Grandmother's Recipe for Zoning and Land Use Planning

A Research Paper submitted to the Department of Engineering and Society

Presented to the Faculty of the School of Engineering and Applied Science
University of Virginia • Charlottesville, Virginia

In Partial Fulfillment of the Requirements for the Degree
Bachelor of Science, School of Engineering

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Spring, 2020

On my honor as a University Student, I have neither given nor received unauthorized aid on this assignment as defined by the Honor Guidelines for Thesis-Related Assignments

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Fable of Tomorrow

Grandmother sat in her chair one cool autumn evening with a book in her hand and her grandchildren all around her. Some were playing, some reading, others colouring or laughing. As the evening drew on, and the light dimmed, the youngest of them came up to her and, looking back tentatively at the others, asked, "Granny, have you always lived here?" For a moment Grandmother was surprised, then amused. "Not always," she replied, smiling, "I've always lived in this city, but not always in this house. We moved to this house back when I was only a little older than you."

"How come?" came the response of one of the other children, whose interest was suddenly peaked.

"Back then the city was going through a lot of changes, and we couldn't stay where we were."

"What kind of changes?" was asked by yet another child as they all gathered round her, hoping for a story.

"Well," said Grandmother:

"The city was smaller than it is now,
And many people moved here.
With all the new neighbors
I made many new friends here.
I learned about where they were from,
And walked to their houses.
I tasted all their new foods,
And we biked to the park.
We played together,
And laughed together.
We went to school together,
And the city grew.

And as the city grew,
Our neighbors grew farther,
And we did too.
We ate at new restaurants,
And drove to the parks.
But now the parks grew houses,
And we didn't play there,
We didn't laugh there,
We only drove past there.
And the city grew."

"That doesn't sound like *our* city at all!" chorused the grandchildren, unable to imagine their city an different than it was now and, so they thought, as it had always been. But bemused came Grandmother's reply:

"As the city grew
Many people moved here

But the buildings withdrew.
We ate our friend's foods,
And at restaurants too.
We biked to new parks
And walked to different schools.
And the days grew,
And we grew,
And the city grew"

With a sigh of relief, the children all sat back. "But how did they know to build new parks and schools and restaurants and to put them closer to where everyone lived?" one suddenly asked, concerned again. Grandmother gave a gentle chuckle,

"The details are a little complicated to get into; why, you could write a whole paper on the subject! Suffice it to say that there are many people who work hard to ensure the right buildings go in the right places, and that our city is built for everyone."

Introduction

Countless cities around the world are growing rapidly and are projected to keep doing so for the foreseeable future, and as they grow, inevitably changes will need to be made to many existing parts of these cities; parks and schools, factories and offices, homes and apartments, shops and small businesses, and underpinning all of the other changes, invisible to most people, zoning will change as well. Zoning dictates what can be built where in a city, and as such has an enormous impact on people's daily lives, yet to most residents of a city, it is an abstract concept at best, if they even think much about it at all. However, to those city planners who spend their entire work day thinking about how to assign zones, there are numerous considerations that must be taken into account from keeping their city running efficiently, to remaining equitable to its different citizens, to minimizing the environmental impacts of building increasingly large, dense cities. While large cities have been around for centuries, the idea of a megacity (one with over 10 million residents) is comparatively recent, and even cities that are merely large are growing and changing at a rate unprecedented in history, leading to novel issues ranging from mass transit to climate change. With this in mind, it seems that not only will new technologies and ideas be needed to solve the problems of these cities, but also reimaginings of the old ideas that these new one will be built on. This leads us back to zoning, and how not only zones themselves may need to change, but the underlying approaches taken to assigning them as well.

