a result of a hybridization process that was encouraged by liberal policies of the Qutub Shahi rulers supporting an

> "evolution of a composite culture by preserving social and religious harmony among different religious communities. This city acted as the model in the preservation of the traditions while taking recourse to modernity when necessary and tried to bring about a sort of renaissance in the Deccan region" (Gupta 1993:60f.).

Hyderabadi cuisine evolved under Mughal Rule (15^{th} – 19^{th} centuries) and can be characterized as a fusion of several 1000 years of Vedic/Aryan cooking traditions with foods from the Middle Eastern countries (Arabia, Persia, Afghanistan and Turkey) and later European influences. The Muslim cuisine is said to have a Southern identity (Banerji 2008:162-174, see also Achaya1998:123): Vegetables, the major ingredient in Indian cooking met Mughal specialties of goat and lamb. The Imperial Gazetteer of India (1991:26) document attitudes towards meat consumption around Hyderabad at the beginning of the last century: "the Musalmans in the country, out of respect to the feelings and prejudices of their Hindu Neighbors, do not indulge in beef, but the Musalman inhabitants of towns and large cities have no such scruples". Banerji (2008:164) puts it the following way "This is a cuisine in which meat rules. The city is like an island where, despite the significant presence of vegetarians all around, the residents cannot imagine a meal without meat. This goes for both Hindus and Muslims." However, this is only partly true, because a large variety of vegetarian dishes and restaurants are to be found in Hyderabad and many households can hardly afford to have meat more often than once a week. Food habits and (religious) customs in Hyderabad vary immensely from person to person or community to community. However, in one way or the other rituals are still prevalent and practiced in accordance to certain traditions or beliefs. Fasting and feasting is an integral part of all celebrations in Hyderabad. Major festivals include Sankranti, Ugadi, Holi, Ganesh Chaturthi and Diwali for Hindus; Eid-al-Fitr and Eid-al-Azha (Bakra Eid) for Muslims and Eastern as well as Christmas for Christians. Other festivals are preceded by a longer or shorter fasting period (Hindus: Shivaratri and Navratri/Dussehra, Muslims: Ramadan and Christians: Good Friday) (for further details see http://festivals.iloveindia.com). Hofmann (2009) gives insights into the history of Hyderabad's food culture and amalgamation processes (cp. Achaya 1998; Banerji 2008).

The following chapters aim at presenting detailed information on consumption habits, value chains and trading processes of commonly used food items in Hyderabad's cuisine.

2.2 Staples: Grains, pulses, spices and oilseeds[4]

Consumption patterns

Rice is the staple food of 65 percent of the total population in India and Hyderabadis cover between 80 and 90 percent of their cereal intake by rice. The most common type of rice consumed among middle and upper classes in Hyderabad is fine (medium slender) Sona Masuri/Samba Masuri (BPT 5204), especially the one from Kurnool, Nellore and Warangal (called Kurnool Sona Masuri, Nellore Sona Masuri and Warangal Sona Masuri) as well as Swarna Masuri (MTU 7029). It usually costs between 30 to 38 Rupees per kg (2009). In contrast, urban poor usually stick to a short and bold coarse rice variety, called common rice (variety: Hamsa), which costs around 20 Rupees per kg. In urban Andhra Pradesh the rice consumption per head is assumed to be 13.6 kg per month. Estimates of the Rationing Officer calculated Hyderabad's rice consumption per day at 1600 t, which included 87 percent Sona Massoori and 13 percent Grade A and Common rice varieties. The famous super fine variety of (mostly long slender) Basmati rice usually is one of the most expensive varieties and is only used for particular occasions and special dishes such as Biryanis and Pulaus (rice dish with spices, meat or vegetables). Most dishes do not require a particular variety of rice, but are suitable to all varieties, whereas in wheat, there are different grades used. Maida (super fine flour), for example, is used for snack items such as samosae or sweets and Durum Atta (mostly wholewheat flour) is commonly used for chapatti (unleavened flatbread). Besides that wheat grits (semolina) are also commonly in use. Because of the large Muslim population who traditionally eats more bread-varieties, the subsidized wheat of PDS-distributions and lower prices compared to fine rice, a new diet trend of eating more wheat preparations has emerged and wheat has become a central ingredient in Hyderabad's kitchen.

It is also not uncommon to mix flours for chapatti or other preparations (millet or sorghum flour, wheat, rice and maize flour). However, many recipes, which use traditional staples (millets etc.) are not that well known among the young generation anymore, even though,

[4] Information received through Interviews: Rationing Officer, Hyderabad (Dep. Of Civil Supplies): L. Kumar 8.4.09, A.P. Dal millers and traders Association: Secretary L. Rajender 24.3.09, FCI-buffer depot, S. Reddy 31.3.09, Hyderabad Rice Millers Association, President: R. Reddy, 25.3.09, Kaveri rice mill 25.3.09, AP. Oil Federation, Senior Manager B. Rao 24.3.09, Malakpet rice traders association: P.Suryavanshee 15.5.09, interviews with commission agents, traders and consumers (2009/10).

Figure 3: Healthy food at the Hindu Cookery Contest 2010

millets, sorghum, maize and other food grains shaped daily diets for decades, while rice was reserved for special occasions. Millets are still used in porridges, breads and sweet as well as snack items. NGOs such as DDS and CSA (focus: organic products) as well as the Food and Nutrition Board (focus: urban poor) promote its usage at awareness events as for example the Nutrition week in 2010. The cookery contest of the newspaper The Hindu (see figure 3) also revealed that healthy grains (also imported ones) are slowly becoming fashionable again. Millet balls, mixed flour chapatti as well as beetroot and spinach breads were prepared and presented by middle class participants. Nevertheless, lower prices of traditional (coarse) grains do not seem to be a proper incentive to go back to those recipes among poorer sections. One reason might be that those recipes are very labor-intensive.

The majority of Hindus in Hyderabad as well as some Muslim families consume rice or rice items for breakfast and as snacks. Common dishes include idli/dossa (cakes and pancakes, made of black gram dal and rice grits), pongal (spicy or sweet rice-porridge), khichdi (rice-lentil dish), bambino (thin wheat-noodles with vegetables), upma (wheat-grit porridge) or vada (savory gram flour doughnuts). A difference between Hindu and Muslim households is that the majority of Muslim families eats wheat or sorghum chapatti instead.

Pulses are also commonly used in the preparation of breakfast snacks as well as side-dishes, which make an Andhra, Telangana or Muslim meal complete. Pulses are one major ingredient in most South Indian meals. Toovar Dal (arhar Dal) is the most common variety in Hyderabad, which accompanies many vegetable or non-vegetable curries. Other pulses that are commonly used are black gram dal (especially for breakfast snacks: vada, idli, dossa etc.) as well as Bengal gram (large yellow lentils), yellow or greengram (small green and yellow lentils) and massor dal (red lentils). Besides their usage as side-dish (fried or liquid soups, mixed or only one variety) and non-veg preparations they are a major ingredient in the typical South Indian vegetable soups, (rassam: tomato based, sambar: lentil based) accompanying rice. They are also utilized as base for spice pastes (masala) as well as toppings (roasted together with nuts or oilseeds) (e.g. tamarind rice). Other pulse varieties that are used are horsegram, cowgram, chickpeas, kidneybeans etc. Onions, chili (fresh green, dried red, red

chili powder), tamarind, garlic, turmeric and ginger are the traditional spices, some of them present in every recipe. Garam Masala powder is also widely used (comprising of coriander, cardamoms, peppercorns, cloves, cinnamon, bay leaves, nutmeg, cassia and mace etc.). Other commonly used spices are mustard seeds (esp. black), caraway seeds, cumin seeds, coriander (fresh, seeds and powder), fennel seeds, fenugreek seeds, poppy seeds – a long list. In Mughal cuisine almonds cashewnuts, raisins/dates or other dried fruits are often used, while grated dried or fresh coconut, sesame and peanuts as well as jaggery are typical for the Andhra/Telangana cuisine. However, nowadays they are common ingredients in all cuisines (veg and non-veg, sweet and savory dishes). Most of the nuts are used as gravy-base or in order to add particular flavors or sweetness to the food items. Sugar is highly present in the vast varieties of sweets, mostly in combination with milk and nuts or dried fruits. Pulses as well as millet flours and wheat flours are also a basic ingredient of sweets.

Recipes also do not require a particular kind of oil. The oils most commonly used include sunflower and groundnut oil as well as palm oil. Mustard oil, soybean oil, coconut oil, sesame oil and rice bran oil are other varieties in use. Among upper classes it is fashionable to use olive oil, which is usually imported from Spain or Italy (see p.45). In accordance to B. Rao (AP OilFed, Interview details see above) palm oil is the cheapest oil and the one mostly used among Hyderabadis. However, among middle classes sunflower and peanut oil are as present. Some households also rotate their oils for health reasons.

Trading in Hyderabad

The major trading hubs for rice, which is mainly produced in A.P., are located around the rice mills, south of the Musi River and the city centre. In Falaknuma around 35 wholesale and up to 40 retail shops can be found, the Malakpet Grain and Seed market accomodates 43 wholesale/retail shops in total. In the market area of Begum Bazaar, north of the Musi River, 245 wholesalers (usually also sell retail amounts) exist, who deal in all sorts of staples. In Mir Alam Mandi, south of Musi River, 23 shops trade in staples, while the 17 shops in the Grain bazaar Darmasala in Secunderabad, close to Monda Market provide the northern part of the city with staple foods. Also, the 4 mills in Kharmanghat (southern outskirts of Hyderabad) are surrounded by another 20 wholesale shops (see figure 4). Most rice mills (35 in number), however, are located in Ibrahimpatnam, which is located 30 km south-east of Hyderabad and a main reloading and trading spot.

Besides the larger market spots, all over Hyderabad supermarkets, kirana shops and specialized wholesale shops for grains and pulses are scattered. Most of them also sell traditional millets or flours, wheat products, pulses, spices and packed oils. Some people prefer to buy unprocessed grains and give them for milling to neighboring shops or private households who owe small-scale mills or large grinders and charge a few Rupees only (e.g. to prepare idli or dossa dough). The subsidized rations are available from around 975 fair price shops, which serve each 700-800 card holders and are usually located in low-income areas.

Figure 4: Rice Processing at Kaveri rice mill

The major pulse market in Hyderabad is located in the heart of the city, north of Old city and the Musi River in Muktier Gunj. 300 t per day alone are going through the market, but not only into Hyderabad's households. Around 120 wholesale shops are trading in all sorts of pulses and basmati rice varieties. Next door, in Maharaj Gunj, is a major retail market for onions, garlic, chilies, turmeric and tamarind, run by one of the Agricultural market committees, where 112 wholesalers and 156 vendors trade in spices. Other retail hubs correlate with those of rice: Begum Bazaar, the area around Mir Alaam Mandi and Falaknuma as well as Malakpet and Monda Market. Malakpet's grain and seed market is not only a major hub for rice, but also for red chilies, garlic/onions and turmeric as well as tamarind. Besides that, there is no separate market for spices (including the processed powders etc.) to be found in Hyderabad. Major oil mills can be found in Shamshabad and along the Road towards Hyderabad as well as along the Falaknuma Road south of Hyderabad.

Trading process

Prices for staples are based on MSP (see p.59), hence, tenders take place, where farmers and brokers trade their products, mostly under surveillance of mandal/marketing officers. At the time of the interview the price for good quality paddy was, for example, around 9,50 to 9,70 Rupees per kg and sold at 20 to 22 Rupees per kg at the mill (later 34/kg in the market). In contrast to prices for other staples, Basmati prices highly depend on brand and international market prices. One trader comments on the current food price hikes and margins that

> "in the last three years the benefits went to intermediaries and farmers, we millers and traders only made one to two percent margin, because of high competition and because all customers (retailers) want to buy on credit, all people want to buy on credit" (Kishan Gunj: Trader in pulses and grains: R. Malpani, Malpani & company, interviewed 24.3.09).

After the auctions brokers (or wholesalers) sell the raw material to the mills (grains, pulses, spices), from where wholesalers, hotels, supermarkets and consumers purchase in accordance to their needs. However, most of the trade again is going through commission agents who present quality samples to the shops. One vendor states that "it is convenient; agents roam around in the fields to discover the best quality and then sell the products" (Siddiq Traders Falaknuma, interviewed 11.5.09). It shows that traders appreciate the existence of intermediaries. Between wholesalers, there is also trade happening. Shops in Falaknuma, for example, buy Basmati rice from Kishan Gunj and Begum Bazaar and resell it.

A medium wholesale shop sells 20-30 quintals of staples per day and if storage space allows, traders might store another 400-500 quintals. Spices that need to be processed (chilies for powder, turmeric, etc.) and oilseeds are also brought by commission agents and sold to the mills. There they get processed and are then sold to retailers directly or through agents. Usually businesses process several varieties of the same item (dals or spices or oilseeds). Items such as garlic or onions directly go to the markets for grading through commission agents and are sold to retailers and individual customers. Oil, in contrast, is sold packaged by staple shops or open/packaged by specialized oil shops, which fill tins or plastic containers with demanded amounts.

The staples usually are transported to the mills by road, because the railway is perceived as too expensive. One of the major entry points to Hyderabad is LB Nagar (NH 9, entering Hyderabad from the south-eastern side). Depending on the area, deliveries of Lorries or small trucks arrive all day long. In Falaknuma, the access for trucks is not restricted, compared to highly congested areas in the heart of the city, where trucks are only allowed to enter during night time. Hence, in Falaknuma deliveries take place during shop opening hours from 8am to 8 pm, whereas in Kishan Gunj most deliveries are supplied by smaller Eicher or three-wheeler trucks, because the roads are very narrow.

Origin of products

Andhra Pradesh is very rich in staple foods. Only a few items are imported from other states. Medium amounts of toovar dal, redgram and greengram dal are imported from Maharashtra and Gujarat and almost all Basmati rice, which is sold in the market, comes from Gujarat and Punjab. Only 10 percent originates in the south and comes from Nashik in Maharashtra, which is 700 km from Hyderabad. Additionally, most wheat is imported from Rajasthan and Punjab (see map p.29).

Pulses are commonly produced in large amounts in A.P: R.R-District, Mahabubnagar, Kurnool, Medak, East and West Godavari, Prakasam and Guntur all are major supply areas of pulses to Hyderabad. Rice mainly comes from Kurnool, Mahbubnagar, and Guntur, from the rice bowl of A.P.: East and West Godavari, as well as from Krishna, Nalgonda and Warangal. Sona Masuri is particularly brought from Kurnool, Warangal, the Godavari Districts and Nellore. In contrast millets are delivered from Karimnagar, Medak, Mahbubnagar, Kurnool and Visakhapatnam. Small amounts of wheat also are produced in Medak and Ranga Reddy district and supplied to Hyderabad. The Deccan region is famous for gram, black gram, green gram and horsegram dals, millets, sorghum and cowpea. Furthermore, Kurnool is a major supplier of sunflower oilseeds. Other states include Ananthapur, Kadapa, Mahbubnagar, Prakasam and Nizamabad. Groundnuts are particularly brought from Kadapa, Ananthapur, Srikakulam, Warangal and Nalgonda, while Sesamum is mostly delivered from Prakasam. Soybeans come from Adilabad and Nizamabad and coconut and palmoilseeds from East/West Godavari, while Rape and Mustard oilseeds mostly come from Kurnool. Dried fruits as well as cashewnuts and other nuts are coming from coastal areas (Srikakulam, Vizianagaram, Visakhapatnam, East and West Godavari and also from Khammam), while major sugarcane suppliers to Hyderabad are Medak, Nizamabad, Chittoor and the coastal districts East and West Godavari as well as Visakhapatnam. The sugar industry in Andhra Pradesh has seen a major shift from a system of cooperatives towards a private industry (cooperative contribution in India 45%). The organized sector handles refined sugar production, while the unorganized sector rather concentrates on raw sugar preparations such as jaggery and khandsari (cottage sugar). In 2010 there were major conflicts between the farmer community and the sugar industry, because of a low MSP and unremunerative market prices.

