

المواصلات في الوادي.
وسائل النقل الجماعي في المناطق
الريفية بأسبوط

NEXUS OF THE NILE

RURAL MASS TRANSIT IN ASSIUT

LEAPS AND LAPSES
Infrastructure and Network Development

INTERLINKED NETWORKS
Exchange Centers
National Framework
Shortcut Hierarchy
Vehicular Operating Territories
Vehicle Typologies
Interstitial Infrastructure

COMPREHENSIVE MOBILITY
Access on Demand
Affordable Fares
Diverse Passenger Profiles
Scalar Alternatives
Supply City
Urban Attractors
Supply Symbiosis
Assiut's Reach
Commuter Central
Mobile Society
Anatomy of a Bus Station
How to Ride a Microbus

LAISSEZ-FAIRE REGULATION
Opening the Market
Landlord Policies
P2P Network
How to Register a Microbus
Tuk-tuk Transition
Accidents Take Toll

MASS TRANSITION
Catalyzing Connectivity
P2P Monopoly
Rural Hub

ETH Studio Basel
Contemporary City Institute
Andrea Grolimund, Franziska Singer, Tiffany Wey

Prof. Roger Diener, Prof. Marcel Meili
Mathias Gunz, Rolf Jenni, Milica Topalovic
Christian Mueller Inderbitzin

Spring Semester 2009

DRAFT
© ETH Studio Basel

NEXUS OF THE NILE

RURAL MASS TRANSIT IN ASSIUT

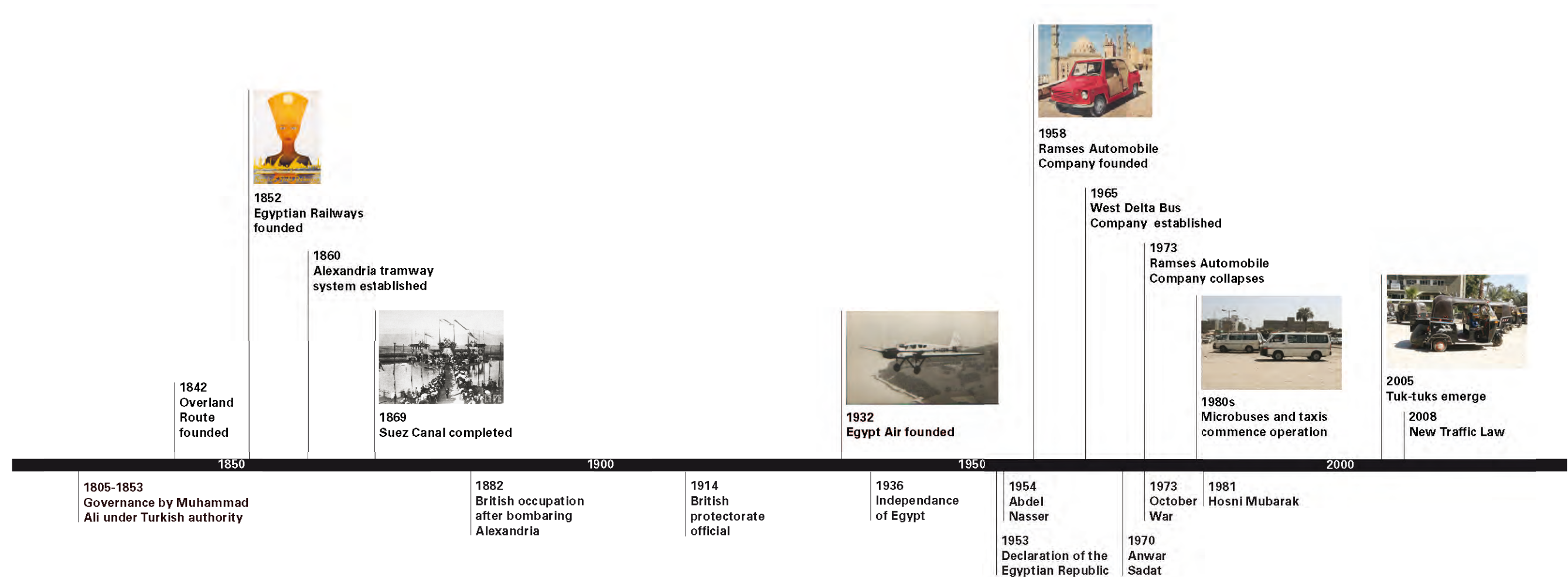
Urbanization is by definition the expansion of urban lifestyles into rural areas, as well as the movement of people from rural to urban areas. Considering this definition, our topics of inquiry regarding Assiut are to what extent mass transit—passenger transportation services available for public use—enables and indicates urbanization, how degrees of mobility define territory in the Nile Valley, and how this system of movement is enacted by its political actors. We investigate Assiut as a case study of a simultaneous center and connection within a national network along the Nile, distributing its resources via the exchange of services between the city and the rural population.



LEAPS AND LAPSES

Historically eager to develop infrastructure, Egypt was second in the world to lay a national rail network, and Cairo is the first and only African city so far to have implemented an underground metro system. Yet, despite pioneering developments in the Nile Delta, Egypt's transportation network has barely progressed from its initial inception in the Nile Valley, where aging railcars creep along antique tracks. Egypt's transportation system is an urbanization paradox of quantum leaps and lapses; the government seizes opportunities to initiate construction of national transportation infrastructure but fails to maintain the system, ultimately leading to its disrepair.

The government and its citizens have become increasingly reliant on informal transit to fill economic and infrastructure gaps. Mobilized by the post-October War Gulf Oil boom of the 1970s, Egyptian workers invested Gulf earnings in private vehicles for mass transit use. This informal entrepreneurship escalated in the 1980s, leading to expansive private sector growth in regional mass transit. With the current network at capacity, the Egyptian government has instituted efforts through private-public-partnerships to improve infrastructure and regulate public safety.