While there are many cities around the world that could be examined for their approaches to adapting to change and growth, there are perhaps none that can rival the city of Shenzhen on the Pearl River Delta in Guangdong province, China. Not only is it a city that has undergone practically unheard of population growth in the past forty years (from a fishing village of 35,000 to a technological centre of 12.5 million (Shenzhen Area Population)), it has also become a mecca for technological and social experimentation as both a hub of innovation and one of China's exemplar smart cities. It is therefore Shenzhen that this paper will look at to examine how zoning might be managed in a growing city by looking at it and its effects through the eyes of those living there. It will start by looking at some background for Shenzhen and how it has grown, then combine a pair of existing socio-technical frameworks to analyze the city's changes. Finally, everything will be pulled together to provide an answer to the question, how can we understand zoning strategies in an age of rapidly growing, developing cities to ensure they achieve the desired outcomes for everyone?

Literature Review and Background

After the city, originally a small fishing village, became a SEZ, a sudden influx of foreign investment and industry into the city led to a corresponding influx of migrants from other regions of China (Qian et al., 2015). With an increase in the population, there was a significant demand for additional housing, which created an economic incentive for farmers (previously one of the largest groups in the city) to convert much of their land into affordable housing, industrial and commercial buildings, and for a number of other uses. These areas became Shenzhen's 320 or so "urban villages", a common site in growing Chinese cities, and an important part of both their cultures and economies (Hao et al., 2012). This development was allowed by the city, along with a great deal of additional construction in these villages that was less than strictly legal, because it contributed significantly to the economic growth

of the city, and to the city's income as it sold land use rights (a major source of income for many Chinese cities, in some cases accounting for as much as 50% of their income (Qian et al., 2015)) to the farmers turned landlords (Hao et al., 2012).

Around 2005, the city began to curb its rapid growth (Qian et al., 2015). It had grown by 891 km^2 from 1987 to 2005, and much of the developable (as well as arable) land had been consumed, as can be seen in fig. 2.1 (Qian et al., 2015). Shenzhen implemented a number of policies inspired by other major cities around the world, adapted for local use, to accomplish this, but two of the biggest changes were a transition from an income for the city based primarily on land use sales to one based on income tax and an encouragement of vertical over horizontal growth (Qian et al., 2015). With this change, there was a significant push to redevelop parts of the city, including the urban villages, to make more efficient use of already developed land. Rather than expropriating the land used for these villages, the city, in 2009, enacted policies that, among other things, encouraged developers to work with the existing land owners and residents to come to an agreement on how to move forward, with the local government acting only as a mediator and an enforcer for whatever contracts the other parties agreed on (Qian et al., 2015). Additionally, these policies allowed a certain portion of the structures on the land to be illegal, to make up for the city's previous overlooking of illegal development (Qian et al., 2015).