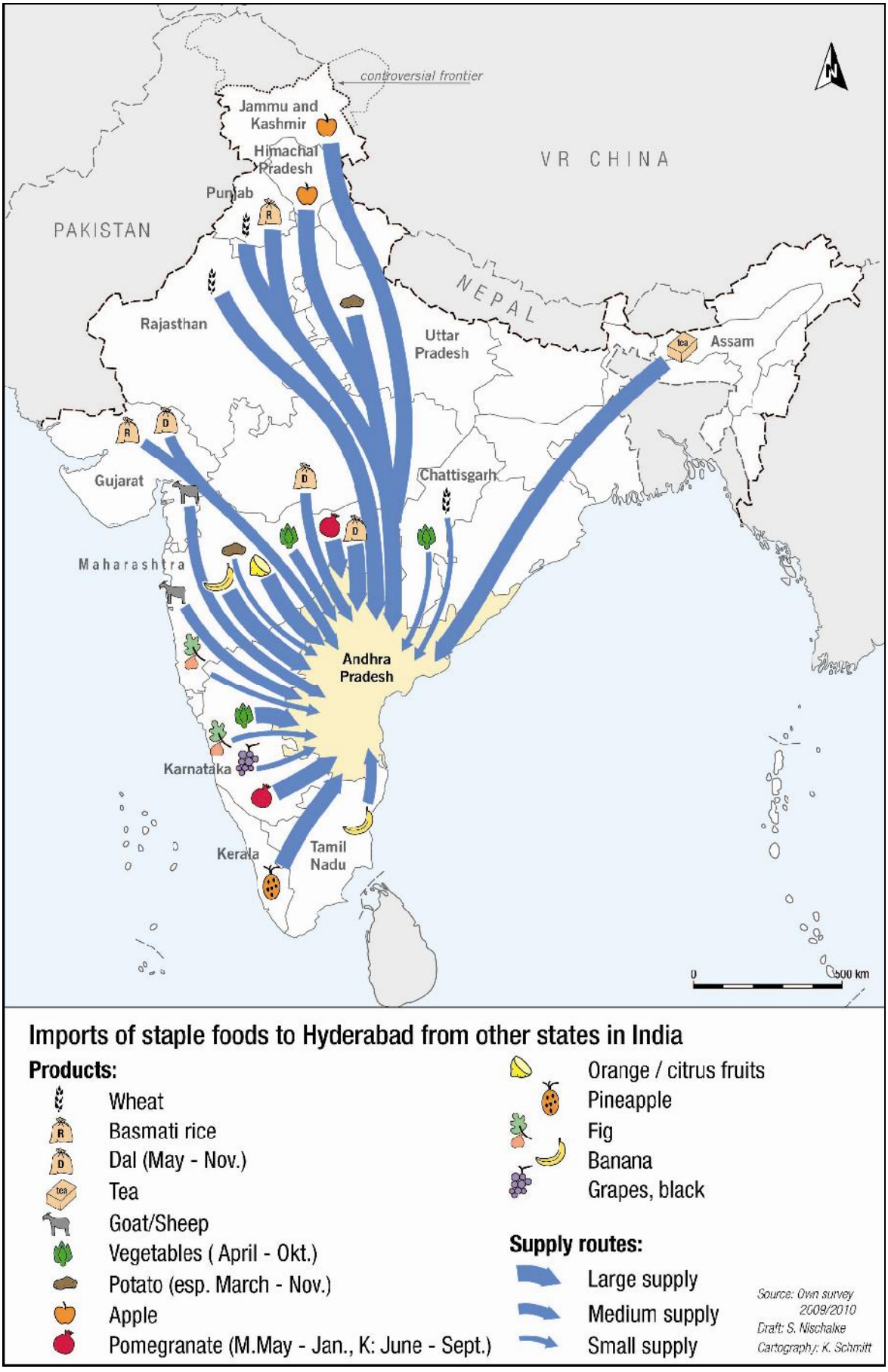


Figure 5: Imports of staple foods to Hyderabad from other states in India

PDS scheme: Consumption, trading process and Origin of products

The PDS-System supplies 16-20 kg of common rice, 7 kg of wheat, 1 l of oil and 1 kg of sugar as rations to households (at the time of the interview, it also included 1 kg toovar dal). So far, no adaptations to cultural changes have been undertaken and amounts only have been adapted to a limited extent. The diversification of the PDS system or a shift towards better quality rice does not seem to be an option. "PDS is only a supplementing scheme and therefore not able to provide food amounts to fulfill the nutritional requirements for all the poor. 30 kg of rice per family per month should be enough. Hence, they supply 20 [in reality often 16, and families are also bigger than considered]" (L. Kumar, Rationing officer).

There are 9 circle offices in Hyderabad (CROs) that supply the ration shops with 11.000 t of rice and 600 to 700 t of wheat per month. AP Oilfed contributes to the supply of oil, however most of it is imported palm oil from Indonesia and Malaysia (700 t) in order to offset rising prices. At the time of the interview, pulses (toovar dal) were temporarily distributed through Fair Price Shops and imported from Burma. The ration of one kg sugar per household, which is usually not met (only 10%) is supplied by the state's sugar cooperatives. While wheat is imported from Punjab and transported by train to the buffer depot in Sanath Nagar in the north-west of Hyderabad (see map p.39), most of the rice comes from Andhra Pradesh. Large amounts of rice are bought on the open market (from East Godavari, Nalgonda, Nizamabad, Medak etc.), however, all mills also have to contribute 25 percent of their processed material to FCI stocks (levies). Stocks are only meant to remain stored inside the depot for 3 months. There are 20 storage houses, which each provide space for 5000 t Grade A and common rice as well as wheat. However, because of high wheat surpluses, space is scarce and large amounts are stored outside under plastic covers, where chemicals are applied to repel insects.

2.3 Fruits and vegetables[5]

Consumption patterns

Whereas food expenditure used to concentrate around basic items such as food grains, vegetable oils and sugar (see p.15), now more and more fruits and vegetables are consumed in urban households. While vegetables are a main ingredient in a Hyderabadi meal (e.g.

[5] Information obtained commission agents, traders, small scale vendors, supermarkets. Mir Alam Mandi assoc. Agricultural Market Committee, Gaddiannaram Director of Marketing, K.R.S. Reddy on 16.9.10 and Agricultural Market Committee Bowenpally Selection Grade Secretary S.K. Vali on 11.05.2009, Mir Alam Mandi Market Association A.M. Mir 24.3.10 as well as interviews with commission agents, traders, small-scale vendors (esp. Monda Market, Malkajgiri weekly bazaar and Mir Alam Mandi) and supermarkets (2009/10).

tomatoes, onions, potatoes, green leafy vegetables, drumstick, bottle gourd, eggplant etc.), many types of fruits are still considered luxurious. A major influence of the Mughal cuisine is the usage of dried fruits, which are also commonly consumed as snack by the Muslim community. While dates and apricots are usually imported from Middle Eastern countries, raisins, figs as well as nuts are grown in AP. Dried fruits are usually used in non-veg curries, vegetarian dishes and desserts, fresh fruits are rather consumed as juices or as a snack between the meals (also commonly for Hindu fasting days). Lemon or pomegranates are also used to add the typical sour flavor to food preparations.

There is a large variety of fruits available in Hyderabad, of which most of them can be purchased all year round. During off-season fruits often travel longer distances and are sold at higher prices. Lemon, Bananas, Figs, Guavas, Kinu, Sweet lime, Watermelon, Sapota, Pineapple, Papaya and Oranges are available from January to December, while muskmelon (Aug-Feb), black grapes (Dec-April), white grapes (Mar-Jul) and Pomegranates (Mar-May) are costlier and harder to find during off-season. During Mango and Custard Apple season (Apr-Jun/Jul and Sep-Nov), in contrast, the markets are flooded by cheap and good quality products, whereas they are not to be found during off-season (see Food and Health Guide for Indian Middle Classes, Nischalke 2010:8f).

In contrast, leafy vegetables (spinach, fenugreek leaves, amaranth leaves etc.) are the cheapest vegetables in the market and always available. They are prepared as separate vegetable dishes (side dish to curry, dal and rice) or added into dals and curries. Some of them also are used as spice (Dill leaves, coriander leaves, etc.). Besides the green leaves, the four most important vegetables in Hyderabad's kitchens are tomatoes, onions, eggplants and ladyfingers. The former two are used in most vegetable dishes or also non-veg gravies. Onions are a major ingredient for chutneys, gravies, pickles or certain snack item doughs or fillings. However, there is a large variety of vegetables in use. Drumstick and bottle gourd often are added into samba, the dal-based soup, which usually accompanies idlis. Cauliflower, capsicum, different kinds of gourds (bitter, snake or ridge gourd etc.), different pumpkin varieties and potatoes, are all used in curry or fried preparations. Other varieties such as carrots or beans are often used in noodles, fried rice dishes, biryanis or mixed vegetable dishes. In addition, vegetables such as courgettes, broccoli, green salads, red and Chinese cabbage or mushrooms, which usually need cooler climates and are highly perishable, are slowly entering affluent kitchens. Salad consumption still is low, however, many restaurants serve a plate of raw vegetables

called “green salad”, which includes radish, carrot, cucumber, tomato and onions. Prices of vegetables have risen to an extent that people changed certain recipes or frequencies in their diets.

Trading in Hyderabad

The farmers deliver their products to collection points of supermarkets in the districts, to the wholesale markets in Hyderabad or directly to retail markets, of which Kothapet is the major wholesale market for fruits at NH 9, south-east of the Hussain Sagar Lake and accommodates 243 registered commission agents. In the Gudimalkapur vegetable wholesale market, which is located close to Mehdipatnam, south-west of the lake, 90 wholesalers and 300 vendors trade in vegetables. However, the largest market for vegetable wholesale is Bowenpally market in Secunderabad, where between 130-160 commission agents do business. A major retail market for fruits is the Jam Bagh market (65 vendors), for vegetables the Mir Alam Mandi, close to Old city (62 wholesalers/150-200 vendors) and Monda market in Secunderabad (668 vegetable vendors and 37 fruit vendors) (see map p.39). Farmers also sell directly on one of the 7 Rythu Bazaars (or arrange for relatives to do that), which were set up in 1999 in order to support farmers, eliminate intermediaries and promote direct-marketing (see map p.39 for locations and Nischalke/Surepally 2009 for details) (see also case study 2).

Case Study 2: Vegetable vendor at Falaknuma Rhytu bazaar

Cucumbers, cabbage, carrot and beetroot are piled up in 4 piles of half a meter on some old rice bags. Behind them, a woman with a colorful saree is sitting and calling out prices for her products. Since 5 years the housewife with 3 daughters (age 15, 11 and 9) and 1 son (10) is selling vegetables in the Rythu Bazaar. Her slot is allotted to her as part of the Self-Help-Group Scheme for empowerment.

From 10 am to 8:30 pm in the night she is selling the products in the farmers market every day. Evening hours are peak hours and she is the only one running the business. Afterwards she still has to cook for the children and do the household work.

Her supplies are ordered and delivered from Bowenpally wholesale market, whenever she needs new stocks (every 2-4 days). As she is not a farmer, she can only sell the products allotted to her. Regarding the crisis she states that “Scarcity of rain has reduced the harvests, so I have to pay higher rates for vegetables and I only earn around 200 Rupees per day; on Sundays more. Usually I buy products from 3500-5000 Rupees, but it is very hard. ”
Her husband used to work in a factory, but remains rather vague after being asked for details. Another vendor explains later that he recently lost his job, which makes it very difficult to make ends meet, especially with four children going to school. “Private schools we can not afford, because fees are too high. Luckily, the number of customers is still the same, but they all watch carefully how much they spend and I can not blame them, because I also have to do that all the time” (Interview 17.3.10, Falaknuma Rythu Bazaar).

Box 6: Case study 2: Rythu Bazaar

Vendors and traders from Hyderabad and surrounding districts visit the wholesale markets to stock up their supplies, shops, carts, stalls, baskets etc. Some have stationary shops or bandis (carts), others sell in daily markets (for example, the Golnaka market in Tilak Nagar with 57 stalls)[6] or move their stall from weekly market to weekly market, which takes place on certain days all over the city (for example the Thursday market in Secunderabad, Malkajgiri with 192 vendors)[7]. Mobile vendors walk around with baskets on their heads (see case study 6, p.54) or push their carts (bandis) loaded with vegetables or fruits frequent the streets. The smaller vendors often buy in one of the retail markets, close to where they live or sell, because they can not take wholesale amounts (usually starting from 10kg per item). In most vegetables the profit margin ranges from two to four Rupees per kg. While small vendors of fruits and vegetables were hit by higher prices, because customers reduced their purchases and were not willing to pay that much more, most wholesalers in vegetables reported that they did not have to face any losses or even made some profits out of it.

Supermarkets such as Subhiksha, Reliance Fresh, Big Bazaar, Food World or Metro buy from wholesale markets (especially Bowenpally), but they also have their own arrangements and other sources. Exotic vegetables are bought from farmers who have discovered the niche market and try to earn a premium with those products. The items are usually to be found in the *exotic vegetable and fruits shelves* in the supermarkets along with other imported varieties (Avocado, some Thai vegetables etc.).

Figure 6: Morning Auctions, Bowenpally wholesale market

Trading process

Often farmers jointly come to the market in order to deliver or sell bulk amounts of 4-5 t of their products. Market auctions are conducted by commission agents during morning hours (see figure 6). In Bowenpally they start from 6am and prices are used as reference point for Rythu bazaars and markets all over A.P. (published on: http://market.ap.nic.in/). After weighting has taken place, the transaction is recorded and payment given to the farmers. During the day large 12 t- lorries arrive in Bowenpally market, after having travelled for 3-4

[6] 24.11.09
[7] 26.11.09

days from Agra/UP (1400 km) or Nasik/Maharashtra (650km) to transport potatoes as well as vegetables to the market. Products that are coming from other states or far distances are usually prearranged and prices have been agreed on beforehand. Officially, agents receive four percent commission, unofficially it comes down to at least 10 percent. The customers (vendors, traders, agents) usually buy the bulk amounts and hire a three wheeler truck, totally overload it and transport their goods to their location.

In the beginning of 2009 price hikes of vegetables lead to one government intervention in Bowenpally. Tomatoes were bought from certain markets (Adilabad, Ananthapur, Kurnool) and sold in Bowenpally at reasonable rates: 18 Rupees per kg instead of 40 Rupees per kg in the open market. The price crisis is mostly attributed to shortages (climate phenomena) and the rising real estate business (interviews with wholesalers/retailers 2009).

Around Hyderabad and across A.P. most supermarkets have collection points where farmers hand over their produce. It gets weighted there and fixed prices are paid in accordance to major wholesale market prices such as Bowenpally. Reliance Fresh, for example, has one out of six major collection centers, which is specialized in gourd varieties only. Those six centers supply Reliance with around 80 percent of their vegetables. Grading is done at the centers and afterwards products are transported by trucks to Central Processing Centers (e.g. in Medchal).

CONTRACTFARMING

The term C. means that production of agricultural goods is met in accordance to an agreement between farmer and purchaser. Usually the quantity, quality and a certain schedule is agreed on beforehand. In return the buyer is committed to buy that amount at a fixed price. In some cases purchasers might provide transport, inputs or technical assistance (see Indian Food Report 2010). The major problem is that large commercial buyers are tempted to use the farmers' dependency to their financial benefit (e.g. changing standards, or price due to down-grading) (Singh 2006). What should also be prevented is that corporates buy land and let people lease it out for cultivation. Eliminating middle men also means more power on the purchasers who might influence product lines, crop varieties and standards (fostering land degradation and diminishing of biodiversity). Furthermore, land might be diverted to grow crops which are used in food processing industries only (also exports). Such a trend again controversially affects food security: "contract-farming, in political economy, is one mode of capitalist penetration of agriculture for capital accumulation and exploitation of the farming sector by the agribusiness companies" (Singh 2006 in Financial Express 2006). Institutional arrangements are needed to protect farmers and prevent further exploitation by commercial interests (low risks and costs, relying on unpaid family labour in small-scale operations). However, trading in fresh products that are not meant to go into food processing around Hyderabad is still based on marketing contracts rather than contract-farming. Nevertheless, Rangarajan (2006) shows that in other (rural) areas contract farming has become common practice. The article shows that regions that are strategically located for production and well connected are especially attractive to contract farming. In poultry farming oil palm production and export crops it is already the norm. Large corporations such as PepsiCo, Reliance Life sciences, Mc Donalds and ITC have started contract-farming or are in process of setting up an integrated value chain in India.

Box 7: Contractfarming

After dispatching they are delivered to the outlets in the city. Some marketing contracts between farmers and commission agents or supermarkets exist (Kun 2007:34). The Indian Food Report 2010 (Taneja 2010) cites a study of Jilin Henan Hog industry, showing that over 30 percent of farming contracts are still oral and most others signed by individual farmers.