Infrastructure and Network Development



48%

Intercity Taxis / Microbuses



34.6%

Private Cars



8.7%

Innercity Buses



3.8%

Railways



0.6%

Long Distance Buses

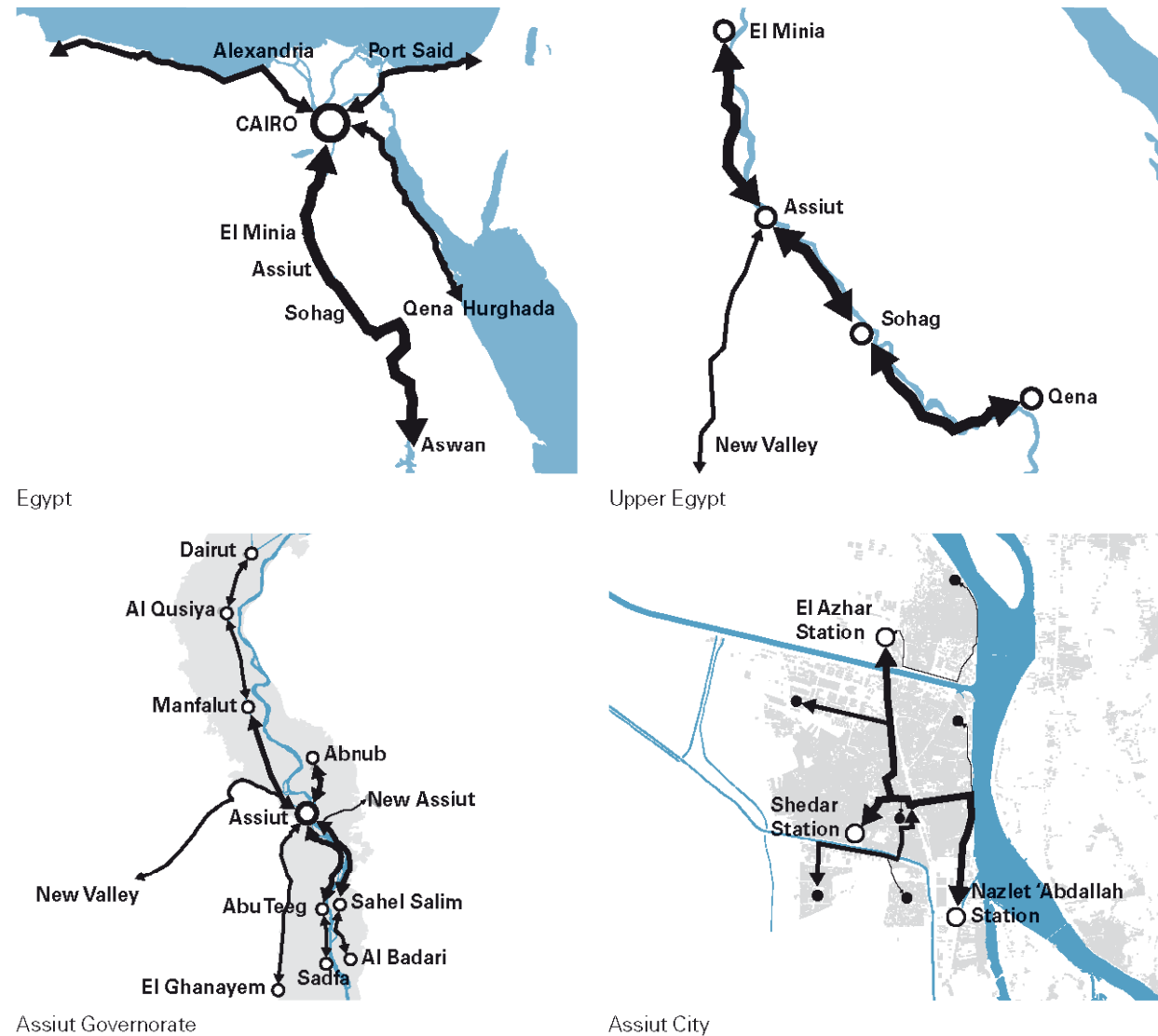
Private Sector Dominance

According to the International Association of Public Transport, in 2003, 83% of 60 million daily passenger trips in Egypt were hosted by individuals (taxis, microbuses, and private cars) working for intercity and urban services.