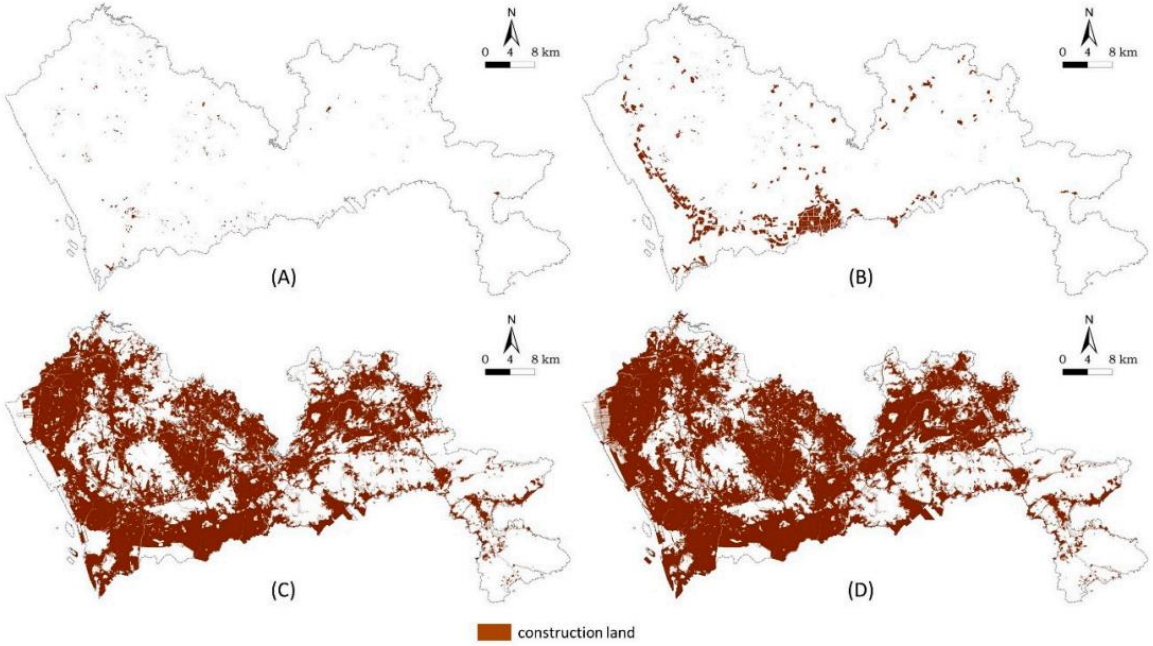

Figure 2.1: The evolution of construction land in Shenzhen: (A) 1979; (B) 1986; (C) 2005; and (D) 2014 (Qian et al., 2015)

Framework and Analysis

To help explore this topic in more depth, a framework is needed to provide a lens through which to assess it. Two existing options lend themselves well to this particular situation: Social Construction Of Technologies (SCOT) and Social Construction of Target Populations (SCTP). SCOT provides a way to look at the interactions between different

groups, technologies (in this case, the land use regulations), and the different issues each group faces (Schneider, Ingram, 1993). While this provides an overview of the technical interactions, it does not show the social interactions between groups, and in particular power dynamics. That is where SCTP is useful, it shows which groups are more or less favored by looking at policies and their outcomes for each group (Sismondo). A combination of these two should produce a succinct but valuable map of the changes in land use.

These two frameworks will be combined by creating a map (or several for different points in time) of different groups, their issues, and relevant technologies (as in SCOT) along with links between them that indicate which groups and technologies are more or less favored by the others (as SCTP provides). By combining these into a single map, it should become more apparent why given technologies (i.e. land use regulations) are chosen and what their outcomes are.