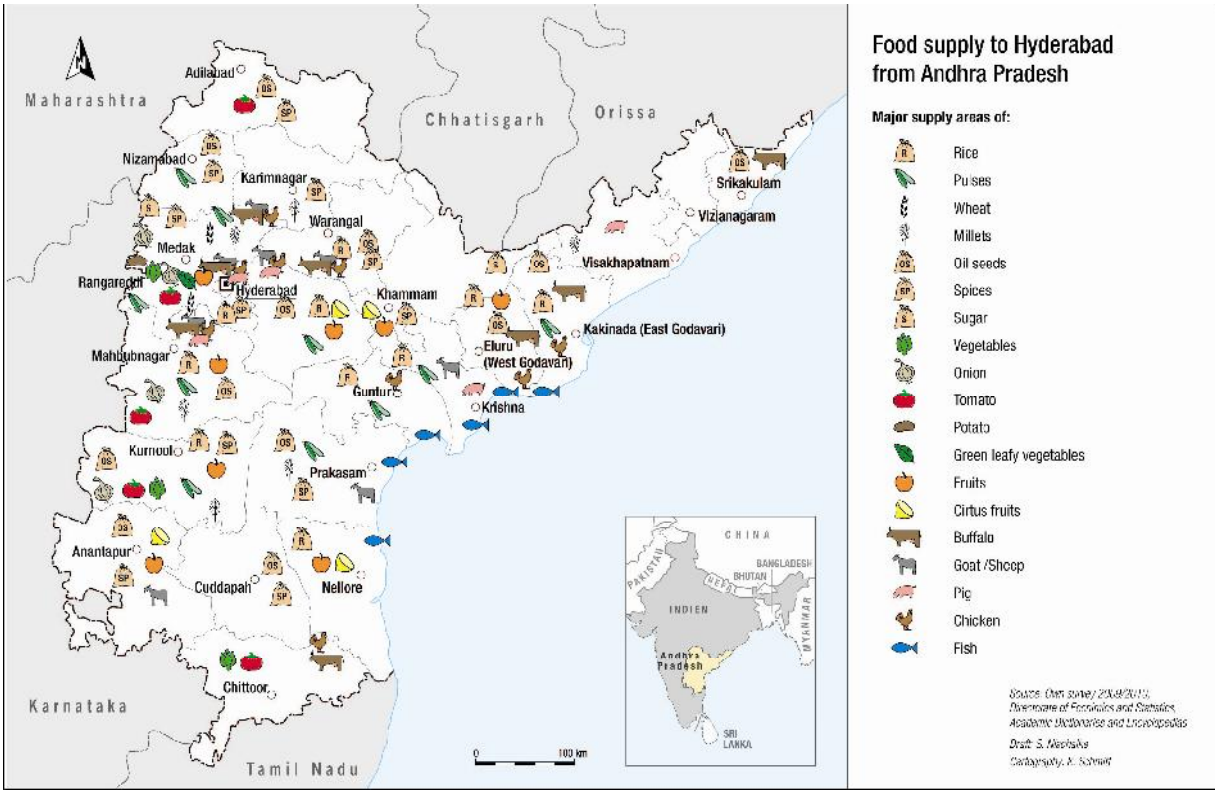


Figure 7: Food supply to Hyderabad from Andhra Pradesh

Origin of products

A.P. is one of the leading states in fruit production and almost all varieties that are available in the market are produced there. However, the demand for (and prestige of) imported fruits is ascending among affluent households. Washington apples, plums and pears are imported from US, while most apples in the open markets come from northern India (see figure 7). Pineapples are all imported from Kerala and large quantities of pomegranates, oranges and figs come from Maharashtra. In contrast, Hyderabad is the reloading place for export of mangos (80% of production), grapes (40%) and sweet limes (80%). However, of the 1521691 quintals of fruits going through the market per year, around 30 percent are estimated to go into local

Figure 8: Packing for export, Kothapet market

consumption. Many other fruits are delivered from districts within the state of AP all year round. Hyderabad's fruits mainly come from southern and western A.P.: Medak, Khammam and Nalgonda, Mahbubnagar, Kurnool, Nellore and Ananthapur. Citrus fruits originate in Khammam, Nalgonda and the southern States of Nellore and Ananthapur. Small amounts of jackfruit, bher and nashpati are also imported from India's north.

Regarding vegetables, there are many varieties, of which most of them are produced in A.P. itself. During season (Nov-March) 75 percent comes from surrounding areas of Hyderabad (50-100 km distance). The only vegetable that is imported from very large distances within India is potato (see map, p.29), which mainly comes from Agra/UP and small amounts from Maharashtra), because the climate is not suitable for production in A.P. All in all, the vegetable season in Andhra lasts from November to March. During the other months most varieties are imported from Karnataka, Maharashtra or other states. While many vegetables and green leafy vegetables come from Ranga Reddy District and other surrounding districts of Hyderabad, two other major suppliers are the southern states of A.P., which are huge agricultural producers: Chittoor and Kurnool. During the season vegetables come from many different areas mainly surrounding Hyderabad. Chevella Mandal in R.R.-District 40 km from Hyderabad, for example, supplies all sorts of vegetables, particularly carrots, eggplants, cluster beans and ladyfingers. Other major production areas in R.R.-District are Shankarpalli, Aliabad, Aloor or Vikarabad, which produce eggplants, tomatoes, onions, carrots etc., while Thumkunta (Shameerpet) is famous for gourds such as snake gourd, bottle gourd or also capsicum. From Medak district (Zahirabad, Sadasivpet, Siddipet, Tupran and Narsampalli) also large amounts of vegetables are delivered to Hyderabad within less than 100 km distance. Mahbubnagar is another large supplier of vegetables to Hyderabad. In the off-season two major supplying region can be found in Chikkaballapur and Madanapalli in Karnataka (500-600 km from Hyderabad), Chittoor, A.P. (500km) and Nasik as well as Solapur in Maharashtra (300 km from Hyderabad), which all are famous for supplying capsicum or tomatoes during the whole year.

2.4 Dairy products[8]

Consumption

Milk is not only a very important product in preparing typical Indian milk tea (chai), but also to prepare yoghurt (dahi) or sweets and deserts. Other milk products that are used are buttermilk as refreshment or added into dough for breads or curry gravies (yoghurt as well). Khowa (Indian ricotta-style cheese, especially common among Muslims) and paneer (Indian cottage cheese), which is often used for (northern Indian) curries are also widely used. Yoghurt is often home-made and traditionally served to finish off the meal in form of curd-rice. Sweets are served for special occasions and festivals. They are either home-made or bought from sweet shops scattered all over Hyderabad. The young generation (affluent) also relishes in breakfast cereals, which are commonly eaten with milk or yoghurt. Traditional ice-creams (e.g. Kulfi) or western-style ice-creams are sold from street stalls as well as served in fancy ice-cream shops or restaurants. Often the milk is also mixed (buffalo/cow) and some people even prefer the fresh buffalo milk, which is more expensive than cow milk (35 Rs./l vs. 26Rs./l), but still widely available in Hyderabad; mostly in rather older residential areas. People buy unprocessed fresh milk from their neighborhoods, boil it and consume it, prepare yoghurt or use it for cooking.

Figure 9: Buffalo farming in the heart of the city, TN

Trading process

In India 67 percent of dairy animals are owned by small-scale farmers, therefore, 80 percent of the business is handled by the unorganized sector through cooperatives who also fix procurement and consumer prices (retailer margins 10-25%). Packaged milk distribution is highly decentralized within the city: The large dairy plants get the milk delivered by trucks from collection centers. At the plant it gets pasteurized, homogenized, processed and packed, before it goes into small plastic boxes on trucks and gets distributed to branded outlets or the decentralized mobile stalls who sell milk out of the boxes on the roadside during morning hours (Creamline Dairy Products Ltd. for example, has 800 outlets in the twin cities alone). Afterwards the trucks collect the boxes and return them to the plants. Remaining packages are

[8] Interview Assistant Officer K. Bharati, A.P. Dairy Development plant, Lalapet, 30.3.09 as well as interviews with vendors/consumers in 2009/10.

given to nearby shops to sell them off. Besides the (mostly branded) dairy shops, kiranas and small and large supermarkets also sell milk and milk products. Furthermore, there is a considerable amount of buffalo farming to be found in the middle of the city (see figure 9). In many areas, mobile street vendors from peri-urban regions as well as the city buffalo stables sell the milk at the door-step from large milk cans.

The Andhra Pradesh Development Cooperative Federation Ltd (brand: Vijaya), one of the major suppliers of milk products to Hyderabad, is based on a cooperative structure. Farmers deliver their milk of 10-50 l to collection points (Bulk Milk Cooling Unit), afterwards a bulk of 500-600 l is transported by tankers to one of 21 Milk Cooling Centers (MCC) in A.P., before it is delivered to the plant. There it is going through pasteurization (Ultra High Temperature for a shelf life of several months' and High Temperature for two-three weeks of refrigeration) and homogenization (thickening the milk). Afterwards standardization takes place and six variants of milk are ready for packing: whole milk, toned milk, double toned milk, skimmed milk, standardized milk and tetra pack milk, of which toned milk is the one mostly sold in shops and on streets (3.5-4 lakh l per day compared to 2 lakh l double toned milk and 1-1.5 lakh l of the other types). After having gone through separate tanks, the milk is immediately packed and loaded on to Lorries for distribution. Milk is also processed into khowa, butter, ghee, flavored milk, tetra pack milk, milk powder (particularly used in rural areas) and ice cream (only sold through franchise systems). The packing usually starts at 6.30-7.00 to 9.30-10.00, afterwards dispatching lasts till 1.30-2 pm.

Trading in Hyderabad

At the time of research, there were five major dairy plants to be found in Hyderabad (see figure 10). In the north-west, inside the IDA Cherlapalli, the premises of Wonder Dairy are located. Behind the Tarnaka crossing the biggest plant in the city, the AP. Dairy Development Corporation, can be found, while Heritage Foods (before Indiana Dairy Specialties) and Jersey Milk are located north of the Musi River, close to Laxminarayana Colony. And Mother Dairy is located at the eastern part of the City, close to CRIDA and National Highway 9. In processed dairy products only 24 percent come from the unorganized sector, mostly in form of sweets, ghee and yoghurt. Only very few premium products are imported such as parmesan, blue cheese and soft cheeses (see p.45).

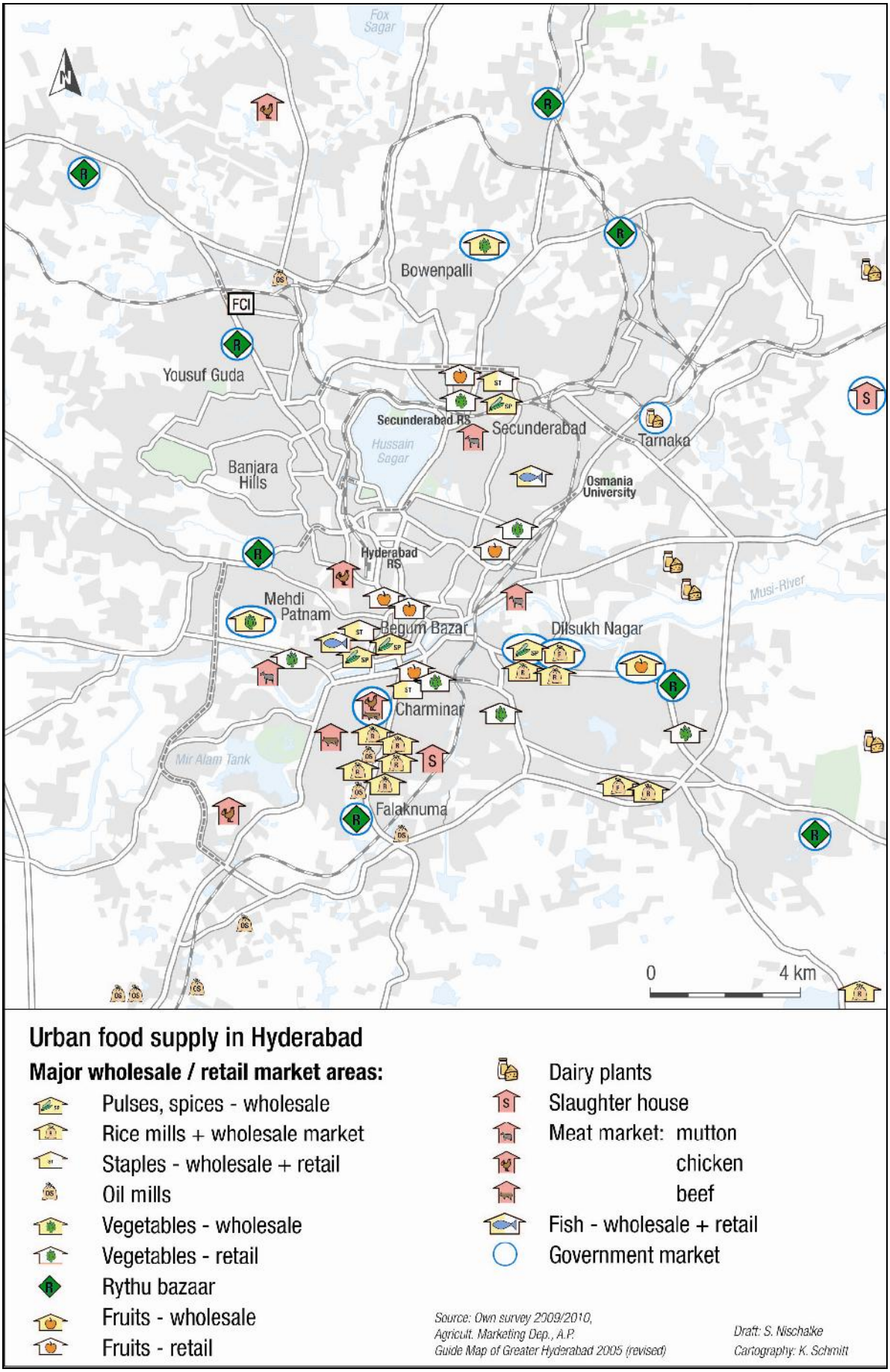


Figure 10: Urban food supply in Hyderabad

2.5 Meat, chicken and fish[9]

Consumption

Because of the long Muslim rule in Hyderabad, meat is a common ingredient in many kitchens in the city. Only in orthodox families (especially Brahmins) strict vegetarianism is still followed. Also, economic reasons prevent urban poor from eating meat and new health trends have transformed some affluent people into vegetarians. Among Hindu families mostly chicken and mutton (called meat and usually means goat or sheep), is eaten as well as fish and seafood. The average family eats non-veg on Sundays (mostly ½ -1 kg per family) and the ones who can afford it or have a special taste for it, two to three times a week. In contrast, pig meat is hardly found and mostly eaten by the military (some pockets in Secunderabad/High-Tech City). It is perceived as impure, because it is an omnivore). Beef is usually not eaten by Hindus, but very common among Muslim families (even though, in mixed communities some people avoid it out of respect for their neighbors). Some Brahmin families only eat meat outside their homes and especially among the younger generations it is considered modern and fashionable, so that some youngsters also eat it in secrecy. This is particularly common among people who have lived abroad. Frozen meat still is a rarity and only available in large supermarkets. Especially non-veg items need to be fresh and pure in accordance to principles in Indian cuisine and are, therefore, usually bought at small meat shops or fish stalls on the day of consumption. A small minority feels that it is more hygienic to consume frozen and packaged products.

Often boneless mutton or pieces of chicken are used for curries or other traditional preparations such as kebabs, keema (minced lamb), biryani, haleem (mostly consumed during Ramadan made of meat, wheat, ghee and cooked to a porridge-like consistency) etc. Shorwa, a soup made of lamb bones and meat, liver or other digestive organs (used in curries, pickles or fried dishes) as well as goat head are all considered delicacies and healthy. Dried fish as well as fresh fish (fresh and salt water) are increasingly used in curries or fried preparations. Other seafood is also gaining ground in Hyderabad, however, some housewives complained about the time and effort as well as the smell. Consumption of chicken, but also fish goes down during the monsoon months, because of high temperatures and fear of diseases. Country

[9] Information received from Andhra Pradesh Sheep & Goat Development, interview with Managing Director D. Venkateswarlu conducted 1.10.10, Interview Directorate of Animal Husbandry, Technical Assistant Mr. Cheri 1.10.10, AP Fisheries Department S. Ruhama 1.10.10, Gangaputhra Sangham Fish market Association, President A.L. Mallaiah 13.4.09, Market visits to Yiaguda + slaughterhouse 31.3.09, Mahboob Chowk, Old City Market 24.3.10, Bazaarghat Chicken market 25.3.10 as well as interviews with butchers/slaugherhouses/meat shops and vendors/consumers (2009/10).

chicken (vs. broiler chicken), are classified as organic by consumers, and considered healthy and tasty. Therefore, some people do prefer them to broiler chicken, even though they are more expensive (up to 1200-1500 Rupees).

Trading in Hyderabad

Figure 11: Small-scale butcher, TN

Meat shops, selling chicken and mutton, are scattered all over the city, while beef meat shops are much more present in the southern part of the City/Old city and pig meat is mainly available in Secunderabad (military premises). There is a large number of poultry farms, which just recently have come up in the outskirts of Hyderabad. The poultries deliver live chicken or the meat directly to their shops. Many brands run their own poultries also (e.g. Mayuri chicken, Sneeha chicken etc.). Furthermore, two large chicken markets are located in the Old City area, close to Charminar: Mahaboob Chowk market comprises of 22 shops, of which each sells 200-300 animals per day; on Sunday sometimes 500. The second market is located close to the Nampally railway station in Bazaarghat and has more than a dozen shops, which also sell around 2000-3000 animals per day. However, chicken vending is highly decentralized and many streets are lined with chicken shops, selling meat cuts or live chicken. Live chicken cost around 70 Rupees per kg, chicken cuts with skin around 80 Rs. and without skin around 90 Rupees per kg. (eggs 3 Rs.). Besides chicken, which is the most commonly used meat in Hyderabad, also turkeys or geese are consumed rarely. Two other large poultries are located in the north and south of Mir Alam Tank (see figure 10), but those are just two among many.