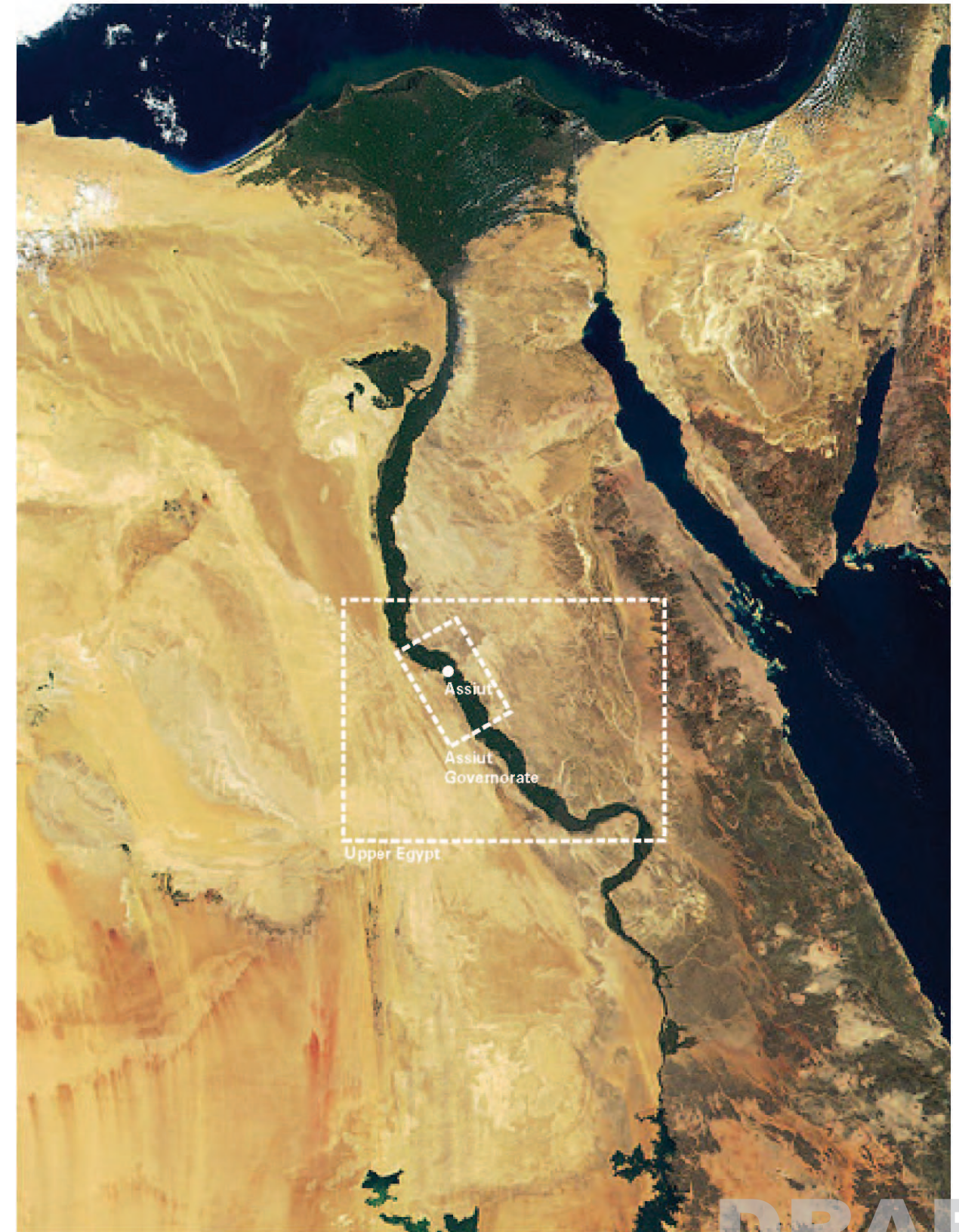
INTERLINKED NETWORKS

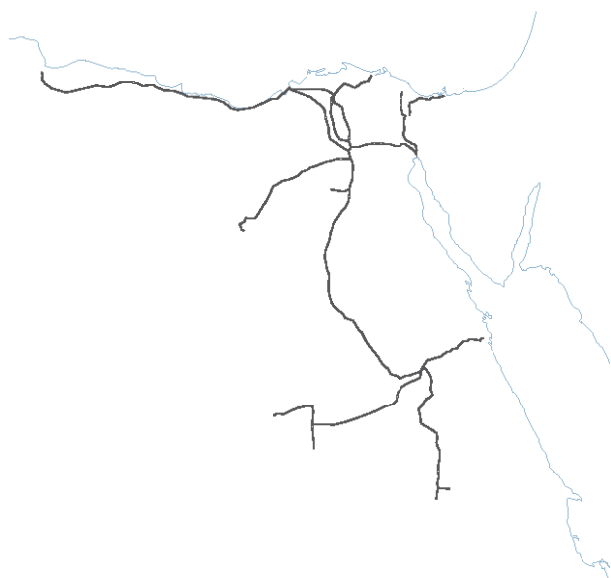
Assiut extends across several scales of transport networks: the city scale within the borders of Assiut City, the regional scale of adjacent villages within Assiut Governorate and governorate capitals of Upper Egypt, and a national scale of Egypt as a whole. The network functions to direct movement in a series of successive scales, consolidating flows on one scale and distributing them to a larger scale. Privately-run mass transit operates within the interstitial infrastructure of a regional network that plugs into state-implemented national networks. In this way, the system allows for the dynamic and informal re-configuration of the regional network within a formalized national framework.



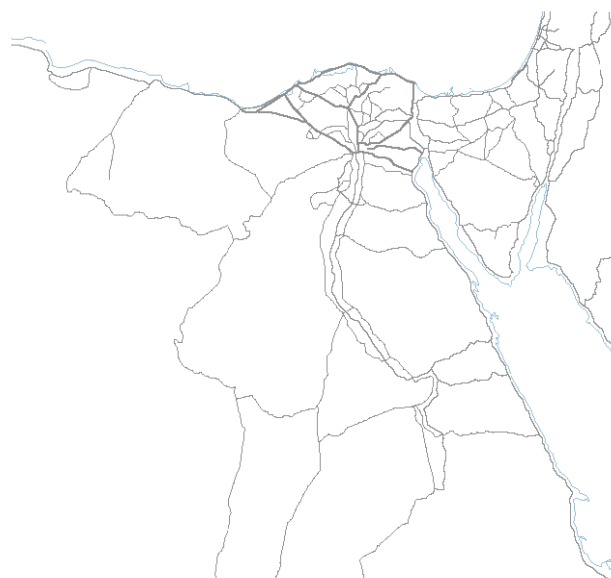
Exchange Centers

Cairo acts as a national center connected to a series of regional centers. These centers act as exchange points along the Nile; Assiut collects village and inner-city passengers and re-distributes them via bus station end points.