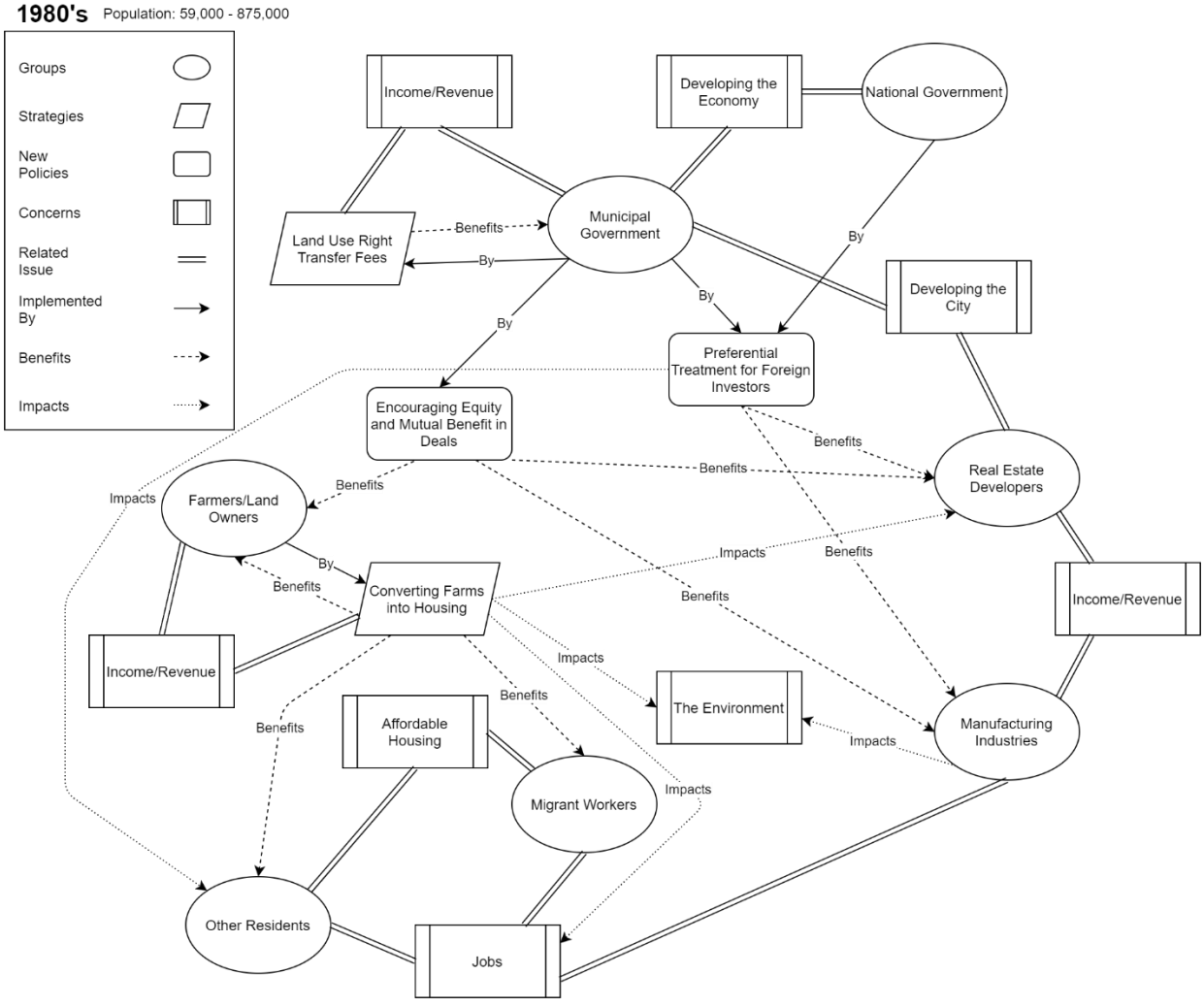

Figure 2.2: Map of major groups, their concerns, and the policies and strategies that affect them in Shenzhen in the 1980's

Combining these two frameworks will require more information than can be obtained solely from the documents used here so far. A review of policies and the stories of the residents of Shenzhen will be needed to build an understanding of the history here.

The analysis for this paper is broken into two primary areas: looking at how changing land use impacts people's lives and looking at how it is done (what are the laws and mechanisms behind it?). As such, the data collection for this paper is also broken into two main areas: news and personal stories and land use regulations respectively. For the first area, news and personal stories, the data comes primarily from the archives of news sites, whereas the data for land use regulations comes directly from those regulations.

The personal and news stories are where the bulk of the work of this paper resides. By looking at both the content of them and the tones used, some insight can be gained into what the effects of changes have been on the people of the city. By plugging this into the framework lain out above, it will provide insight into whether or not changes are having the effects they were intended to.

Additionally, the regulations that govern land use can provide some insight into what the desired effects of changes are. These can then be compared to the actual effects to see how effective the changes were.