Mutton can be bought in many small meat shops across the city or in one of the five slaughter houses in Hyderabad (see map p.39), which are mainly located south of the lake, around Old city. Mutton is more expensive than chicken at 250 Rs./kg with bones and 300 Rs./kg without bones, while a whole animal costs between 1200-2500 Rupees. The less costlier option are digestive tracts/brains, which cost between 50 and 80 Rs./kg and the head at 100 Rupees. Compared to mutton, beef is relatively cheap at 120/kg (alive animals cost between 6000 and 10.000). A small beef shop (e.g. Mahaboob Chowk) contributes 20-40 kg to the 30.000 kg that are the estimated daily consumption in Hyderabad. The shops order meat cuts from Chengicherla and get it delivered through agents.

Of the five slaughterhouses, Yiaguda (south of Mehdipatnam) as well as Gowlipura only handle sheep and goats, New Boiguda and Amberpet process sheep/goats and cattle and Ramnasthpura only deals with cattle. However, all five slaughter houses have been declared illegal in 2003 and triggered the construction of the large-scale slaughter house on the outskirts towards the east of Hyderabad: Chengicherla. There 2000 sheep/goats and 500 buffaloes are slaughtered per day, while the illegal slaughterhouses still contribute 4000-5000 sheep/goats and 1000 buffaloes to Hyderabad's consumption per day.

Complaints about pollution (waste, air) from surrounding residential areas caused the shutting down of the slaughterhouses. The slaughtering took place in the open, mostly by hand. However, the inconvenient location of the newly constructed slaughter house was the reason, why traders and butchers did not comply with GHMC-decisions and continued their business at the five locations. Finally, the GHMC decided to modernize four out of the five slaughterhouses (see also The Hindu 2007). Officially, Yiaguda remains shut down, because it is located in the restricted zone of Osmansagar and Himayatsagar lakes, but the 50 commission agents there continue to trade up to 5000 animals per day. Around 1000 are sold to the premises of Al-Kabeer for export (see above). More and more supermarkets (Metro, Reliance etc.) enter the meat market, but purchase from traditional markets as well. Retailers, restaurants and supermarkets are the main customers though, who buy meat during market hours from 5 am to 12 pm. Some private people also breed goats and sheep in their backyard on a very small scale (25-30 animals).

The two hubs for buying fish in Hyderabad are Musheerabad and Begum Bazaar Fish Market, however, many small vendors or market spaces can be found around the city, selling fish/seafood. In the Musheerabad market, around 100 commission agents offer fish and seafood that has been purchased from fishermen or traders in coastal areas. All in all, the products, which are sold to retailers in the market between 6am and 12am, amount to 2400 t daily (6000 t on Sundays). Prices for fish and seafood range from 70-80 Rs./kg to 200-250 Rupees per kg, depending on variety. Dried fish only costs 15-17 Rupees for a decent pile (see case study 3).

Case Study 3: Sai Sagar Sea Foods

In the residential area of New MLA Quarters a colorful sign is pointing out the Sai Sagar Seafood Shop. At the front door a bill board is set up, displaying all prices of the different types of fish and prawns that are available today: One kg of tiger prawns costs 220 Rupees, White Pomphret is available at 280 Rupees per kg, while the Black one costs 260 Rupees. Pandu and Mullet cost 180 Rupees on that day. People might wonder, how it is possible that sea water fish is available in the middle of a megacity, from where it takes twelve hours by train to reach the sea.

K.B. 62, who is the owner of the shop, has opened it in June 2009 after the MLA Smt.G.K. Kuthuhalamma has encouraged the sale of seafood in this area due to its good health performance and initiated the set-up of his shop. Originally, he comes from Machillipatnam, a medium-sized provincial town, 70 km North of Vijyawada. His employee, B. (40) is born in Machillipatnam as well and after her husband left her, she spends her week working in Hyderabad (sometimes accompanied by her father, who also is a fisher) and only visits her home and family members on the weekends. She guts and scales fish and peels seafood for the customers and also cooks for people who order prepared dishes out of convenience (e.g. fish or prawn curries and fried preparations, crabs, etc.). Both of them live inside the shop, which has an attached bathroom and a small backyard, where dishes and fish are cleaned.

The best day for sales is Sunday, when 90 percent of seafood and fish is sold. A table and a few large plastic bowls and buckets, filled with ice, are set up at the main crossing at the Secretariat and, hence, the mobile seafood shop is run from there on Sunday mornings. Many regular customers as well as passers-by buy from the roadside stall. Unsold seafood is going back to the shop and sold during the week. Sometimes, if he is running out of stock, he also orders some fish through his business partners and friends from Machillipatnam. Customers from all social strata pass by in their cars, motorbike or by foot. However, fish is still expensive for the urban poor and only consumed on rare occasions. On his left a colleague from Machillipatnam is selling freshwater fish. At the roadside there is no time for cooking and fish and seafood are only sold raw, however B. and her father are busy peeling prawns and scaling fish for the customers. After a long morning, they go home to the shop to prepare some fish or seafood for their own lunch.

Every Friday night, both of them travel on the overnight train to Machilipatnam. Saturday morning K.B. goes into town and buys his stocks for the week from two to three different shops. All the seafood is packed into boxes made of foamed polystyrene, which are filled with ice and afterwards wrapped into jute bags and then transferred to the train station. At the same time B. is visiting her village and meets her family members. Her 16 year-old daughter just gave birth to a son and often complains that her mother is not staying with them. However, they need the money that she is earning in Hyderabad. Generally, it is frowned upon that a woman goes to Hyderabad alone for work during the week. In the evening they meet again at the train station and travel back to Hyderabad on Saturday night - together with their fish boxes (which are inside the luggage compartment). On the way back to Hyderabad they usually exit the train for 15 minutes in Vijaywada to meet K.B.'s daughter in the train station at 2 o'clock in the night (she is a government employee and lives there). After getting off in Hyderabad, a small three-wheeler truck is waiting for them and delivers the boxes to the shop. His son, who is an educated lawyer, is already expecting them and has prepared the buckets for the Sunday business. They usually have 400-500 customers per week. K.B. explains that "fish is becoming popular among Hyderabadis, except during rainy season, they are scared of infections."

In total they sell 150-160 kg per week (spending around 15.000 Rupees on products, including 1200 Rs. on transport and packing). After one year in business, the newest investment was a freezer, which he got on lease, so that the fish does not need to be stored inside the ice boxes anymore. Hence, one can slowly see businesses evolving and growing, making new investments to improve their services, maintain quality etc. (Interview 1.10.10 Sai Sagar Seafoods Shop, New MLA-Quarters).

Trading process

Usually big trucks deliver animals to the markets or shops, coming from poultries or areas where livestock breeding takes place. Those animals are usually traded alive and sold in accordance to weight and condition. Small-scale butchers (see figure 11) who inhabit shops close to residential areas (not the modern ones though) also buy live chicken, some also goats/sheep (especially on Sundays), while others only order certain meat cuts for selling (especially beef). Retailers and Customers pick the animals that they want and can get it slaughtered or processed on the spot by the butchers (earning 5-20 Rupees per goat/sheep) or shop owners. The supermarkets buy the same meat through large butchers.

Figure 12: Yiaguda mutton market

Whereas in Yiaguda (see figure 12), for example, large numbers of goats and sheep are traded on the spot, in Chengicherla there is no market attached and animas are directly delivered for slaughtering. The beef shops usually receive meat cuts from there through agents and take them further apart within their shop premises. Furthermore, there is a major hub for beef/mutton export by Al-Kabeer Exports Ltd. at Pattancheru, Medak District (highly mechanized slaughtering capacities of 2000 sheep/1000 buffalos per day), which exports the meat to Middle Eastern Countries.

Most of the fish, sold in Hyderabad, arrives half-frozen from coastal areas by truck or train, while crabs or other seafood might still be alive. The commission agents usually order them from there and sell them to retailers, supermarkets or individual customers. The end user usually chooses one fish, and gets it scaled and gutted on the market itself. Some self-employed females work in the market and charge a few Rupees for the service. Fresh water fish is also available, but some is exported to northern India.

Origin of products

In accordance to the Andhra Pradesh Sheep & Goat Development Corporation, Hyderabad and A.P. have the highest meat consumption in India. Andhra Pradesh covers 50-60 percent of its mutton consumption itself. The rest is imported from Maharashtra, Madhya Pradesh and Gujarat (see map, p.29). In A.P. major suppliers are the surrounding districts of Hyderabad (Karimnagar, Mahaboob Nagar. R.R. and Nalgonda) as well as Krishna and Ananthapur. Beef also comes from surrounding districts, the coastal areas: East and West Godavari, Srikakulam

and Chittoor. Chicken is mostly brought from R.R.-District (around Hyderabad there are 113 farms), Karimnagar, Warangal, Mahabubnagar, Nalgonda as well as East and West-Godavari, Guntur and Chittoor. Pig meat comes mainly from Visakhapatnam and Krishna, but also R.R.-District, Nalgonda and Mahabubnagar, while the coastal districts supply fish to Hyderabad: Nellore, Prakasam, Guntur, Krishna, East and West Godavari (see map, p.35). Especially states with large vegetarian population export their livestock surpluses to A.P.

2.6 Packaged processed food and beverages[10]

Consumption

The majority of Hyderabadis still has very little use for processed food items. Mostly products of the first stage of processing are in use: Rice, dals, oils, spice powders etc. Besides that mainly sugar and cereal based items are to be found in the average shop or household. Biscuits, sweets, ice creams, chocolates etc. as well as sauces (chili, tomato etc.) are commonly used across Hyderabad nowadays. Biscuits, sweets and savory snacks are among the largest segments in the packaged food industry and Andhra Pradesh belongs to the major consuming states of biscuits (Taneja 2010:94), however, 79 percent of the snack item are produced in the small scale sector (factory and non-factory units). Beverages, especially soft drinks, and bottled water, which constitute the third biggest segment of packaged food, are also on the rise in Hyderabad. Deep-frozen food (see figure 13), ready-made items, cheese (except for koya and paneer, which are traditional Indian cheeses) are only commonly used in modern and affluent households. The market share of packaged food still only amounts to one percent in India (Taneja 2010: 33). Therefore, The India Food Report (2010:191ff.) points towards ”ready to cook [food] (not ready to eat) as in-between acceptable path” for a generation who mostly grew up with ghar ka khana (home-made food). There is a small market for health, diabetic and diet products coming up (see also p.49). The report states furthermore, that the “myth of freshness and preservatives” is in process of being broken and the acceptance of processed and packaged food is on the rise. Besides that, a market for fusion food products exists as well as a potential for regional products and private labels: “If retailers rise to the occasion processed regional food could be the biggest private label opportunity for them in times to come” (Taneja 2010:107). Most imported products are to be found in upper middle class or upper class households. Products belong to four different groups. *Sugar and wheat based items*: Juices, spreads, snacks, syrups, sugar, confectionery, chocolates, desert

[10] Interviews with supermarkets, traders and consumers (2009/10).

helpers, cakes, breakfast cereals, wholegrain breads, pasta, ice-creams, oatmeal and chips. The second category, *animal/soy products* comprises of flavored yoghurts, cheeses, soy milk, tofu, butter, frozen fish, tuna and premium seafood and processed as well as canned meat. The third group consists of *sauces, oils and vinegars*: olive oil and vinegars, pasta sauces, mustard, Japanese and Chinese sauces and mayonnaise. The fourth group contains *fruits and vegetables* in any form: frozen fruits, legumes and vegetables as well as olives. The research showed that constraints in using packaged food among lower income groups were: High prices and lack of knowledge how to integrate certain products into the local diet as well as ideals of freshness and pureness and dislike of taste. A small wealthy minority also relishes in exotic dishes (e.g. Thai/Italian) and purchases required ingredients. Even though, the consumption of processed foods mostly goes up with rising incomes, nowadays one hardly finds any household that does not serve a soft drink or biscuits to guests, even though it burdens tight budgets.

Trading in Hyderabad

With a focus on dry groceries, there are two different ways, which are practiced in trading packaged processed food. Branded products either are going from manufacturers to the retailer via distributor and wholesaler or they are directly distributed by the manufacturers. Imported products are usually going through the hands of an importer to a distributor and then are sold by wholesalers to retailers or restaurants, hotels or cafes. Manufacturers have logistic networks to supply large-scale customers directly or go through distributor networks in case of imports. In industrial areas in Hyderabad there are more and more manufactures setting up their businesses, particularly in dry groceries. Examples are Sumo biscuits (IDA RTC-X-Roads), Raj Agro Products (IDA Kattedan) and Priya Foods (IDA Uppal). Private labels are also slowly entering the Indian market. Aditya Birla Retail introduced "More", Spencer's "Spencer's smart choice" and Bharti Retail "Great Value". Products range from tomato ketchup to instant noodles and non-food liquid dishwash soap.

Figure 13: Deep-frozen food at Q-Mart

Origin of products

Packaged processed food items come from all over India. Major suppliers are metropolitan areas (Mumbai, Calcutta), Tamil Nadu and Punjab. However, within Hyderabad the food processing sector is gaining ground as well (see case study 4). As diverse as the varieties of

imported food items, are the countries of origin. Major suppliers are the USA as well as Europe (UK, Italy, France, Spain, Holland Switzerland, Germany, Belgium, Turkey, Norway, Denmark) and Southeast- and East-Asia as well as Australia (Malaysia, Indonesia, Singapore, Thailand, China, Japan, Taiwan). Besides that, various products are imported from Middle Eastern countries (U.A.E., Saudi Arabia), but also South Africa and South America contribute to the list (for detailed list also see India Food Report 2010: 141ff).

Beverages/Alcohol

The beverage sector and value chains have not been examined in detail. However, a few trends are interesting to look at. Beverages are a growing segment among packaged food industries. Mostly fruit juices and carbonated soft drinks, energy drinks as well as bottled water, tea and coffee and alcohol (beer, wine spirits) are consumed. Bottled water has become a "symbol of a new lifestyle" (Taneja 2010:62) and is a growing segment at a rate of 20 percent. Sales in packaged tea and coffee also increased in 2008 (by 63.6% and 78.2%). Whereas, the majority still consumes traditional tea (mostly imported to Hyderabad from Assam, but also from Karnataka) and coffee (from Kerala and Maharashtra) as well as fresh fruit and sugarcane juice, packaged variants are readily available at small shops also. A changing social outlook towards drinking seduces affluent youngsters to consume beer or wine as well as cocktails in bars. Among men whiskey is the most commonly consumed spirit in the city, premium brands such as Sauza or Jim Beam as well as cheaper substitutes are available. However, the study of Padma (2010:77) showed that only 12.4 percent consumed alcohol at all and among lower income group males, 40 percent drank on weekends and 15 percent on a daily base (see Chada 2009:81), mirroring that alcohol consumption is considerably higher among lower and upper income groups (new middle classes). Among middle income groups (esp. females) social restrictions are still in place.

Even though, the market segment of bottled water increases, the average household in Hyderabad uses one of three ways to purify drinking water: straining by cloth, boiling or utilizing a mechanical or electrical filter. Some people get water delivered by tanker or other suppliers and store it in clay pots or stainless steel containers; others have a filter attached to their water tap. Padma (2010:74) showed in her study that 84.5 percent of interviewed households had piped water as the main source, 12.5 percent were dependent on mineral water and 3.0 percent were dependent on water tanker supplies by the government. In households, where no safe water supply is available, food security experiences an additional threat.

Case Study 4: Q-Mart-Supermarket

Danish blue cheese, Spanish olive oil and many different types of frozen food items, which are displayed in large top-opening freezers, as well as avocado, asparagus or Brussels sprouts, might surprise the customers at Q-Mart on Road No. 2 in Banjara Hills on 2 storeys and 18.000 sq feet retail space. The products sold at Q-Mart are purchased from all over India, but a large share is imported from Southeast Asia, US and Europe. Hence, it is interesting to get to know, what motivates customers to buy here. Mr. V., the owner of this single branded supermarket points out, how much food culture has changed in urban India: "Staples and basics will remain the same, but the rest is changing. Food culture is shifting towards processed foods, but many are still skeptical about frozen food, they value the fresh. A small segment of people believes in hygiene of frozen food and thinks fresh is unhygienic." However, a lot of Q-Mart's products are supplied by traditional shops and markets. They receive staples from Begum Bazaar and clean and process the groceries by themselves. Local butchers supply them with meat, and fruits are purchased from a large fruit retailer in Banjara Hills, Rd. No. 1.