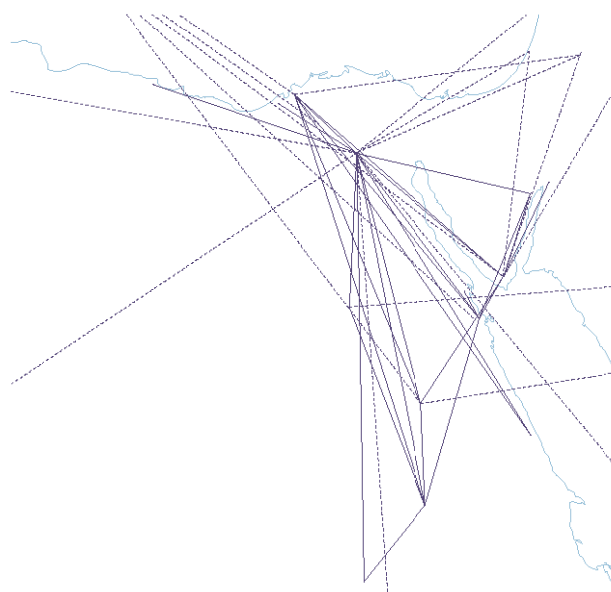
Railways



Roadways



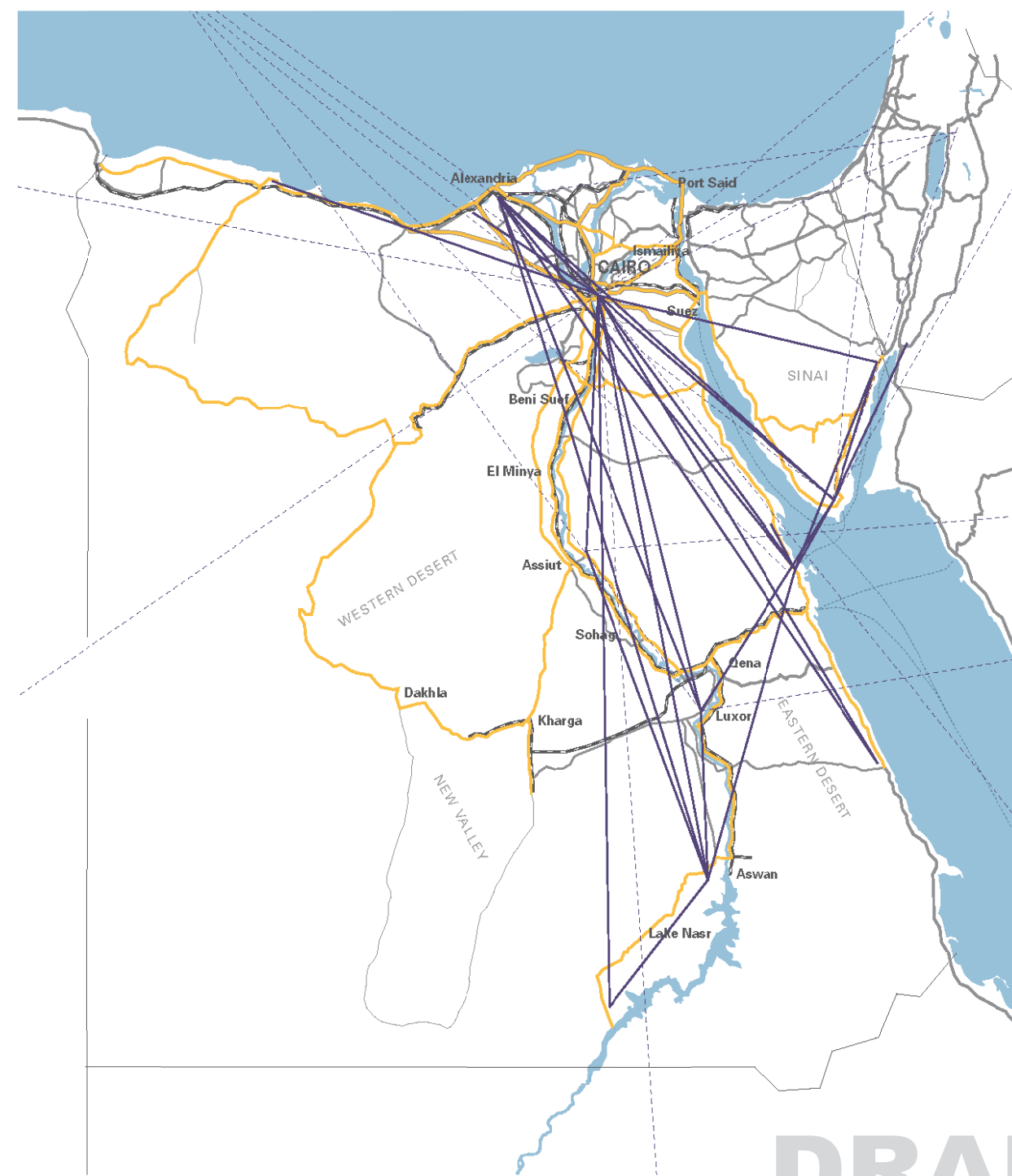
Bus Routes



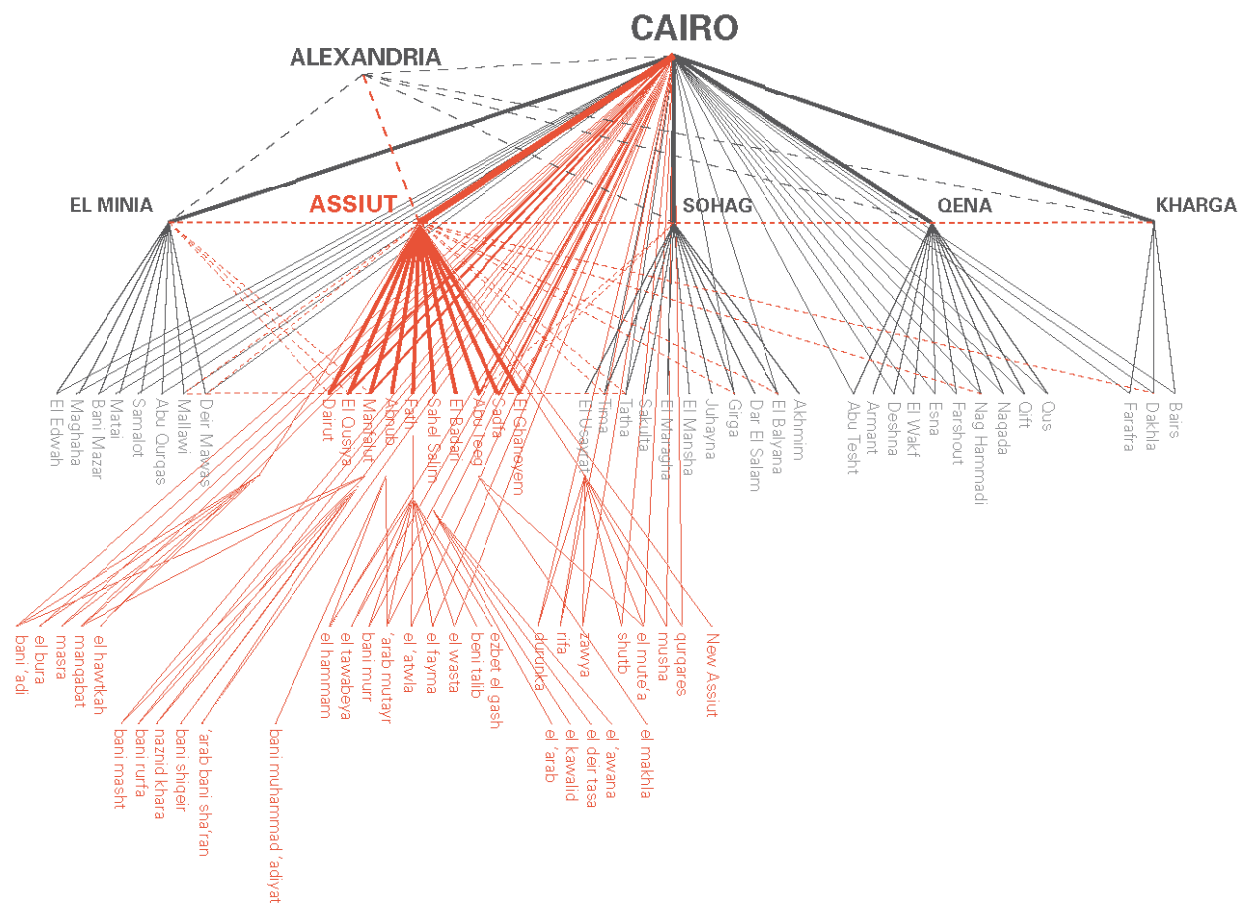
Flight Paths

National Framework

State-planned and initiated infrastructure networks form a framework of diverse modes to reach primary destinations.