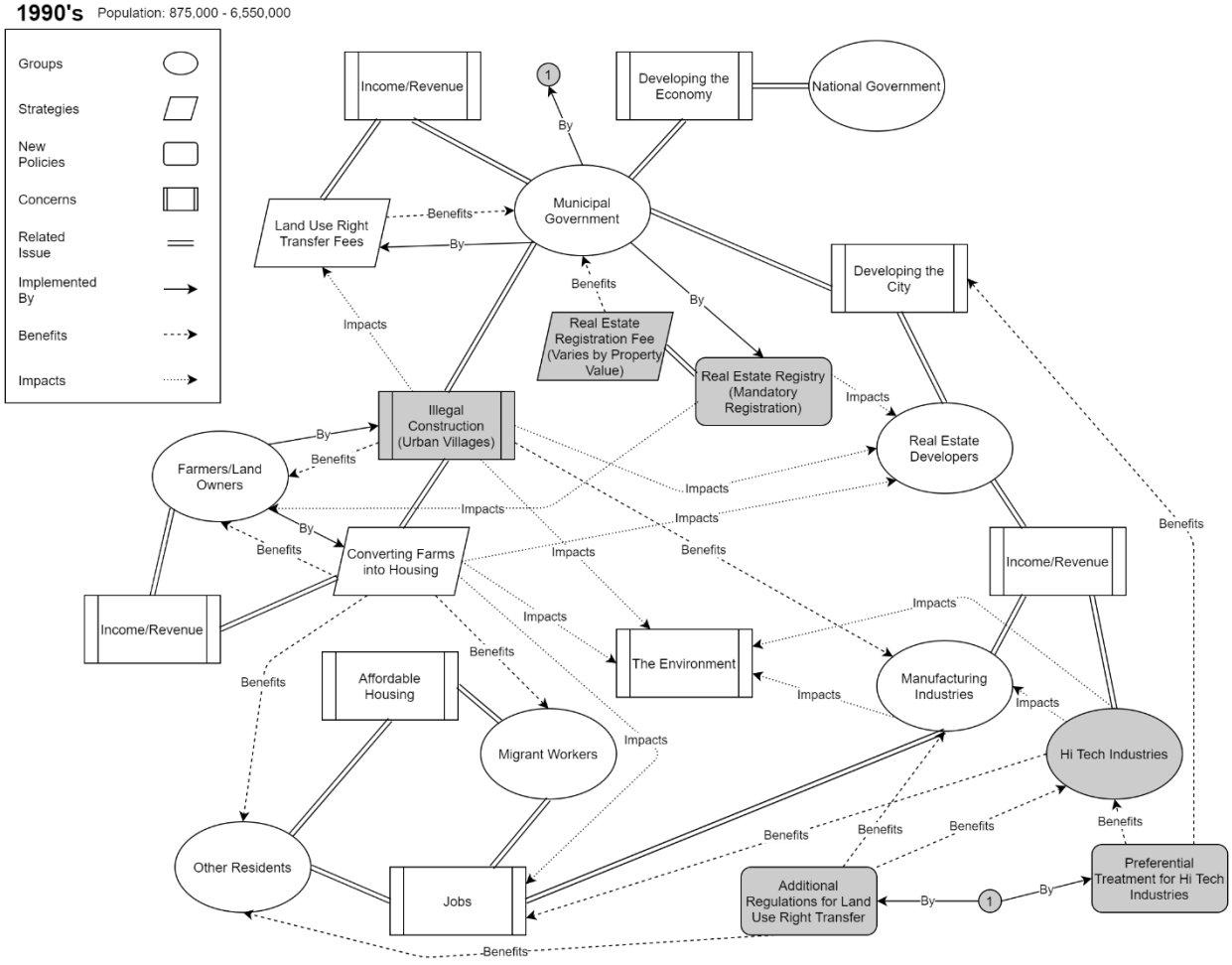

Figure 2.3: Map of major groups, their concerns, and the policies and strategies that affect them in Shenzhen in the 1990's

The four diagrams above and below, figs. 2.2, 2.3, 2.4, and 2.5, show the culmination of this analysis. Each one looks at the situation in Shenzhen for a different decade, starting in 1980 and going up to the writing of this paper. The changes from one map to the next (shown in grey) show the evolution of the concerns of various groups and how they are addressed.