In 1996 the business was still in his friend's hands and going down, while his family was involved in many other things. Hence, in 2001 he decided to buy it and change the format by introducing new product lines. He started with a much smaller shop for five years, which was located close by. Then he shifted two years ago to try the same business format on a large-scale, which became a viable business. Customers replied well and also shape the range of supplies that is sold. "Customers come across certain products in the media or abroad and demand the array of products in Hyderabad too", he explains. Furthermore, he likes to experiment, explores new food items himself and tries out, whether there might be a demand in Hyderabad. They do a lot of research, ask customers for preferences and product feedback and then try to fulfill their wishes.

In general his target group is comprised of well educated customers from upper middle class and upper class background. Among those, more and more people are aware of calories and read the list of ingredients. New demands are gradually coming in: Frozen and ready-made food for the convenience of people who do not have time to cook, health food for the health-conscious people etc. He predicts that enriched and fortified will become a growing market segment in the future.

Some lower middle class people can be found among his customers as well, but rarely, "because a few Rupees difference make a difference to them". - He admits that he is more expensive than small-scale vendors, because he has more wastage; especially in fruits and vegetables. However, they have to stick to MRPs (see p.60) in packaged food and therefore his major competitive advantage is offering high quality. Some of his customers just come to his market, because he is selling the one or two particular products that they are looking for and then do their complete shopping there. However, he is certain, that "Kiranas will never be replaced by supermarkets and always be there for emergency shopping. It is my locational disadvantage in comparison with small-scale shops that makes a difference". However, to attract his customers, he is not only offering standard products, but also items from other regions in India, as well as exotic ones from abroad. While basic commodities come from sources within Hyderabad, other products such as cheeses are mostly imported. Most items from South East Asian countries are brought by ship (Indonesia, Singapore, Thailand), from Western countries they are transported by plane or ship also. Because his newly opened food court on the top level is putting pressure on space, he is considering an expansion to another shop of 75 000 sq feet. He argues that "One should be able to walk freely in the aisles and increasing quantities of fresh meat and fish, fruits and vegetables consume a lot of space". One employee manages all inflows. Every day almost as many products arrive as are sold (all are delivered).

He acknowledges that supermarkets are used as a form of demarcation and certain perceptions and values are attached to it: "People want packaged milk only, no loose products, they do not want to decide on amounts, rather go for processed items etc." (Interview 21.4.10 at the Q-Mart outlet).

2.7 New trends in Organic and Health food

Besides the trend of consuming packaged and processed food, a new demand for organic and health food has been observed in Hyderabad. Osswald/Dittrich (2010:67) have investigated the potential contribution to sustainability of organic food in Hyderabad. They discovered that the importance of organic farming and the demand are both growing at a fast pace, however, commercial demand for organic products is mainly centered around metropolitan areas such as Hyderabad. Nevertheless it is suitable to the Indian food system and culture because small-scale agriculture and low-input farming are prevalent as well as large numbers of vegetarians and increasing awareness among consumers. Growing urban middle classes coupled with the growing health food segment are pointing towards an attractive domestic market that still needs to be conquered. An Indian standard of what organic production means has just been established in 2005 by the Ministry of Commerce (National Project for Organic Production - NPOP) in accordance to IFOAM guidelines. All steps of the value chain are covered (for further details see Osswald/Dittrich 2010:25ff.). On the small scale mostly Participatory Guarantee Systems (PGS) are in place, because they are more suitable for the small scale farm sector (the PGS India Organic Council also developed a label for that scheme). The variety of food products is still limited to tea, rice, fruit and vegetables, wheat as well as coffee, spices, pulses, oil seeds and herbs (mainly semi-processed or raw materials), however, the biggest share goes into export (estimates range from 70 percent by Carroll 2005 to 85 percent by Garibay/Jyoti 2003).

The list of problems regarding the development of a domestic market is long and covers all components of the food system: Lack of knowledge among farmers, limited and inconsistent supply chains, inadequate retail presence coupled with an incomplete product range, high certification costs, uncompetitive price levels as well as lack of consumer awareness and demand (Carroll 2005, see also Osswald 2010). The niche market of organic and health food in Hyderabad is met by commercial companies involved with corporate retail strategies and NGOs who support and establish small-scale farmers in direct-marketing their products. However, there still is not one entirely organic commercial outlet to be found in Hyderabad (for complete details on stakeholders and supply chains, see Osswald/Dittrich 2010).

Even though environmental considerations only play a minor role in consumption decisions, health considerations become more and more relevant, especially among upper income groups (Osswald/Dittrich 2010 showed that 100% of respondents chose health conscience as most important reason), therefore, people have developed an interest in unprocessed and natural foods such as brown rice, millets, vegetables and fruits, grains, pulses etc. This might be a result of discourses on healthy food in the media in combination with advertisement, which triggers the mushrooming of fitness and health clubs (see case study 5) as well as a new niche market for functional/fortified and supplementary food. However, many claims of health

Case Study 5: Nutrifit – Nutrition Counseling Center

We climb the stairs of a run-down old multi-storey building in the area of Punjagutta. Behind a glass door, a warm welcome is expecting us. We have entered the premises of one of the leading diet counseling centers in Hyderabad. It makes the impression of a rather comfortable medical center. A flier, promoting a healthy life with diabetes, and an advertisement of Amaze brainfood cereals with chocolate flavor are displayed at the reception desk. The Nestle slim drink advertisement is asking us "whether we are muscle or fat, fit or fat? A first consultation costs an astronomical sum of 500 Rupees. For that amount people get weighted, measured and interviewed on what and how much they exactly eat during a day (also during stressful times) and how much exercising is done. Afterwards the diet counselor advises on quantities of food items to be eaten, eating timings and exercising in accordance to individual needs and preferences. Increased amounts of vegetables, reduced oil consumption and often rice or wheat consumption, intake of muesli/oats, low-fat thin milk, fruits/nuts, salads and boiled chickpeas as well as roasted pulses as a snack instead of biscuits or sweets are common suggestions. Soft drinks should be avoided and a lot of water is recommended to most women and men who come here for consultation. Dr. P.J. Srinath, Director and Nutritionist, explains that traditional Indian food is very healthy and balanced, but in urban areas physical work and exercising is missing. Most people who come for counseling are middle and upper middle class women who have been sent by doctors, because of health problems and many suffer from obesity. Nutrifit also tries to council in accordance to individual budgets, however, Srinath complains that "a lot of people do not want to invest in lifestyle changes; they rather spend money on other things".

L. Vijaya, a diet counselor of a small nutrition centre in Mehdipatnam explains that "a change in nutrition must be costly and people who are not willing to pay for it should not come. One big problem in families is that the support at home is nil. Especially women are discouraged by in-laws and husbands". Dieting is a tainted term and only might find some acceptance if people suffer from major health problems (which could have been avoided otherwise). She explains that "a diet counselor can only give ten percent of support, the person needs to give the other 90 percent. Therefore, psychotherapy is an essential element in counseling" (Interview 4.4.10, Punjagutta, 3.10.09 Mehdipatnam).

Box 10: Case study 5: Nutrifit

foods are part of strategic marketing of manufacturers.

Studies show that not even half of the consumers check ingredients before they buy products, however, in many households the shopping is still done by female heads who might not even be able to read English/ or even the local languages and on most products in traditional retail outlets, there is nothing to read anyways (see p.60).

Media campaigns on healthy sustainable consumption and the integration into school curricula (see p.72) could counterbalance commercial marketing strategies of the fast-food and convenience food sectors. However, in order to impact on climate change and production, Osswald/Dittrich (2010) highlight that incentives to change shopping or eating habits need to be put in place. The PDS system, for example, could promote organic foods by distributing organic grains and millets or restaurants and hotels might also be a promising target group. However, sustainability should remain a major focus and linkages to traditional retail-formats should be brought forward and, first of all, the prestige that has been attached to new shopping environments needs to be overcome. Instead media and corporates still promote the retail revolution.

2.8 Changing retailscape and supermarket revolution

Johnsdorf/ Dittrich (2009) have done detailed research on the emergence of organized retail in Hyderabad/India and highlight the interdependencies of growing middle classes and consumerism. Dittrich (2009) highlights the fact that "Apart from fostering the consumption of a growing diversity of food, the middle class will also drive changes in the way food is purchased." It is estimated that the segment of organized retail in food might increase its share from 13 to 16 percent and encourage more and more new outlets of supermarkets, hypermarkets, convenience stores or other formats to open up in Hyderabad and other Indian states. Organized food, retail, in accordance to Taneja (The India Food Report 2010), occupies a share worth 12.200 crore (1,4%). However, the number of outlets in organized retail in 2008 was still limited to around 3000[11] across India. Hence, the numbers show that the giant share still lies with the unorganized and small-scale sector, also in urban food retailing. This traditional food provisioning system comprises of reams of street food vendors, mom-and-pop stores (kiranas) and open markets (weekly or daily bazaars), which are characterized by being decentralized, highly self-organized and low-emission.

However, they don't provide the variety and shopping atmosphere as well as prestige that is now attributed to organized retail, especially by emerging middle classes. The new trend of setting up convenience stores (small self-service retail outlets with less than 2500 square feet)

[11] The number comprises of 2500 supermarkets (between 4000-10000 square feet), 361 Hypermarkets (more than 50000 square feet, also non food) and 7 Cash and Carry outlets. The remaining ones are convenience stores and related formats. Among them international retailers: Metro (5 outlets, since 2003), Shoprite (1, since 2004), Spar (2, since 2007), Wal-Mart (1, since 2009) and Booker (1, since 2009); Carrefour and Tesco are in process of setting up Cash & Carry outlets.

in residential areas might become an even bigger competition to kirana shops and small-scale infrastructure. This process can be considered as a fourth phase in the diffusion process of organized retail described by Lohr/Dittrich (2009), which takes place simultaneously to the expansion of large-scale supermarkets and malls and is combining the advantages of traditional neighborhood stores and centrally located supermarkets (see figure 14).

Because of restrictions in FDI in India, the country belongs to the "latecomers" (1990s) in supermarket revolution. 13 percent market share is still relatively low compared to other developing countries (e.g. Brazil or Thailand). In India restrictions are still partially in place and have just been relaxed in 2006. Since then 51 percent in single branded retail was allowed for foreign companies. However, in January 2011, the cabinet has formulated a proposal to allow 51 percent in multi-branded retail in the future, in order to solve the conflict between farmgate and consumer prices. The discussion on the share of FDI is still in process and ranges between 18 and 51 percent (the former is the recommendation of the Micro, Small and Medium Enterprises Ministry) (Mehdudida 2011). While private label supermarkets or food service companies such as Mc Donalds or Pizza Hut had to operate through franchisee systems till the relaxation in 2006, the foreign large-scale supermarkets can only operate through Cash and Carry (e.g. Metro AG who has outlets in most megacities) till now.

Figure 14: Reliance F.-Supermarket, Shivam Rd.

India belongs to the most attractive markets in retail, because economic growth and incomes, the demography and rapid urbanization provide a promising demand side. Especially international actors from countries, where markets are saturated show huge interest in the Indian market. Those large-scale retail formats pose a threat to traditional small-scale businesses, as shown by Johnsdorf/Dittrich, which accounts for six to seven percent of employment in the country. Furthermore, they documented the increasing competition felt by the traditional sector and losses among shop owners in Hyderabad as well as increasing interest of consumers in organized retail. However, so far, the promoted supermarket revolution is very exclusive and selective in the Indian context and one might ask, whether it is meant to become a self-fulfilling prophecy: Pretending that large numbers of Indians buy at supermarkets and eat at certain locations might pressure others to catch up with the *mainstream* trend and also use the new retailscape (demarcation). However, traditional

preferences to fulfill daily needs on open markets or from small scale hawkers, which are conveniently located around the corner and sell fresh products at decent prices are still dominant. For many, personal relations and social safety nets (credit provisioning) functions are of high importance. The study of Chada (2009) has shown how heavily poor households depend on kirana shops/street food vendors as well as the ration shops or Rythu bazaars and open markets in Hyderabad. Furthermore, the low-emission and resource-extensive format of kiranas and street vendors needs to be promoted.

2.9 Street Food Vending

The local economy of street food vending experiences new attention among academics as well as practitioners (for example: Keck or Etzold (2010) - Street food governance; DFID Crop Post Harvest Programme 2005/06). Equitable long-term growth as well as sufficient trickle-down effects of large-scale development projects are unlikely to positively affect the informal sector. Therefore, it has been recognized that the small-scale infrastructure, especially in food provisioning, constitute the back-bone of society and is in need of political and financial support in order to cope with social transformations. The National Policy on Street Vendors 2009 certainly has not legitimized street vending and given it a substantial fundament by providing adequate rights and protection. Rather have authorities and police intensified harassment of vendors (see Rani 2010:21ff.). Instead of newly introduced medical screenings and knowledge tests in food hygiene as well as restriction of vending to areas that do hardly generate viable incomes, local authorities should designate adequate places and provide basic facilities such as running water or electricity to the street vending community.

There is no single path to modernization of cities and new diet patterns and demands do not imply phasing out of an important informal sector by replacing it by organized retail. It plays a crucial role in supplying affordable food to the lower income groups, generates employment (self-employment) and keeps traditional Indian food culture alive (see case study 6). Therefore, the street food sector needs support in order to catch up with current trends and demands (e.g. the fancier street food vending scene, where affluent classes consume their food). Food testing in order to disclose and prevent food adulteration and contamination does only treat the symptoms and not fight the causes. Besides that, it is difficult for vendors to provide sufficient safe storage and clean water on the spot, if there are no facilities in place. However, the two studies of Rani (2009, 2010) showed that training (also including the female home cooks) coupled with suitable conditions are necessary to improve food safety.

Case Study 6: Mobile Street vending: Leafy vegetables fresh from the basket

It is 6:30 in the morning and the Golnaka market road slowly begins to become alive. Close to one of the colorful gates to the residential areas, I met D. (38), a green leafy vegetable vendor, starting his daily business. While I am still half asleep, his strong and deep voice can be heard on the streets calling „Akuren" „Akuren", meaning green leafy vegetables. On his head: a tremendous basket full of green leafy vegetables wrapped into wet jute cloth. He can hardly lift the basket himself, because it weights at least 20 kg. His words lure the housewives and other customers to the streets. They are still wearing their pajamas, have their toothbrushes in their mouths and help the vendor to take down the basket. In some alleys, he knows exactly who is buying from him and directly knocks at the door. In his hand he is carrying another bag, which weights another 10 kg. It contains green mangos, chilies and lemons. From the basket the women choose the best quality bunches of coriander, spinach, mint, curry leaves, fenugreek leaves, amaranth leaves, dill leaves etc. Each person only buys a few bundles for 5-10 Rupees and gets a handful of green chilies for free. Even though the items are so cheap and the women have hardly rubbed their sleep out of their eyes, they bargain as much as possible and play around with the vendor. As the bag is getting emptier the basket items wander into the bag. The women help him to lift the basket back onto his head. All alleys, streets, houses, niches are covered, in some areas he even climbs the stairs to the first or second level of apartment houses in this lower middle class area, because he knows his customers. In this area each and every neighbor will know what you buy, how much you pay and what you cook. At one house a basket on a rope is send down and a middle aged woman asks for palakura (spinach) from the balcony. A small boy runs down to deliver the money. Furthermore, D. collects outstanding credit from people. He is a good source for credit and people are using that opportunity: „Yes, they give me the next day or I will see for two to three times, if they will not return the money, I stop giving credit to people from then on." Surprisingly, he remembers exactly who owes him how much. Some of the women just grap his bag and take out the items that they like. After four and a half hours of walking, we have probably only covered a few kilometers and half of the quarters of Golnaka/Tilak Nagar, the basket still is half full and it is time for a chai and some puri.

At the end of his route in this area he goes to the slum buildings, now the best goods are sold already and the prices are going down. Some of the slum inhabitants rummage through the basket to find some withered leaves for free or at a very low price. At 12:30 it is lunch time. Now, we have been walking for 6 hours and a fifth is still left in his basket. A serving of Sambar-Idli give some new strength to the exhausted vendor and me. He continues in the neighboring areas of Nallakunta, Amberpet or behind Qureni Hospital till the basket is empty. Today that takes another 3 hours. On this day around 165 customers have bought from him, however, his earnings come down to 5000 Rupees a month. Afterwards he is taking the bus back to Muthayalguda, in Ghatkesar Mandal (25 km), where his family lives and where he is buying the vegetables from.

Almost every day he is coming to Hyderabad to sell the produce. His income has to feed a family of six people, his wife (housewife age 30), two daughters (age 13, 16) and two sons (12, 18), who are still going for public education. Private schools they could never afford (Interview 12.4.2010, Tilak Nagar).

Box 11: Case study 6: Street Food vendor

Their role as major contributors to Hyderabad's food security should be promoted as well by local authorities (see also Dittrich 2008).