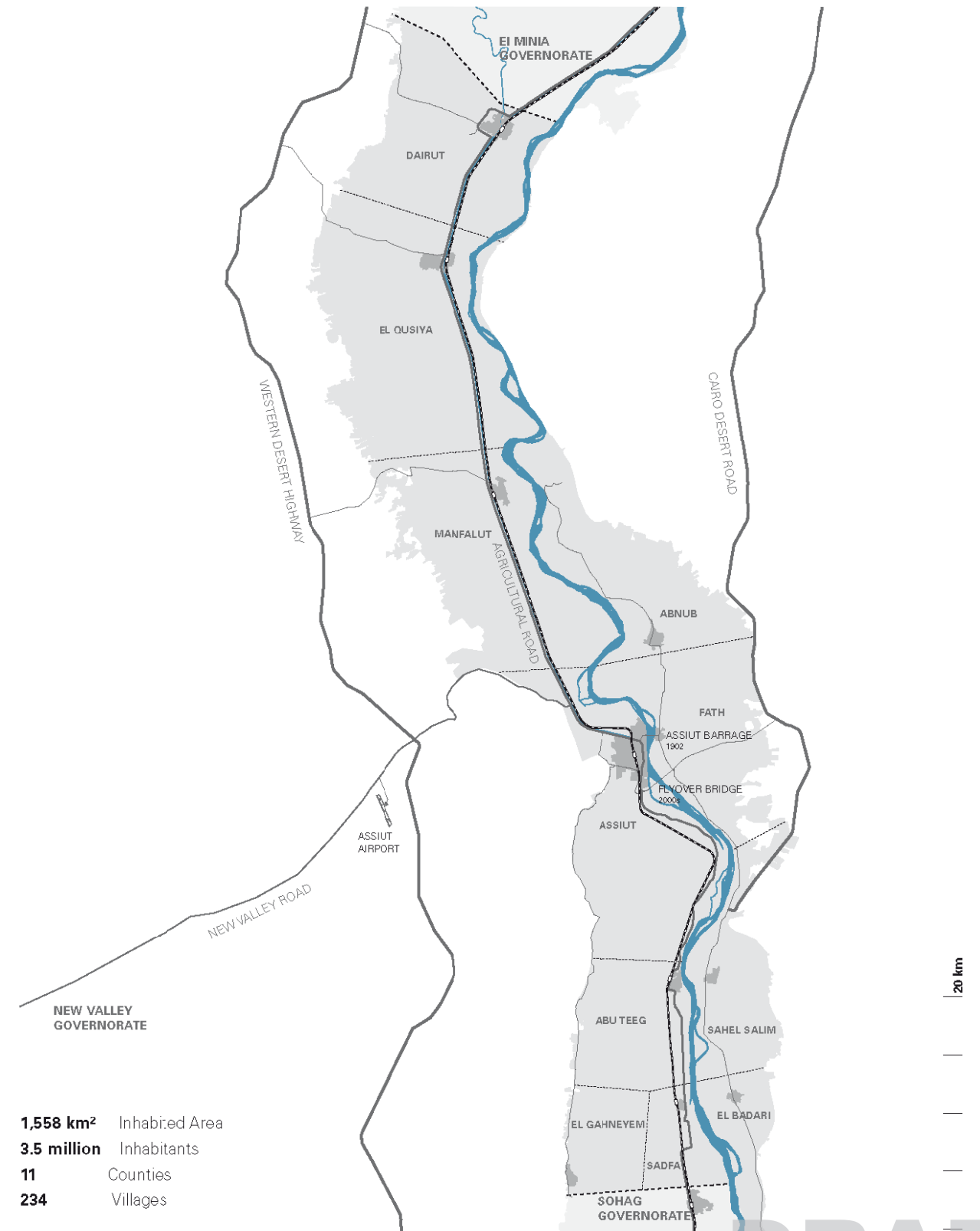


DRAFT
© ETH Studio Basel

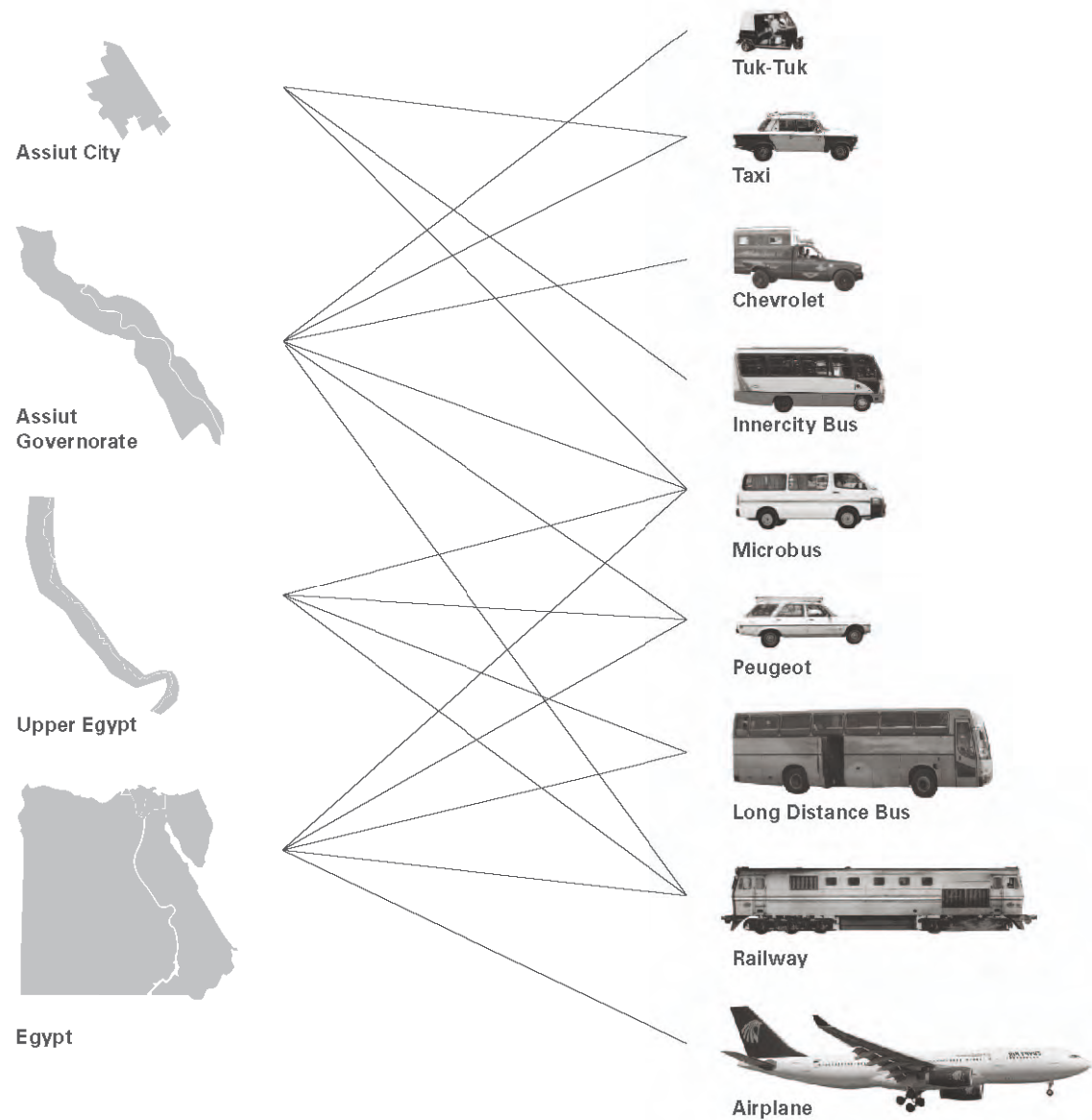


Shortcut Hierarchy

Within the national framework, the network follows a hierarchical flow of distribution from villages to county capitals to governorate capitals to Egypt. All nodes within the system have a direct connection to Cairo, highlighting its urban sphere of influence by the proliferation of shortcuts that consolidate its reach. Similar shortcuts occur on a smaller scale; sub-hubs of Assiut, such as Abu Teeg and Manfalut directly connect to adjacent governorate capitals.



- 1,558 km²** Inhabited Area
- 3.5 million** Inhabitants
- 11** Counties
- 234** Villages