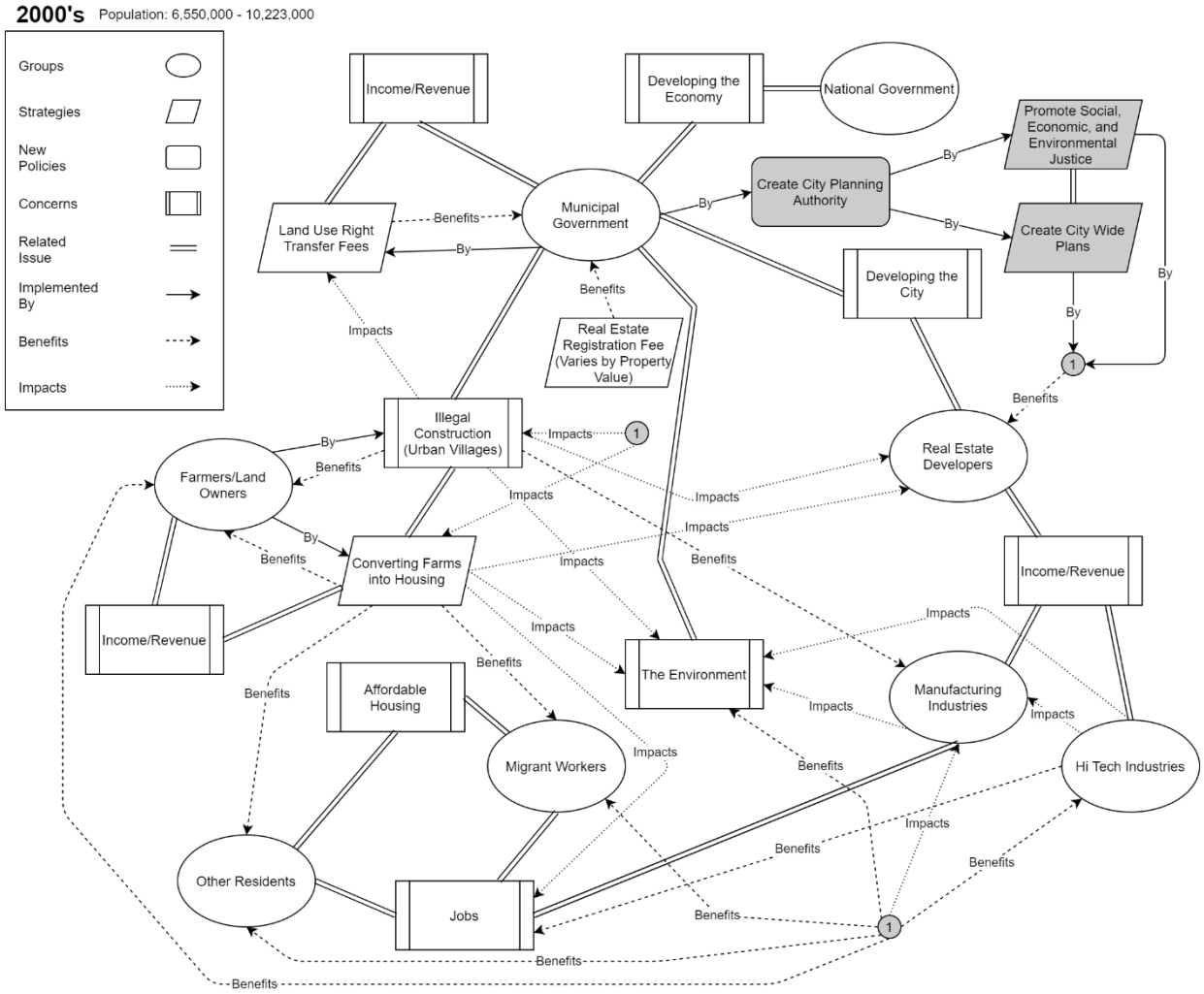

Figure 2.4: Map of major groups, their concerns, and the policies and strategies that affect them in Shenzhen in the 2000's