III. FOOD GOVERNANCE AND CRISIS

3.1 General National legislation on food

There is a whole range of regulations relevant to the stakeholders who work in food processing, trading, distributing, vending, packing, etc., however most laws deal with technical aspects such as the Standards of Weights and Measures Act 2006 (e.g. Guidelines for packaging and MRP), the Essential Commodities Act 1955 and amendments (prevents hoarding, unfair trade parctices etc.), the Agricultural and Processed Food Products Export Development Authority Act, 1985 (deals with Food Quality and Packaging standards as well as trade rules for export) or the Trade Marks Act 1999 (Regulates Protection and Registration of Trade Marks). The National Policy on Urban Street Vendors 2009 as well as the Micro, Small and Medium Enterprises Development Act 2006 deal with licensing, zoning and similar business issues. The Consumer rights Act (2002) aims at increased consumer sovereignty through redressal mechanisms, tying up to the Food Adulteration Act from 1954, which recently merged with separate legislations on meat, milk, fruits etc. into the Food Safety Standards Act 2006 (prevents food adulteration and increases food safety). Production is, for example, tackled by the Plant Varieties and Farmers Rights Act 2001, which regulates rights of farmers as cultivator, conserver and breeder in seed handling and the Food Cooperation Act 1964 deals with the set-up and functions of FCI. The controversially discussed policy draft (Food Security Bill), which aims at ensuring food security is probably one of the most interesting legislations in context of this report. The policy attempts a reform of the PDS system. Debates center on an extension of the current scheme (increased rations of 25 kg wheat/rice per month at 3 Rs./kg) and the definition of beneficiaries. This will be set by the central government as well as the allocation of food grains, whereas the state governments are responsible for its implementation and monitoring. However, relevant points such as a diversification of the PDS provisions, which could counterbalance fat and protein-deficient diets among malnourished, and a universalization of the system are avoided by policy-makers. Nevertheless, setting-up efficient social safety nets is of particular importance in times of price crisis.

3.2 About wheelspinning domestic food prices and a global (p)rice crisis

Dawe (2010) highlights the fact that the major part of the food price crisis has passed within the year 2008, even though in some domestic markets, which is definitely the case in India, the prices remain high. But what does it help the Indian consumer that price hikes on the world market occur infrequently and have come down again, if he/she hardly can afford basic

staples? One major change in the global market is the strong link between agriculture and the energy market. Because the later ones are much more volatile than world food markets, they might even drive them in the future, which is likely to result in a higher volatility of food prices. Another reason are prognosed climate incidents that might occur more frequently in the future. Climate change phenomena adversely affect yields and general food production.

The situation of rice between 2006 and 2008 was exceptional compared to price developments in other cereals such as wheat or corn (Dawe 2010). Diverse government policies had unexpected consequences for domestic markets, which translated into the world-markets. N. E. Borlaug (Outlook Interview 2008:22) comments that " the price of food grains, especially rice, wheat and corn, has been so low, that many opportunities present themselves to sell the grain to those who are converting it to energy." He explains that India was not to blame for the crisis, because of its export ban of wheat and non-basmati rice as well as restricted maize exports. [12] The actual problem is the diversion of food grains into energy, which presents new challenges to politics and food policies. The difficulty is to simultaneously keep prices low and prevent inflation. 30 percent of land will, in accordance to Sen (2008:20ff.), be used for maize production (ethanol) in Europe. Hence, this much of food and animal feed needs to be replaced by other sources. However, Pinstrup-Andersen et al. do not agree with Dawe's statement that the crisis came and went. Their line of argument addresses the overall increase in current prices, which still are considerably higher than five or six years ago. "From a poverty and nutrition perspective, the fluctuations of the prices – or the prices volatility – has the most significant impact. These fluctuations have led to an unstable nutrition environment, especially for the world's poor" (Pinstrup-Andersen et al. 2010:14). In this case the interplay of supply side, demand side, market and public and private actions caused the food crisis. The supply side was affected by weather events such as droughts in US, Ukraine and Australia, which affected the wheat production. Furthermore did the OECD countries continue to sell subsidized cereals in the international market and caused a depression of prices, because adequate demand was not to be found. In addition to that, the new demand for biofuels from US and Europe, triggered by rising oil prices, pulled out products of the food market. Hence, prices increased. The growing populations in China and India and their new demand for meat and dairy products, also have contributed to higher prices. Livestock production pulls out food

[12] In February 2011 the Government started lifting the ban for three varieties in limited quantities.

of the market, which again encourages price hikes. However, the recession slowed down the trend of rising prices to some extent.

One major market factor was the increased inflow of capital into commodity futures. Therefore, prices went far beyond, what they would have been, driven by demand or supply. Furthermore, rising oil prices increased production prices (pesticides, fertilizers, transport). Especially in the rice market, export bans and restrictions also had major effects on prices. After the increase in wheat prices, India, the second largest rice exporter after Thailand, decided to ban exports, in order to keep the rice price down on the domestic market. Hence the rice price in the international market increased tremendously, which led third largest exporter, Vietnam, as well as Cambodia and China to ban exports as well. The introduction of import tariffs for revenue purposes also contributed to higher prices. Furthermore, future predictions of increasing consumer prices encouraged households as well as governments to start hoarding grains. The media was happily exploiting the topic and felt short in reporting that prices were going down again (Pinstrup-Andersen et al. 2010:17).

What Sagar (2005:47) documents as a success story in reducing instability in prices and vulnerability of the poor to external shocks in India (intra- and inter year instability in wheat and rice) definitely did bit back afterwards. During the last years prices of basic commodities have not come down to an affordable level for the poor, even though they did internationally.

In accordance to WFP and FAO, the number of undernourished worldwide declined again in 2010 after a sharp increase between 2006 and 2009, however, "the number of undernourished people remains unacceptable high – higher than it was before the recent crises, higher than it was 40 years ago" (WFP/FAO2010:8). India still belongs to the seven countries, where the majority of undernourished people live (Bangladesh, China, DRC, Ethiopia, Indonesia and Pakistan). The Analysis of the hunger status during crisis discloses vulnerability patterns and shows the lack of appropriate mechanisms to cope with economic shocks. In case assets are sold off, replacement often takes long and might lead to cuts in food intake or health and education expenditure. Falling prices, hence, do not immediately eradicate hunger (Pinstrup-Andersen et al. 2010).

Recovery of food prices in domestic markets takes more time, especially because income growth in India puts new pressure on food prices (FAO 2009:104). FAO calculations showed

that, among all agricultural products, prices of basic commodities (cereals, vegetable oils) increased the most. Additional negative effects on incomes (and consumer demand), because of the global recession, hit the net food buyers and urban poor immensely. The transmission of lower international prices to the domestic market still is low. Food inflation in India was around six percent in February 2006-2007 and increased between February 2008-2009 to 14 percent. After a downward trend at the end of the year 2009, double digit inflation rates have been observed in 2010 again (OECD-FAO 2009, see also DC: "Food inflation up at 18%" in March or "Food inflation shoots up on costlier cereals, fruits", 11.47% in August).

Stock policies can stabilize or destabilize domestic markets or prices (by releasing stocks). If countries fill up their stocks from international markets, they also increase the international prices. India's stocks in 2009 were estimated at 40-45 million tons (average norm 26 million), because record purchases were undertaken in 2008 in order to stabilize the domestic market. Even though many aspects did influence the market situation, the FAO comes to the result that rice markets were highly destabilized by policy measures. In contrast, wheat production and consumption have increased at lower global reference prices, because of a broader market exists. Border policies in rice increased international rice prices by 12 percent in 2007/08.

The accumulation of foodgrain stocks of FCI started in 1999-2000. Procurement amounts have been raised immensely from 1998 while off-take decreased in 2000/01 by 5 million t - probably due to changing eating habits (dissatisfaction with regard to quality or economic constraints might also have played a role). However, the former argument is of much higher significance than the later. Rao (2005:137ff) attributes the excess procurement to a sharp rise in MSP, which discouraged private traders from augmenting their stock. Besides diversification the focus on surplus states of wheat producers in the north, Haryana, Punjab and western Uttar Pradesh, also triggers arguments that recommend a switch to a decentralized model of local food supply (production, procurement, storage and distribution) in order to plan more efficiently, save transportation as well as storage costs and provide closer access to beneficiaries. Tracking consumption of PDS households should be done and adaptations designed accordingly. However, Rao (2005:139) explains that a focus needs to be put on generation of productive employment in order to overcome chronic food insecurity. "Public support to poverty alleviation programmes and subsidized food for the vulnerable sections will have to continue but, basically, as supplementary to the broad-based, employment-oriented growth."

3.3 Prices in India

Most countries are pursuing an active price policy for food and agricultural products. Export-measures such as taxes, subsidies or bans are usually used to increase the supply in domestic markets. They tend to reduce prices for consumers as well as gains for producers and increase prices on international markets in case of net exporters. At the same time production is encouraged by production policies. Measures in India include input subsidies and output price support. At the same time consumption policies are installed to contribute to food security on the demand side. This includes direct consumer subsidies, distributions from public stock, price subsidies, social safety net programs, self-targeting food-for-work programs and school feeding programs, of which all are in place in India, either temporary or on a frequent base. However, long-term developments prove that food security goals are hardly met by policy interventions and instead disturb the stabilizing role of prices (Vyas 2005:19).

Minimum Support Price

Prices for agricultural goods are not only influenced by demand and supply, but also by other factors such as quality, cost of production, new laws or climatic conditions. Those factors again are connected to the international market and its price mechanisms. In order to maintain prices and keep fluctuations to a limit and at the same time support investment in agricultural production India introduced its system of Minimum Support Prices (MSP) for certain

Product	Rs. Per Quintal		
	2001-2002	**2005-2006**	**2009-2010**
Paddy - fine	560	600	980
Paddy - common	530	570	950
Sorghum/Bajra	485	525	840
Millet	485	525	915
Maize	485	540	840
Arhar Dal	1320	1400	2300
Blackgram D.	1320	1520	2520
Yellowgram D.	1320	1520	2760
Sugarcane	62.05	79.50	107.76
Sunflower	1185	1500	2215
Peanuts	1340	1520	2100

Table 1: MSP in different years (2001-2010)

agricultural commodities, mostly non-perishable staples. Every year the Central Government fixes them, based on recommendations, given by the Commission for Agricultural Costs and Prices (CACP), which attempts to integrate changing production conditions (e.g. input costs), prices, demand, supply and living costs into the price schemes. MSPs cover grains (paddy, wheat, barley, maize), pulses (ahar, yellowgram, blackgram, redgram, greengram, bengalgram), millets, oilseeds etc. For Paddy the MSP in 2010 has been increased to 980

Rupees per quintal for grade A fine rice (compared to 560 Rupees in 2001/02), which reflects the price hikes. Prices for pulses also have been increased immensely. Ahar dal prices, for example, were raised from 13200 Rupees per quintal to 2300-2760 (Directorate of Economics and Statistics 2010, see table 1). Another reason also was to bring down imports on pulses. However many farmers need to sell their produce on the spot and are highly dependent on middle men and immediate cash inflow as well as lacking price information, so that too often MSPs are ignored. On the other hand, pulses were traded beyond MSP during price peak times. FCI seems to be the only institution that pays in accordance to fixed prices.

Maximum Retail Price

At the other end of the value chain, Maximum Retail Prices (MRP) are in place to protect the consumers, because prices often are fixed arbitrarily by retailers and vendors. Hence, under the Weights and Measures Rules it is regulated that manufacturers provide information on the packages, which do not only include the best before date, address, weight and list of ingredients, but also a Maximum Retail Price. The Consumer Goods (Mandatory Printing of Cost of Production and Maximum Retail Price) Act 2006 provides the guidelines for the MRP. The idea is to prevent traders from overcharging their customers. Prices include taxes (since 1990) already and the vendor can decide for how much less he wants to sell the good (Shahi 2005).

Market Intervention Scheme (MIS)

During price hikes and peaks government interventions in products with no price regulation are tackled. In Hyderabad interventions have taken place in case of onions and turmeric in 2007 and tomatoes in 2008/09. Usually the government purchases from markets and resells the products to consumers at subsidiesed prices. Small interventions on state level take place to prevent fluctuations in the domestic markets as well. In Hyderabad/A.P., for example, Chief Minister Kiran Kumar Reddy recently has directed two departments (marketing/civil supplies) to purchase products from other states to bring prices down in A.P. Especially onions have already been imported from Maharashtra and Nasik and have been supplied to the Rythu bazaars (6,791 quintals have been sold already under the scheme at 15-18 Rupees per kg instead of 40-50 Rupees in the open market) in 2011. At the same time family packages, which contained eight common vegetables, have been sold at 99 Rupees (big) and 49 Rupees (small) (Office of the Chief Minister – Government of Andhra Pradesh 2011). However, those interventions might have controverse effects on market prices within the other states.

Furthermore, there is little control on who the purchasers are and whether products are not resold at higher rates afterwards. The number of distributed packages has not been disclosed and it appears rather to be a strategical political step (see article expressbuzz: Sankranti gift: Veggie packs at rythu bazaars 2011).

The government also buys products at higher rates than the market dictates in order to keep prices stable (turmeric 2007), which is the actual purpose of the Market Intervention scheme: to protect growers/producers from distress sales in bumper harvest season, especially for horticulture or agriculture products not covered under MSP. In A.P. this is of particular interest for the product groups of garlic, grapes, ginger, red chilies, coriander, onions and mustard seeds, which are hit by price fluctuations etc. (for more details see http://indiabudget.nic.in/es2000-01/chap510.pdf).

3.4 Biofuels challenge Indian food security from inside and outside

Rapid economic growth and incomes, vibrant markets and increases in motorized transport as well as a high dependency from imports of oil and petroleum product supplies make India an attractive market for biofuels. The government has released an ethanol-blending program (utilizing sugarcane molasses), while the biofuel production is based on Jatropha plants. However, feedstock is not available for large-scale production (Cairns 2007). The National biofuel policy (2008) proposes a contribution of 20 percent of biofuel/ethanol to conventional fuel in India by 2017. The policy approach is based on non-food feedstock, which is planted on degraded and wastelands as well as byproducts of sugarcane production, because only 30 percent of the plant material is used and goes into jaggery production and unrefined sugar (Ministry of New and Renewable Energy 2008). However sugar prices are regulated and politically very sensitive. Hence, to use it for large-scale ethanol-production will require rethinking and restructuring of the sector. So far the prices for ethanol production from molasses are not competitive with other producers on the world market. Reasons are, in accordance to Gonsalves (2006:18), low yields, traditional methods of farming and lack of irrigation and fertilizers as well as the dependence on monsoon. The UNCTD-study „An Assessment of the Biofuels Industry in India (2006)“ suggests other less labour and cost-intensive crops for production such as tropical sugar beet or sweet sorghum. However, this again changes agricultural production patterns and, first of all, food security aspects need to be thought through cautiously. Sugarcane juice is also suggested to be used to increase ethanol production. But again, it is also a common source of nutrition for the poor (consumed

as refreshment at the roadside) and price and social effects should be looked at. The ethanol-blending program has been launched in 2003/4: Five percent ethanol are to be used for fuel blending in nine sugarcane-growing states. However, costs were too high and availability insufficient for the oil companies to meet the target (see also Cairns 2007). Additionally a national biodiesel mission is in place since 2003. A first period, which lasted till 2007, included the setting up of nurseries specialized in Jatropha oilseeds (400,000 ha) as well as seed collection and oil extraction plant and a transesterification to produce the fuel. Because the demand for vegetable oil exceeds domestic requirements, the use of other oilseeds should be out of the question (sunflower, soybean, palm, canola etc.) (Gonsalves 2006).

60 km from Hyderabad, the first biodiesel manufacturing plant has been set up in 2007 at at Samsthan Narayanpur in Nalgonda. Vegetable oil extracted from Yatropha, which is planted on wasteland is used for production purposes. A variety of transport is already using 5 percent blended bio-diesel on a trial base (buses, railway etc.). However, Sahai (2010:2) asks correctly, whether that wasteland could not as well be used to grow food crops or fodder. Biotech lobby groups promote GM-crops as a necessity to meet food security needs in the world and now suggest land diversion to agro-fuel production. Food crops diverted to biofuel production and crops competing with livestock fodder crops are likely to have detrimental effects on food prices (and meat prices in particular). The whole industry will be driven by western countries, which are attempting to reduce CO^2-emissions and their dependency on fossil fuels, which will add more pressure on ecological resources and cultivable land. (see also Giampietro et al. 1997 and Viswanathan 2007). Efficient food governance should integrate all government Departments whose activities affect the food security scenario directly or indirectly, so that social and ecological considerations of new projects become an integral part of the agendas.