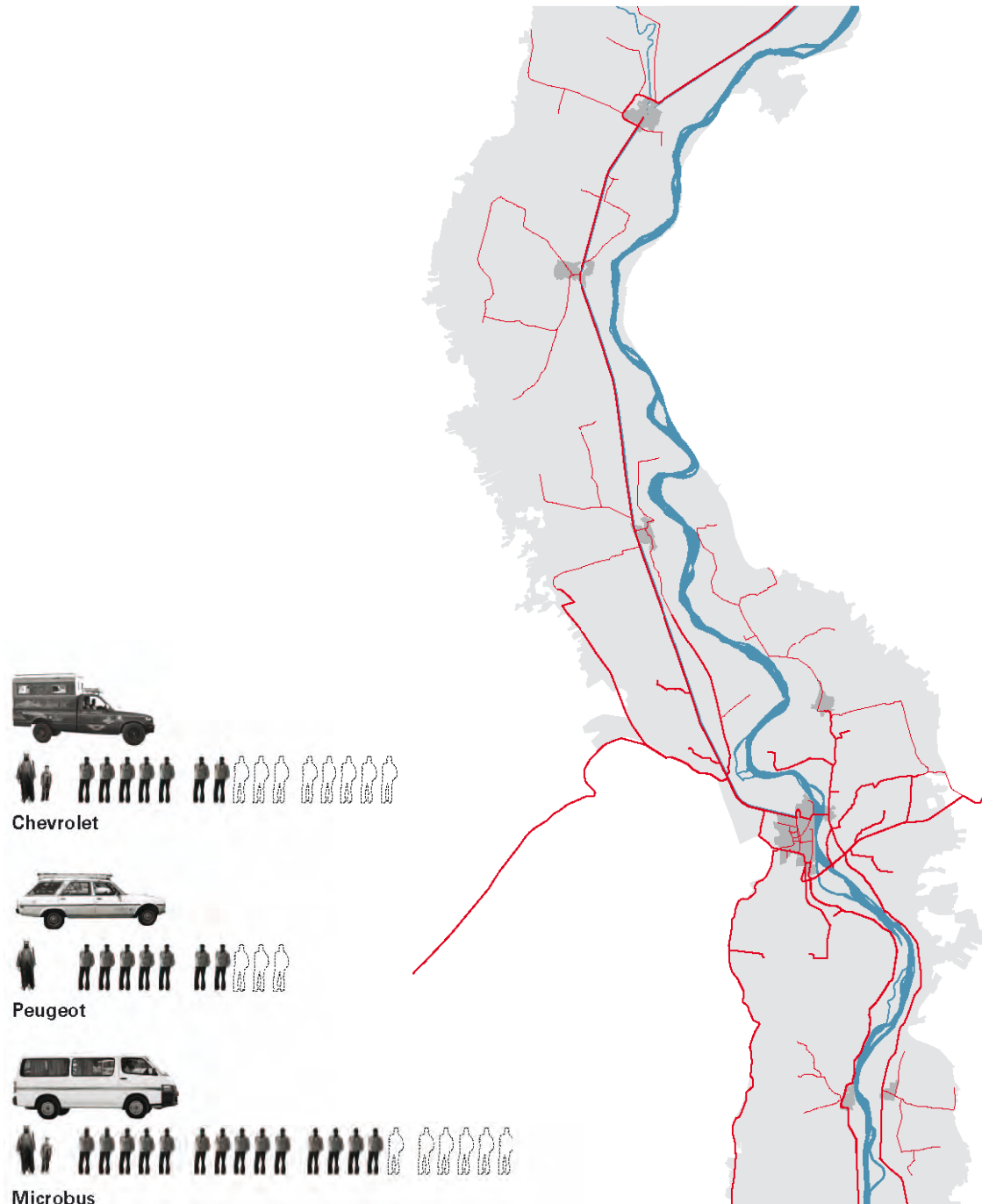
Vehicular Operating Territories

From the city to national level, the vehicles within the territory are optimized to their specific use in terms of passenger capacity and travel extents. The microbus is the most versatile, operating on all scales of use.