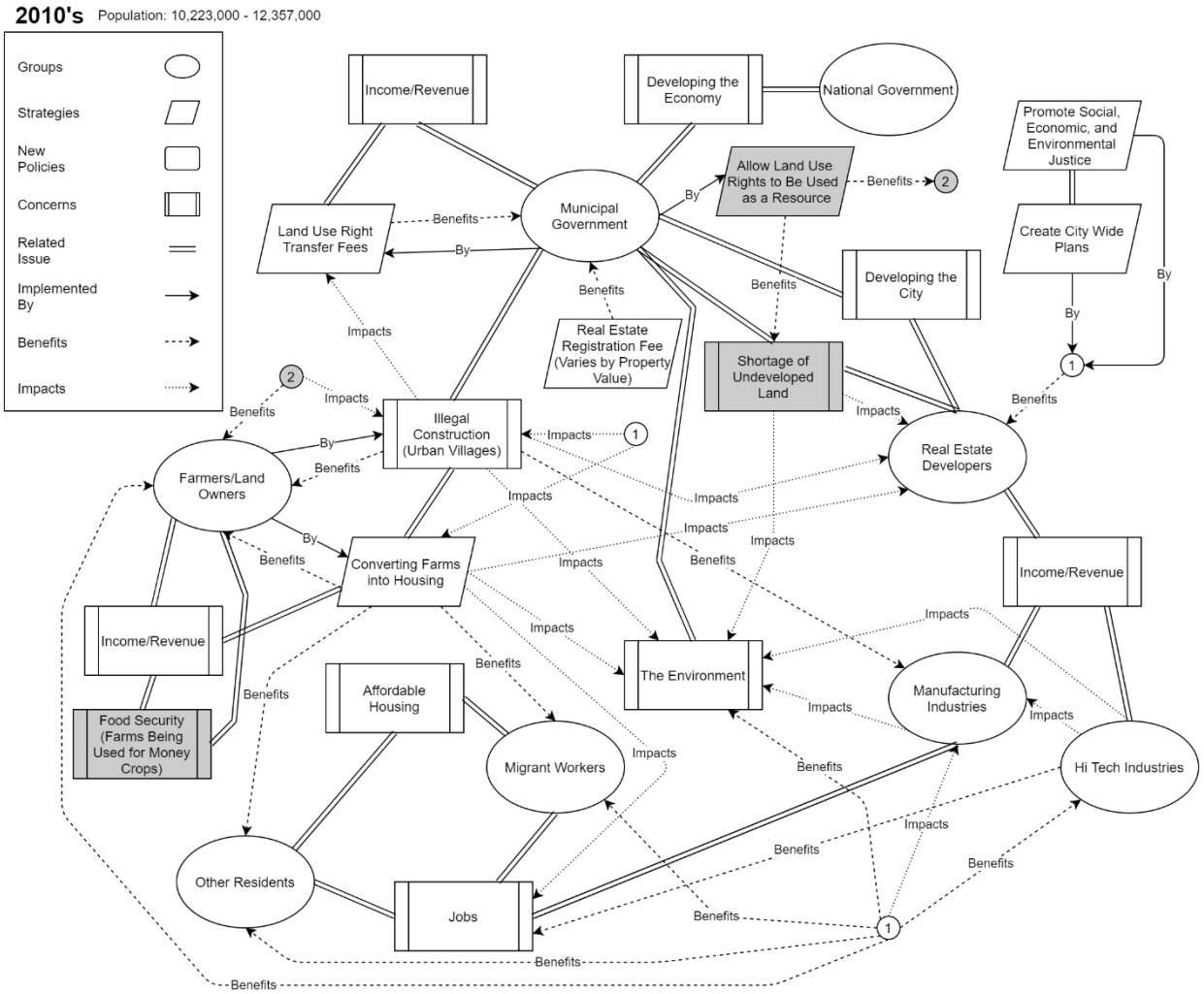

Figure 2.5: Map of major groups, their concerns, and the policies and strategies that affect them in Shenzhen in the 2010's