3.5 Food - an orphan within the institutional landscape

Despite concerns over food and nutrition are increasing in Hyderabad, no major agency is dealing with this important topic, but rather a myriad of departments and cells, with overlapping or even conflicting skills and responsibilities. This kind of fragmentation also seems to exist among the parastatal and private organizations as well as NGOs. Many organisations who work on the same topic are totally uncoordinated and might not even know each other (For a detailed stakeholder analysis see Nischalke/Surepally 2009). Mala Rao, Director of the Indian Institute of Public Health, hits the nail on the head by saying that “food

is an orphan in political and administrative terms". The problem is that no major single Ministry and/or Department is concerned with food in Hyderabad. Instead several separate institutions take care of agricultural aspects (Dep.of Agriculture), food safety (GHMC, Dep. Of Agriculture), the ration system (Consumer Affairs, Food and Civil Supplies Department/FCI/Fair Price Shops) or the distribution of food to the malnourished (ICDS through Anganwadi Centers – Women Development and Child Welfare Department, Midday-meal scheme-Education Deparment). Within those institutions again several divisions exist (in accordance to governance level or certain functions etc.) that have assigned responsibilities. This kind of fragmentation leads to problems in communication and cooperation. A strong system of hierarchies contributes to the fact that people are mainly concerned with executing their specific tasks without registering developments and activities in other units of the system. The three major social safety net programs with regard to food are PDS, ICDS and the Midday-meal scheme. The PDS Program provides subsidized food to BPL households (below 90.000 Rupees yearly income), which includes the basic commodities: rice, wheat, sugar, oil (temporarily dal and salt). In addition, ICDS community centers (Anganwadi) distribute supplementary feeding of a therapeutic food mix (wheat-soya-sugar-powder to be mixed with water) as well as vitamin A doses and Iron/Folic acid tablets to pre-school children, pregnant and lactating women (see case study 7). The midday-meal scheme serves food at government and aided schools. The main objectives are to provide supplementary food to children in order to address malnutrition and increase school enrolment rates at the same time (for more details on all programs see Nischalke/Surepally 2009). However, inefficiency and problems of those programs can be attributed to poor governance and lack of proper implementation and monitoring mechanisms, vividly described by Sagar (2005:40):

> "Poor governance is at the root of many problems associated with the food administration and other programmes for the poor." […] "It [India] has failed to induct people into the political arena with a genuine commitment to serve the people. There is a growing belief widely heard among the political and bureaucratic elite that state is an arena where public office is to be used for private gains".

Just recently, in January 2011 the distribution of a new ration card-format has been started in Hyderabad (Aadhaar Smart Card) under Chief Minister Kiran Kumar. It is a multi-utility card, covering not only food rations, but also benefits under the NREGS scheme (employment in

Case Study 7: Anganwadi Worker

At 9 am she arrives at one of the Anganwadi Centers south of Old City. P., 34, works here as a teacher. Every day till 1.30 pm she will be at the center. Today she is teaching the children, between three and five years, one new rhyme in English. Per month she is supposed to complete two rhymes and songs, one story and two good habits. At 10 am she starts to feed the children the nutritious mix (wheat-soya-sugar). For some of the children this is the only breakfast. Today 14 children are present, even though 29 are registered here. Probably some have been send for other educational institutions or stayed at home. One Saturday per month one nurse from the urban health post (UHP) conducts a Nutrition and Health Day, where immunizations take place and iron as well as other food supplements such as calcium are distributed to children, pregnant women and adolescents. Furthermore, the therapeutic-mix is supplied to pregnant and lactating women and for children from six months to two years for 15 days (home consumption). An awareness lecture on health issues is also conducted. On some afternoons, records are updated (food register, immunization register, growth register, register of attendance, register of pregnant and lactating women etc.). After having had food, they are singing one of the songs, which they have learnt the month before. Then P. is just watching the children play on their own.

In the afternoon she will be busy, doing house visits. She is supposed to visit five families within her area per day, but usually she only manages two. The focus is laid on the ones who are mostly in need: Households with new born children, pregnant women, lactating women and children below two years as well as malnourished and disabled children. But the visits are time-intensive and she also has to take care of her three children and her in-laws at home, one of them currently in the hospital. Sometimes she is also accepting other part-time work, because her payment at the anganwadi center is very low and she needs to make ends meet.

The home visit planner documents her afternoon activities. Topics to be discussed with the families are food habits, cleanliness, quantity of food to be taken, regular health check ups and immunization etc. But often she just sends does the people to the nearest UHP to consult the doctor or nurse. Today she visits a family with 3 small children, two of them rather looking underweight. She has been here before and the mother, who again is pregnant, knows very well, how important proteins and vitamin are for the growth of her children. She even seems to buy fruits 1-2 times a week and prepares green leafy vegetables on alternate days. Dal and rice are the daily diet, but she can not afford any meat. Instead she prepares some eggs from time to time. However, it seems as if the females in the household (especially herself and her old mother) do not receive sufficient quantities of the expensive items that are very important in order to guarantee a balanced diet. P. explains once again what she should eat to prevent deficiencies and how important it is for the unborn baby to get enough nutrients through the mother's body. The anganwadi teachers, who sometimes have themselves trouble to afford a balanced diet, especially in times of price hikes, give advice on nutritious low-cost diets and some tips what to do with the therapeutic powder-mix, but they also discuss social problems. Before she leaves the house, knowing that besides education, employment and income provision would be most important to change the family's situation, she takes two bananas out of her bag and gives them to the kids, while announcing her next visit to check how the family is doing (Interview 2.4.09).

Box 12: Case Study 7: Anganwadi worker

rural areas), Arogyasri (health), scholarships, pensions, housing, self-help group schemes as well as cooking gas.

In how far its purpose of increased transparency, less corruption and diversion of supplies to the open market can be met through this combined card, time has to prove. Biometric authentication will probably help to prove the identity of eligible families, but whether it can assure that the major share of the invested money will reach the beneficiaries, is more than questionable. During the pilot period 6 lakh families are enrolled, to whom the Aadhaar card distribution had started on 28.1.2011 (The Hindu 2011). So far, it rather appears to be an administrative obstacle towards higher food security, because, Ifthekhar (2011) already documents problems regarding the new cards. Enrollment forms are short in supply and duplicates sold by copy shops, which are not accepted by the DPL centers. Misinformation and denial of people who do not have a ration card is prevalent and alternative IDs have not been accepted by various FP-shop dealers. The forms are only in Telugu, which means that illiterate people and those who can not read it, need to pay for a form filler or translator. Furthermore, there still are large amounts of people not informed about the process and significance of those new cards. This among other topics is followed up by media and part of the overall food security discourse, which is presented in abstracts in the following chapter.

3.6 Debates and discourses on food security and food governance

Analyzing newspaper articles gives interesting insights into debates and discourses regarding food security, food governance and climate change. The topics at the center of the discussion indicate new trends and reflect interests, concerns and ignorance of societies regarding particular topics. Newspaper studies of two major English newspapers in Hyderabad (The Hindu and Deccan Chronicle) have been conducted during field visits from Jan-May 2009, Sep-Nov 2009, Feb-May 2010 and in September 2010. The Hindu published considerably more articles (58), which covered the topic of food security, than the Deccan Chronicle (29). The later one mostly covered recent events and put a stronger focus on inequality and distributional incoherences (rich-poor divide, middle class etc.). Generally the articles in Deccan Chronicle were rather short notices, while the Hindu had many detailed articles, up to a full page, inside the Metroplus magazine.

Especially major events of UN or FAO, for example the World Summit on Food Security in Rome (16-18 November 2009), encouraged the publication of a much higher number of articles on national and regional food security. Also policy-processes and debates on national or state level triggered the publication of related articles on food security and governance in India/AP. This was, for example, the case, when the debates on the food security fund took off

and the draft of the National Food Security Bill was cleared by the Empowered Group of Ministers (eGoM) in March/April 2010. General key topics that have been detected were international comparisons and world market developments, national food governance (esp. PDS-system and its improvement as well as entitlements) and agricultural trends plus food prices. First of all, media is actively presenting information on world hunger and food (in)security situations in other countries (*Donors failing starving Yemenis, U.N. survey*, The Hindu 12.5.2010, *U.N. warns of food crisis*, The Hindu 15.9.10; *India offers $ 250-million credit and food grains to Nepal* The Hindu, 17.2.2010; *One billion people go hungry, says U.N. report – India scores low in anti-hunger fight*, The Hindu 7.10.2009; *Look east for food & energy security*, The Hindu 6.9.09.). In addition to that, the food crisis drew major attention by the media (*Food crisis on the horizon - hunger scale*, DC 18.4.10; *Speculation, eco-disasters to blame for food crisis: FAO – Doubling of food prices let to riots in more than 30 countries* – The Hindu 26.9.2010 etc.).

India's performance in fighting food security on the international scale, is broken down by the majority of authors to dealing with (bad) food governance. A peculiar focus has been put on how to improve or redesign the PDS-system. Sengupta (2010: *Food security for all*), for example, as many other critics, supports a universal PDS-system, which „eliminate[s] the scope of leakage" and manages to set up an inclusive scheme, not only for identified BPL-families. Changes in the distribution system are also suggested and include, that FCI should function as big trader and „make profits as a large monopoly player" (see also Sengupta 2009: *A fair food deal for all*). Drèze (2010: *Poverty estimates vs. food entitlements)*, in contrast, suggests decentralized procurement, self-managed fair-price shops and different „transparency safeguards" to counterbalance increased costs of a universal PDS. Additionally, many articles introduce the issue of identifying poverty lines and cost-of-living-indexes. Drèze (see above), for example, points out that those are just „arbitrary benchmarks". Mander, who documents stories and fates of the deprived and marginalized in India (The Hindu series barefoot)[13] utilizes the stories to disclose deficits in political initiatives, programs etc. He even goes one step further by asking vividly „*Measuring hunger: Is it even possible?***"** (Mander 2010d). Going beyond calorie intake, he is raising the question whether the poor are also „permitted to have palates and preferences?" or whether they are „the only entitled to making 'good' and

[13] Articles by H. Mander include: *Colonial legacy of famine codes* (13.9.09), *Hunger beyond calculus* (18.7.10), *Hunger and the market* (20.6.10), *The silent tragedy of hunger* (5.4.09), *For the wretched of our earth* (27.3.10) and *Ash in the belly* (11.4.10).

‘wise' choices, whereas even mildly wicked indulgences or fun remains only the rightful preserve of those who are privileged? Mander (2010d) criticizes the fact that „the poverty line standards of our national planners, requires them [the poor] to purchase only the cheapest food, regardless of their cultural and personal preferences“. Also, he critically asks whether household expenditure and calorie intake are appropriate measures of well-being. He observes that „minimalist premises serve as a base for constructing poverty lines“ and that „the claims of declining poverty are based on surreptitiously changing goal-posts“. Drèze (see above) also criticizes the indicators to identify poverty lines and argues that under-nutrition rates are much higher than poverty estimates. He also is in favor of a universal PDS-system in order to avoid exclusion errors in the future and increase transparency as well as discourage manipulation. Ramachandran (2010: *Lessons from BPL Census*) comes up with the proposal to treat poverty as a multi-dimensional problem, because „people can be poor with respect to some or all of a range of criteria – for instance, with respect to income, hunger, health, schooling and education, housing, access to the means of sanitary living, and so on“. Hence, no single criteria is adequate. Other articles also attend to that problem and mostly comment on the identification of beneficiaries and suggest universal PDS system as solution (*Food Bill final draft after BPL estimates* (The Hindu 5.4.10), *Food security fund to compensate BPL beneficiaries* (The Hindu 18.3.10), *Calorie intake criterion puts 50% Indians below poverty line* (The Hindu *20.9.09)*, *Right to food campaign wants APL included in PDS* (The Hindu 5.9.2010), *Needed policies, not just promises*, DC 14.9.2010).

Besides a universalization, a second emphasis is laid on the diversification of the PDS system. *Distribution, procure, store and sow* (Swaminathan 2010) is a good example, dealing with inefficient government policies and facilities. The author suggests a diversification of the distributed rations by including pulses, sorghum, millets or maize, in order to improve nutrition and support the diversification of agriculture. Central elements in overcoming hidden hunger and deficiencies of micro-nutrients are seen in the promotion of horticulture (and its products) as well as milk and eggs. The third central point, authors comment on, is linked to stock policies within the PDS: The large amounts of surpluses in government grain stocks and safe storage. Swaminathan (2010) makes clear that a fundamental part of an efficient distribution system is to ensure safe storage. All authors who give recommendations for an improved PDS-system point out, that the upcoming Food Security Bill will just maintain the status-quo and is not addressing any of the identified problem areas. Mander (2010a) even regards it as a deterioration of the current system.

The author of the international article *Hope and stasis for malnutrition in India* (Haddad 2010) displays a comprehensive understanding of nutrition and demands more pressure on leaders, because administrations are prone to become empty shells otherwise. He demands to handle nutrition as a „prime public good" and refers to surpluses that are not properly distributed among the needy. Furthermore, he points towards understaffed and underpaid nutrition centers such as ICDS. Besides that, the article also suggests to assure that „advertisement is responsible, that legal resources are directed in ways that do not only protect shareholders, that labeling is clear and gives consumers a real choice, and that transparency is high on the business agenda, so that civil society can hold businesses accountable." Furthermore, the author introduces innovative ways of how the private sector could contribute to food security (e.g. food fortification or nutrition support via SMS).

Another group of articles, which deals with (food) governance, center around inequality. Colorful titles such as *Missing middle class* (DC 26.3.10), *Poor in rich India* (DC 3.11.09), *Rich-poor divide* (DC 5.4.10), *Creating wealth without justice*, The Hindu 27.4.10 and *He who hath shall be given, that's our policy* (The Hindu 26.9.10) already indicate, the route taken by those articles. Inequalities in employment and opportunities as well as safety nets, poverty and low incomes are addressed with a peculiar focus on the group of rural poor versus the affluent (ignorant) urban middle classes.

The theme of rural realities and agriculture constitute another large component of the food security discourse. 10 articles deal with the linkage between food security and agriculture. Sahai (2009: *GDP and India's hungry underbelly*) describes in her article that „agriculture is neglected because it is not part of the charmed circle that contributes to nine per cent growth rates and to the Shining India, which is getting ready to become a global power." The central line of argument deals with the deteriorating effect of drops in farm outputs and limited investment in agriculture. This topic also interests other authors as well as politicians as for example U. Venkateswarlu (senior TDP leader) who comments on negative farm growth, which may impact food security due to government „failure in ensuring uninterrupted power supply, proper distribution of inputs and subsidies and provision of crop loans" (The Hindu 2010b). 3 large articles tackle the National Rural Employment Guarantee Scheme (NREGS) and cite farmers and show their desperate situations and high dependency on additional non-farm work to make ends meet (*Thirty-four months with no income*, The Hindu 1.9.09;

NREGS: not caste in stone, The Hindu 14.9.09; *Dalits, the poor and the NREGA*, The Hindu 12.9.09).

Malone's article (2009) sets of accounts with agricultural policies: The excessive fertilizer usage, water resource depletion, free subsidies for pumps and soil degradation in combination with population growth, climate events and price crisis, which all generate food insecurity. It „provided an unwelcome reminder to Indians that all was not well with the agricultural policy". The author is referring to the interplay of Indian demographics, growing success of the country's overall economy and environmental stress that create a major challenge: „Increasingly prosperous Indians will be eating (and probably wasting more also, as do middle classes everywhere)". Several other articles suggest a controversially debated topic of investing into livestock rearing as livelihood opportunity for rural poor (e.g. Wall 2010). However, he does not contemplate possible consequences on sustainability, climate and overall food security. Other approaches majorly support (or reject) the introduction of GM-crops under proper supervision. Sahai (2009: *Crops: India's grand mistakes*) demands a cautious approach to introducing GM-seeds in India, modeled on the example of China, which banned foreign investment in GM and develops varieties that produce viable seeds in order to protect farmers from large companies such as Monsanto. All in all, there is a number of articles dealing with the debate on Genetically-modified crops, of which many are linked to debates on bt-brinjal (see Osswald 2010). Potential food security and health performance (food fortification vs. health hazard) as well as the threat to biodiversity are the most controversially discussed issues (*Frozen seeds and food security*, The Hindu 12.3.09; *GM food: Risks and benefits*, DC 1.10.09; *The path of science for GM crops in India*, The Hindu 24.3.10 or *Growing debate over GM foods in China*, The Hindu 25.2.10).

Within the investigated period, 108 articles[14] (besides the 80 investigated articles on food security) have been published, which deal with inflation. Among those, only eleven articles in the Hindu and six in Deccan Chronicle were addressing food security (*Pricey politics*, DC 7.3.10; *Will the budget control prices?* DC 23.2.10; *Price rise inevitable – adding salt to the wounds*, The Hindu 23.2.10; *Onion prices turn pungent for common man*, The Hindu 9.10.09). Political dimensions of prices and their institutionalization by parties were discussed as well as how the Union budget could prevent food price inflation (e.g. through stable food

[14] 21 were only small multiline notes.

production or a „properly funded, efficiently functioning and accountable“ distribution system). Articles range from global to local level. The fact that India is the country with the highest annual consumer price inflation (G-20) is covered as well as impacts on ground realities and common people, who can not afford basic commodities anymore. The remaining 91 articles deal with pure economics: Inflation, price hikes or government approaches to price fluctuations.