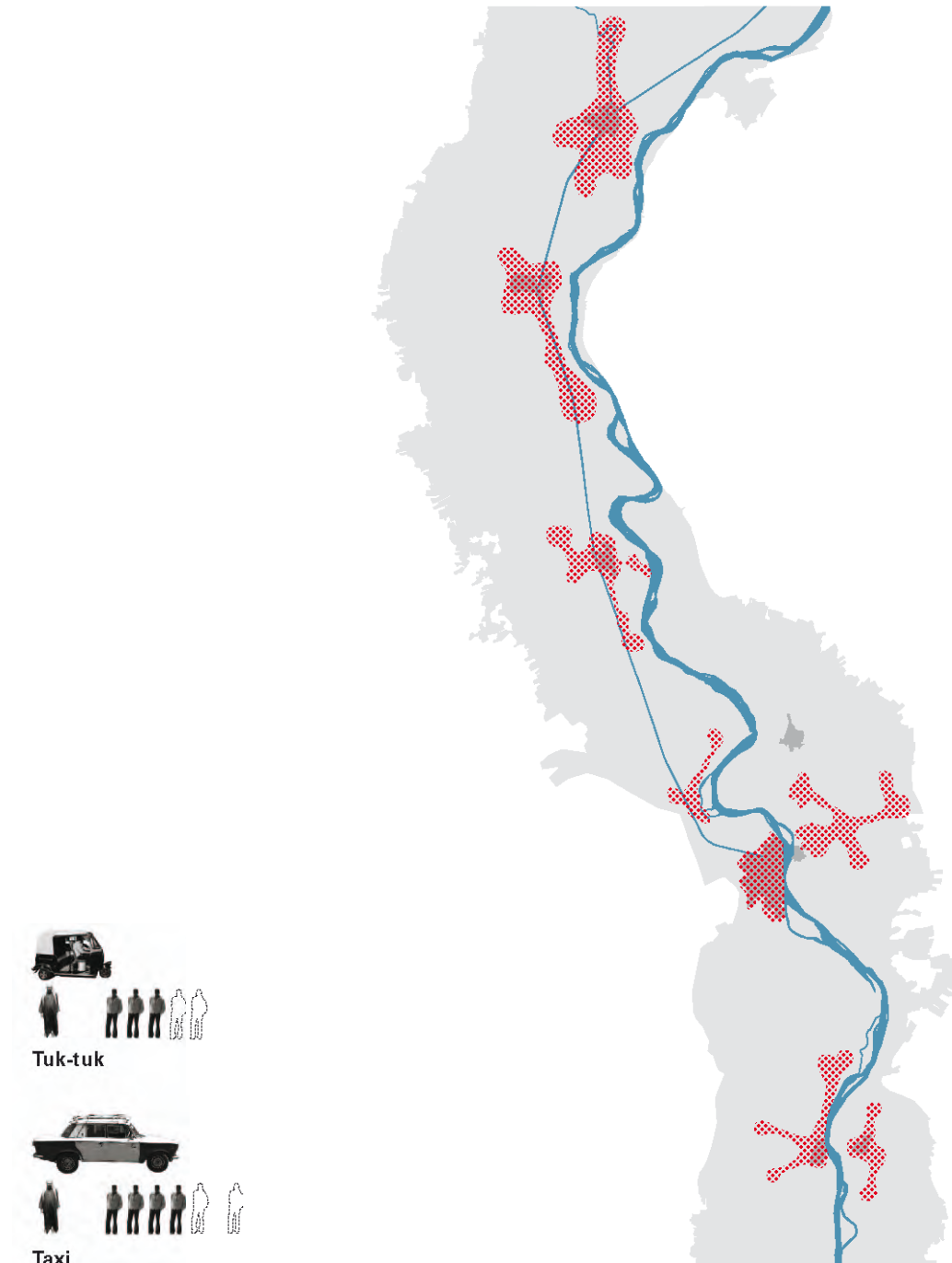






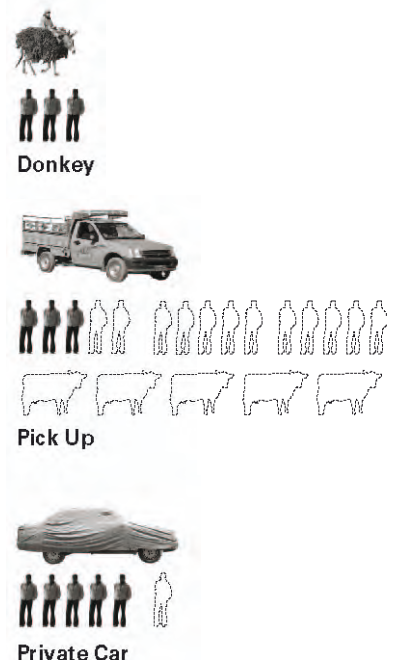
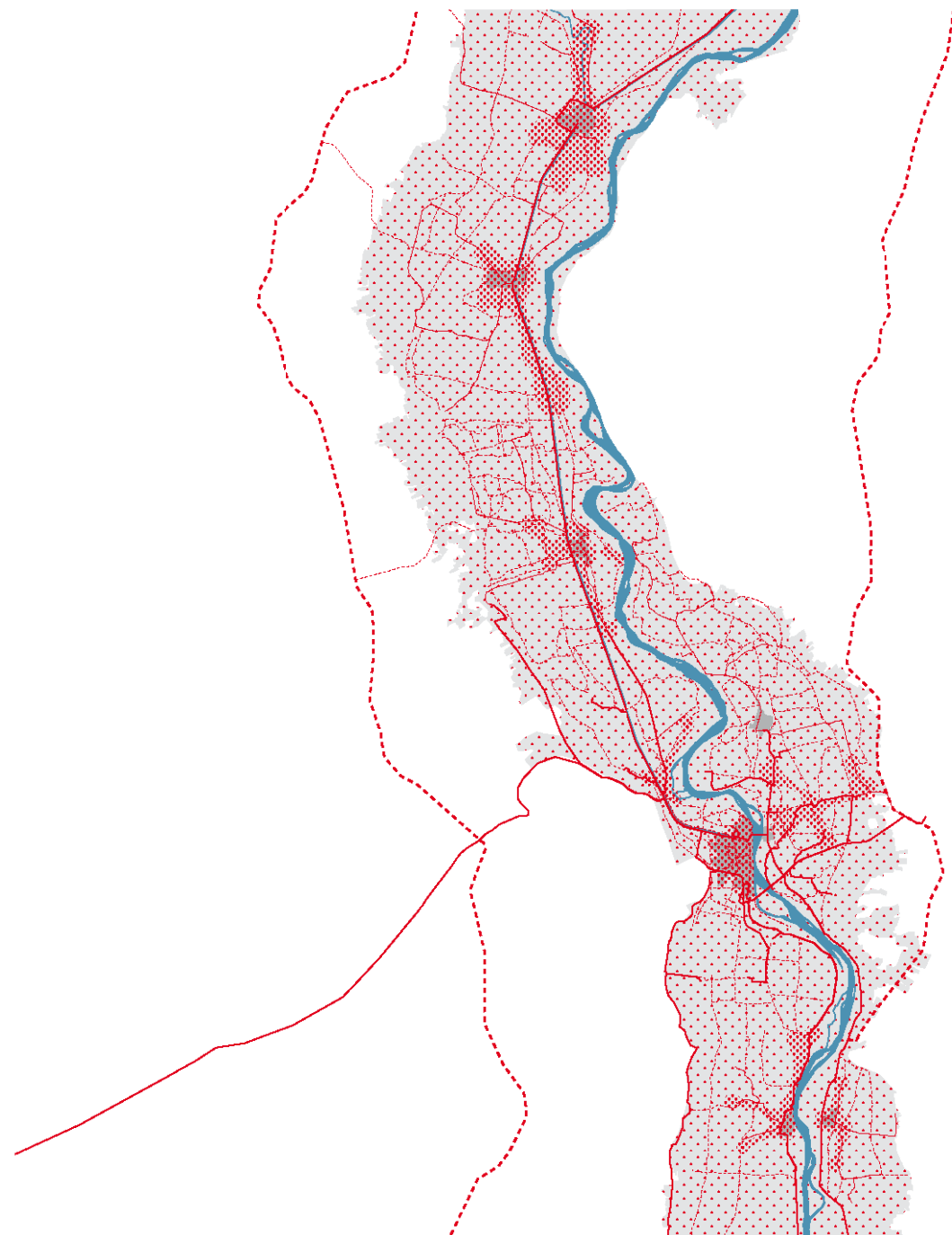
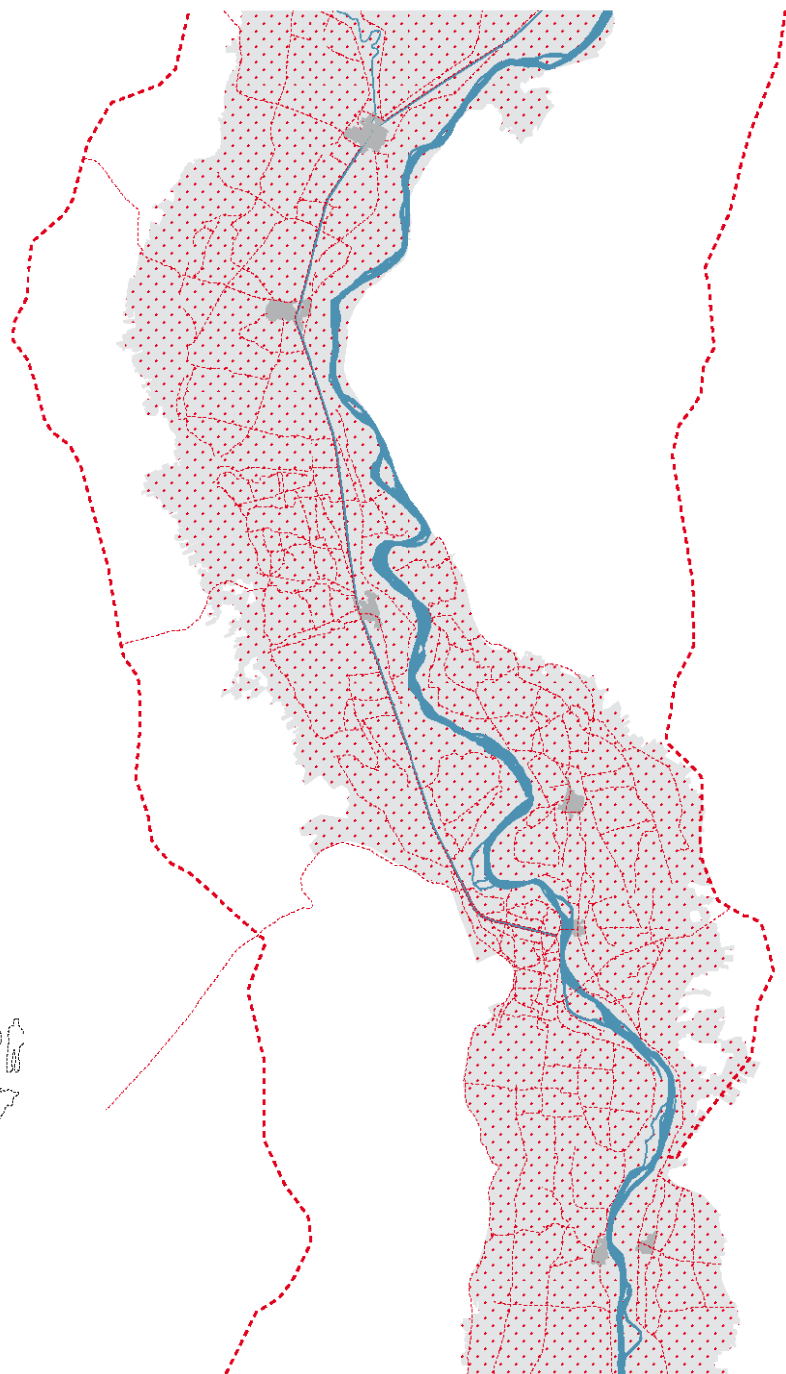
Shuttle Vehicles