Discussion

A number of changes have occurred in Shenzhen over the forty years since it was declared an SEZ. As the city grew in size, and as the focus of its economy changed, it implemented new strategies for trying to manage how land was used. Some of the earlier approaches focused more on knowing what was happening in the city, but as it developed, and as its issues became more apparent, more strategies to control how further development and redevelopment occurred were implemented. The most effective of these seems to have been the creation of the City Planning Authority in 2001 (Regulation on City Planning, 2001). This authority has the mandate to create a comprehensive plan for the growth of the city, from high-level, broad areas down to individual city blocks. This allowed the development of the city to not only be more cohesive, it also helped to alleviate problems that are typical of a purely market driven system (those that occur because there is no economic incentive to avoid them such as environmental damage or a preference for growing money crops over staples, resulting in not enough basic food stuffs). An important aspect of both the City Planning Authority, and of all the earlier laws, regulations, and strategies used to help

manage the city's growth, is that it specifically puts a focus on equity, social and environmental justice, and ensuring that all residents' voices are heard (most of the places where the municipal government can make changes, it has to first solicit feedback through open sessions or by mail). Some policies do give preferential treatment to certain groups, such as real estate registration for hi tech industries. This is done in an effort to encourage those industries, and never seems to be done to the detriment of any other group.

The strategies implemented here have two main takeaways that can be applied to other large or growing cities (especially the latter): one, the creation of an authority that can coordinate planning and development across the city at all levels and in all sectors, and two, the importance of working with all affected parties in making changes to the city.

The first of these is important because of the interconnected nature of everything and everyone in a city (especially a modern city with digital infrastructure); everyone uses roads or transportation services, everyone uses communications infrastructure, pollution and damaged ecologies affect the entire city and the area around it, but none of these things can be well addressed only on a small scale, they all require the intervention of a more powerful entity. This entity needs to have those interests at heart to balance the other large forces in a city's growth that do not make those their focus.

The second lesson is to ensure that those with fewer resource or less ability to make their voice heard (especially those like the environment, which have *no* voice other than the Lorax) are not overlooked and left out of important decisions that affect them. Even putting aside any moral reasons for this, there are practical reasons as well: all parts of a city serve some role in the complex web of interactions that make a city a city and not just a large number of people living in the same place, and not addressing the needs of any part affects all of the others.

These are only two simple takeaways from this analysis, and there are surely many others that could be found with a more thorough study. One particular place that this could be improved upon is some of the most recent policies and strategies used, which are not covered in detail here due to the difficulty of finding translations of the original Chinese documents. It is also worth noting that this analysis was done of a Chinese city, and some of the strategies used there may not be as applicable in other countries. For example, a central planning authority might not be as willingly given as much power to create plans for a city in the US. However, the could still be adapted, as Shenzhen did with other policies, to fit the needs of any given city.

Conclusion

With cities around the world growing in size and complexity all the time, and not likely to stop any time soon, it is critical to remember that underneath the visible signs of change, the new buildings, the widening roads, the networks of sensors and computers, there is a system that determines where all of those things go and who benefits from them. To ensure that the zoning and land use policies and strategies implemented are done so fairly and effectively, it is important to consider all of the groups affected by them, whether directly or indirectly, and look not only at the intended effect of the policies, but also the actual outcome as seen by the people who experience them.

Of course, the approach presented here is only one of many ways to look at these impacts, and if figs. 2.2, 2.3, 2.4, and 2.5 make nothing else clear, it is that these are complex

issues that cannot be simply understood in their entirety. However, if enough different approaches are combined to reveal more of the whole picture as seen by all of the different people living in a city, then perhaps we can create cities like Grandmother's where communities grow together, not apart, as their cities grow.

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