Solutions to food insecurity are searched for on global, national and local levels. Parsai (2009), for example, deals with the global dimension of food security and explains reasons for the food crisis, which has been discussed in a meeting of FAO and OECD beforehand. He underlines the „underinvestment in agriculture over 30 years“, „high and volatile food prices“ and „continuing economic turmoil“, which all sharply increase the level of global food insecurity. In this context Elliott (2009) asks policymakers to recognize the systemic problem on a global scale and demands tighter supervision for the financial sector, better surveillance of the global economy from the IMF, appropriate capital adequacy rules to restrict banks during booms and incentives for sensibly acting financiers, who engage in long-term investments instead of speculative action. Furthermore, one international article addresses exclusively the link between climate change and food security: Global warming impacts on malnutrition in the developing world are looked into and negative impacts on agriculture are highlighted (Goldenberg 2009). However, in total, only 15 percent of all articles have included climate change as an aspect contributing to food insecurity, (International articles 92%).

Other articles that were interesting in context of this report are two, which solely concentrate on *urban* food insecurity (*Food insecurity in urban India*, The Hindu 25.9.10 and *Hidden hunger* The Hindu 19.4.09) (see p.19). Furthermore, Mander (2010c) investigate the relevance of traditional retail infrastructure (kiranas) in becoming social safety nets for the poor by providing basic commodities and credit in times of hardship.

The remaining articles cover disaster and crisis (7), MDGs (6), Reports of International organizations (4), inflation/prices (4), N.E. Borlaug’s death and the Green revolution (3), malnutrition (2), media as early warning system (1), national security and food security (1), movements/governance (1), productivity, water crisis (1), the food security bill (1) and poverty (1). All in all, the English press in Hyderabad reflects the commonly discussed topics

as well as solutions to food security in academic discourses. However, the articles hardly apply holistic approaches to food and nutrition security or present innovative solutions. Sustainability, even though ecological impacts are mentioned, clearly is a topic of the international agenda. The concentration on the local realities and the PDS system, mirrors that, first of all, the basic facilities need to be in place, before other problem areas are tackled. However, looking at the transformations within the food system (see above) and new challenges to food security, negative long term effects should be considered and prevented and, therefore, sustainability and holistic approaches are necessary.

Climate Change - a seasonal and agenda topic

Within the investigated period (see above) also articles related to climate change have been collected. 134 articles have been found during this time (40 in Deccan Chronicle and 89 in The Hindu). Additionally, there have been 58 articles on weather events, monsoon predictions, droughts, floods etc., of which 27 talked about unseasonal weather events, excessive rainfall, heat, drought etc. However, a gap has been detected in articles relating those events to climate change and global warming. Only five articles did connect the topics weather, climate change/global warming and agriculture/food security (e.g. Poduri 2009 and Singh 2010). Rarely are all three aspects included in one line of argument (exception are the international articles). Two more articles present some scientific facts on climate change, including how temperature increases could affect the Indian land mass and that

> „food security and economy is dependent on the monsoon, which is showing increasing signs of volatility as with this year's monsoon which went missing in many parts of the country. […] In contrast in the states of Andhra Pradesh and Karnataka the very same monsoon wrecked havoc with devastating economic cyclones and events (Bharathan 2009).

A similar article, *Doomsday visions*, also introduces general threats of climate change, including agriculture, where changing weather patterns might have very negative impacts on yields etc. Very few articles deal directly with climate change and food or lifestyle impacts on climate change (Small notices: *This year's rice crops hit by climate change*, The Hindu, 22.10.09 and *Solutions to global warming for poor farmers*, The Hindu 19.11.09). The latter article suggests crop pattern shifts towards traditional crops and improved seed varieties (pearl millet hybrids, improved sorghum lines), which could provide good yields in high temperatures (based on ICRISAT research). This also is a common discourse in Hyderabad.

Reddy (2009) dedicates a whole article to extreme climate patterns, which she attributes to climate change, which resulted in current droughts and floods in A.P. Authors, who directly address the threat of climate change to food output are scarce (e.g. Sehgal 2010), even though the forecasts for South Asia are very negative: Production levels are estimated to decrease by 40 percent, marine fish and inland water production is likely to decline and reductions in reproduction efficiency of dairy animals are expected as well. The author also criticizes that the countries who have contributed majorly to climate change might benefit from its impacts. Besides that, five articles tackle consumption and impacts on climate change. Several articles deal with the question of vegetarianism (4) and its potential contribution to climate protection (*Less meat consumption is not less global warming*, The Hindu 25.3.2010 and *Vegetarianism boon in India* ,DC 9.11.09). The latter one highlights India's contribution to climate protection due to its high number of vegetarians, while the former one favors smarter animal farming and cuts in oil and coal usage for electricity and vehicle fuels in the West (instead of threatening food security by consuming less meat in India).

All in all, lifestyle impacts on climate change and sustainability are very seasonal topics, generally not well covered (even in the English press) and mostly influenced by western newspapers such as the article of Jha (2009), which analyses that overweight people have higher food and fuel requirements and, therefore contribute to more greenhouse gas emissions. Also, linkages between weather events, climate change and sustainability are rarely explained. However, for the development of mitigation and adaptation strategies this is crucial knowledge. Mitigation is addressed by several articles, but dominated by a strong belief in technological solutions instead of lifestyle adaptations. This low priority also needs to be considered and tackled by further research as well as awareness programs. Furthermore, climate change seems to be a very seasonal topic (a detailed newspaper analysis on climate change discourses 2008/9 has been conducted by Reusswig 2009). Therefore, new lifestyle trends and impacts on sustainability as well as climate change should become an integral part of school curricula.

3.7 Schools as role models in food and nutrition education?

As Lohr and Dittrich (2007:30) highlighted, school education needs to play a major role in acquiring knowledge on food and nutrition as well as sustainability. Only very progressive private schools or those with an alternative learning approach (Montessori) do go beyond the basic biology sessions on nutrition. The school books mostly contain one chapter on nutrition

(calorie intake), explaining that it is important for growth, energy or repairing of cells. Furthermore, it introduces carbohydrates, fats, proteins, minerals and vitamins as well as symptoms of deficiencies and malnutrition. However, pupils do not learn how to apply that knowledge to (their own) practical life. The inclusion of topics such as new diet patterns and health consequences (e.g. Secondary malnutrition) as well as ecological consequences are a necessity in order to sensitize children/adolescents and raise awareness on sustainability. Practical sessions on what a balanced diet means, should include the preparation of healthy food as well as the provision of nutritious school lunches and snacks. Ecological impacts of food and lifestyle also should become an integral part of school curricula. Furthermore, the principles need to be applied to school menus too. One Montessori Pre-school in Hyderabad, for example, communicates concrete recommendations/rules on what kind of foods children should bring to school: One portion of fresh fruits per day is mandatory as well as a full meal preparation (no snack items such as idli/dossa etc. are allowed) and water for drinking. Chocolates and sweets are not permitted during meal times. Children who have high exposure to advertisement (TV, movies etc.) and access to processed foods (chocolates, soft drinks etc.) also need to learn a sensible handling (which products might be relatively healthy, quantities to be consumed, food safety, ecologically sound food sources etc.) and how to debunk commercial marketing tricks. Parents who dismiss the new lifestyles and realities of the younger generation often generalize that all outside food is harmful. However, that will not prevent their children from consuming it and does not help in making wise choices. Therefore, the education of parents must not be neglected either. There still exists a number of adults (including the grandparents), whose beauty ideals are rooted in traditional values and their major concern is that children do have a full stomach and put on enough weight. Hence, they will hardly get alerted, if their children show signs of being overweight. Schools, which serve lunch, should prepare healthy and wholesome meals, made of regionally produced ingredients (the wealthier ones can even invest in organically grown products). The article *Eating right, living right - The importance of children having healthy eating practices* (Sathiaraj 2010) reveals that many schools who offer food are highly influenced by western fast-foods and serve toasts, pizzas, fries or other greasy rolls, packed juices and soft drinks. This gives wrong signals to children, because they „acquire (food) habits very early and these habits are persistent. […] It is important that they eat the foods required for growth. But it is even more important that they learn to like them, prefer them, and continue to eat them even when they grow up and choose their own foods“ (Kansakar 2010:61). This is as true for a sustainable way of living as it is for food consumption.

CONCLUSION

The times, when groceries were called „provisions“ and the times of coconut or gingelli oil traders as well as buffalo milk vendors with their tremendous cans are not gone – those suppliers still wander along the streets, calling out their products and deliver food to the majority of households in Hyderabad. Instead the urban environment itself has changed and been reshaped. Some peoples' life realities have been spatially shifted towards residential areas, out of reach of traditional vendors and grocers. Other residential areas themselves have been „upgraded“ and banished traditional formats of retailing (e.g. in *gated* communities). But, what definitely has changed, is that urban life is taking place at a faster pace and vendors have to worry more about competitors and their livelihood. However, the examination of the food system has not only proved how well suppliers and vendors have stitched themselves into the boom of the megacity of Hyderabad, but also how important the role of traditional food provisioning, distribution and trading still is within supply chains and with regard to food security. Organized retailing, restaurants, hotels etc. still highly rely on traditional supply chains, especially in case of perishable items, which are steadily delivered by producers and vendors. Large amounts of products are still traded in a decentralized manner (vegetables/fruits, grains, dairy, meat), however, distances to origins of food have increased over time and with changes in preferences. Among the affluent consumers imported (mostly packaged) goods are of high (social) desirability. The awareness of social and environmental impacts of consumption, in contrast, still is very low across all social strata.

Especially, the new well-educated middle classes have the means and knowledge to make a major contribution to sustainable living (also as role models) and setting the course for the future. The individualistic and modernized lifestyle, which can be characterized by high individual control over shaping one's life as well as change itself, does not seem to foster socially responsible behavior and awareness. Education as well as personal interests hardly touch upon new problems related to modern (sedentary) lifestyles with new diet patterns, unsustainable consumption and climate change. Instead affluent people relish in more and more packaged (exotic) food, meat products and general convenience without bothering about social and ecological consequences, while rates of urban malnourishment among lower income groups persist and (secondary) malnutrition increases at the same time. This double nutrition burden also reflects the problematic situations of the urban low income groups, who lack education and means to ensure a balanced diet for themselves and future generations. Looking at the drivers of social change and dimensions of current food system

transformations, all aspects of food security are threatened. Availability is affected by current trends in decreasing productivity rates, population growth, urbanization/urban development, climate phenomena, a promising biofuel market and consequences of mismanagement in food governance. Parallelly, the displacement of central market locations, intensified restrictions and competition to traditional retailers and vendors further reduce access to nutritious and affordable food. Persisting problems of lack in amenities of safe drinking water and a clean living environment, inequality in intra-household food distribution and knowledge gaps (health food) in combination with new food and consumption *temptations* pose additional risks to households in precarious financial circumstances. Hence, the analysis displays the urgent need for versatile strategies, which are able to address old and new challenges within the food system in a coherent way and translate the changes into (policy) action. If a viable policy initiative, for example, livestock rearing is resource-intensive, long term affects on food security need to be considered. If livelihood opportunities on one end neutralize positive impacts of social safety net programs at the other end, it is counterproductive. Allowing FDI in multibrand-retail is another such case, where consequences on livelihoods and sustainability should be looked at thoughtfully. Especially, because Indian regulations and enforcement malfunction and are mostly inefficient.

A first step to be taken is that political stakeholders who are part of this highly complex food system, need to acquire detailed knowledge beyond their specific areas of work. A holistic way of thinking, which embraces sustainability issues, is a necessity to guarantee positive long-term effects. However, training is required and the perception that employees only deal with their assigned area needs to be overcome. Institutions need to jointly develop their programs and strategies to avoid double work and neutralizing effects of programs. Government institutions also need to sort out, how to meet their responsibility of providing a social safety net that goes beyond the prevention of total hunger. The PDS-System could easily become a role model in food and nutritional security, but that would require increased investments. Supporting, for example, the sparked new interest of middle classes in traditional millets and other coarse grains should be pursued by the government and could also be transferred to the PDS-system. However, obviously food governance is confronted with conflicts of interests, because economic growth too often implies social or ecological trade-offs (e.g. biofuel, livestock etc.).

Interviews with vendors and traders across the food system also revealed that people barely bother about climate change and sustainability, but about its consequences. The high prices majorly affected small-scale vendors and consumers, especially from lower income groups. The rice price crisis and the current trend of inflation, which is among other reasons caused by (unequally) distributed growth, display a potential future threat to food insecurity. The newspaper analysis showed, furthermore, that only selective linkages and aspects of food insecurity have been incorporated into lines of argument and the understanding of officials as well as common people (e.g. linkage: weather –food). Often, indirect linkages and long-term effects have not been assimilated and activities that do not show an immediate visible impact seem to be difficult to communicate and are not favored by the community. However, if the attempt is not made to assure the consideration of long-term effects and sustainability into planning and implementation processes, it is likely that only symptoms are cured and causes not treated. The combination of fragments of traditional values and concepts (health and beauty ideals, convenience as sign of wealth, persisting hierarchies) with modern ways of consumption behavior does put major pressure on resources and climate change.

Therefore, the coexistence of traditional suppliers and networks with new forms of corporate infrastructure should be oriented towards sustainability and traditional traders need institutional support in order to sustainably adapt to new trends. Their positive social role and environmental performance need to be highlighted and supported to attach a new label to them and increase their social desirability.

This report has compiled knowledge on the structure and functioning of Hyderabad's food system and provided an analysis of structural change coupled with transformations in consumption. Interrelations and connections between the components have been indicated and an overall picture of the food system has been sketched. To conclude, a manifold approach to food governance, which is not only confined to the administrative level, should include:

- A *health campaign* with focus on middle-income groups that tackles food and nutrition education, which entails lifestyle impacts as well as sustainability and presents incentives to change lifestyles and food habits.
- Institutional and financial support for the traditional retail sector in form of hygiene and marketing trainings, the provision of adequate facilities and credit and the establishment

of new linkages, for example between small-scale enterprises and educational institutions or organic producers.

- Redesign of PDS-System: Adaptations to current trends in food consumption in form of distribution of nutritious traditional coarse grains or fresh (organic) vegetables/pulses supplied by decentralized and local sources through the Fair Price Shops.
- Incentives for producers to *sustainably* increase food production in line with economic trends and institutional support in coping with changes in infrastructure and trade practices.
- Development of mitigation and adaptation strategies that consider prevailing perceptions and behavior and might as well tackle them.

Further research should particularly concentrate on the feasibility and establishment of new linkages between farmers, small-scale vendors and institutions. Furthermore, adequate data on individual and urban ecological footprints of Hyderabad as a city would be useful in order to develop mitigation and adaptation strategies.

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GLOSSARY

AMC	Agricultural Market Committee
AP	Andhra Pradesh
APL	Above poverty line
AWC	Anganwadi Center
BMCU	Bulk Milk Cooling Unit
BPL	Below poverty line
CACP	Commission for Agricultural Costs and Prices
CAGR	Compound Annual Growth Rate
CESS	Center for Economic and Social Studies
CRO	Circle Office
CSA	Center for Sustainable Agriculture
DC	Deccan Chronicle
DDS	Deccan Development Society
DFID	Department for International Development
FAO	Food and Agriculture Organization
FCI	Food Cooperation of India
FDI	Foreign Direct Investment
FNB	Food and Nutrition Board
FP-Shop	Fair-Price-Shop
GHMC	Greater Hyderabad Municipal Cooperation
GM	Genetically Modified
HIV	Immunodeficiency virus
ICDS	Integrated Child Development Services
IDA	Industrial Development Area
IFPRI	International Food Policy Research Institute
IFOAM	International Organization of Organic Agriculture Movements
LPG	Liquefied Petroleum/Propane Gas
MCC	Milk Cooling centers
MDM	Mid-day meal
MIS	Market Intervention Scheme
MRP	Maximum Retail Price
MSP	Minimum Support Price
NPOP	National Project for Organic Production
NREGS	National Rural Employment Guarantee Scheme
NGO	Non governmental organization
NH	National Highway
NIN	National Institute of Nutrition
NSSO	National Sample Survey Organization
NUMH	National Urban Health Mission
PDS	Revamped Public Distribution System
PGS	Participatory Guarantee Systems
PEM	Protein Energy Malnutrition
RDA	Recommended Dietary Allowances
R.R.	Ranga Reddy-District
Rs.	Rupees
RTE	Ready-to-eat food
TDP	Telugu Desam Party
TN	Tilak Nagar

UHM	Urban Health Mission
UNCTD	United Nations Conference on Trade and Development
UP	Uttar Pradesh
WFP	World Food Programme