These vehicles follow formalized routes, shuttling between exchange points on regional and national levels. These vehicles have highly variable, and often illegal, capacities to accommodate additional passenger loads during peak hours. Privately owned, these vehicles have formalized routes and fares, but either can be negotiated.



Catchment Vehicles

These vehicles operate in general areas, distributing passengers to shuttle exchange points. 1500 registered taxis in Assiut city take passengers anywhere in the city for a set rate of 1.50LE. Village tuk-tuks distribute passengers internally and to village peripheries. Outside the city, fares and routes of taxis and tuk-tuks can be negotiated.



Personal Vehicles

Privately owned and for personal use, these vehicles have complete coverage, but are less widely used due to maintenance cost, storage requirements, and the existence of a affordable and functional mass transit. To augment their value, owners allow villagers to hire these vehicles as private taxis between villages.

Interstitial Infrastructure

Assiut's formalized infrastructure, such as the Agricultural road and flanking Desert roads, acts as an open structure into which negotiable interstitial networks are formed and developed through interfacing supply and demand. Catchment areas—collection pools of mobile intensity—feed into these interstitial networks.

COMPREHENSIVE MOBILITY

High efficiency achieved by privately operated mass transit, general affordability due to government-set fares, and an accessible network enables the entire population of Assiut to be highly mobile. Access to services extends to the regional level, exchanged symbiotically between the city and its surrounding villages. The city supplies villagers with commercial needs and public services; in return, villagers supply the city with manpower and agricultural goods. Interchange enabled by the transit network accelerates the expansion of urban lifestyle into rural areas; in turn, regional mobility catalyzes urbanization.



1



2



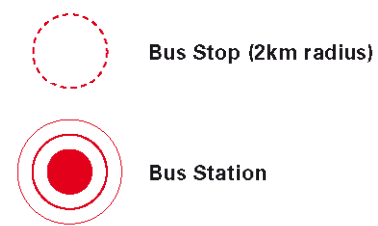
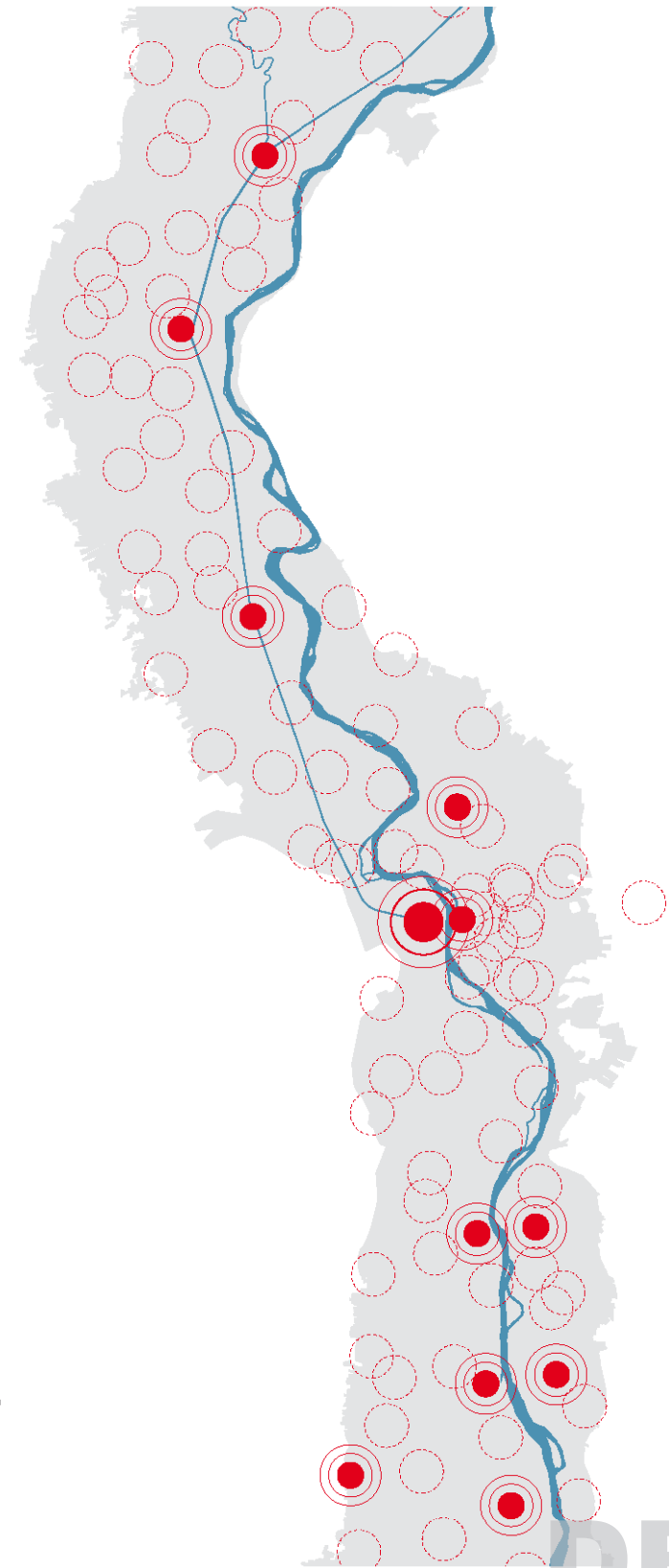
3















4

Access on Demand

Organically formed rather than planned, bus stops are formalized structures of demand, dependant on a critical mass of waiting passengers. Vehicles pick up/drop off passengers at any point, making "hold-on-request" stops.



DRAFT
© ETH Studio Basel

	inside Assiut City	0.30 LE
	Assiut - Village	> 0.30 LE
	Assiut - Village	> 0.50 LE
	inside Assiut City	1.50 LE
	10 pieces	0.50 LE
	1 kg	2 LE
	1 kg	1 LE
	1 kg	2 LE
	1 egg	0.60 LE
	1 plate	2 LE
	1 can	1 LE
	1 cup	0.75 LE



Monthly Income
350 LE

10%



Transport

30%



Housing

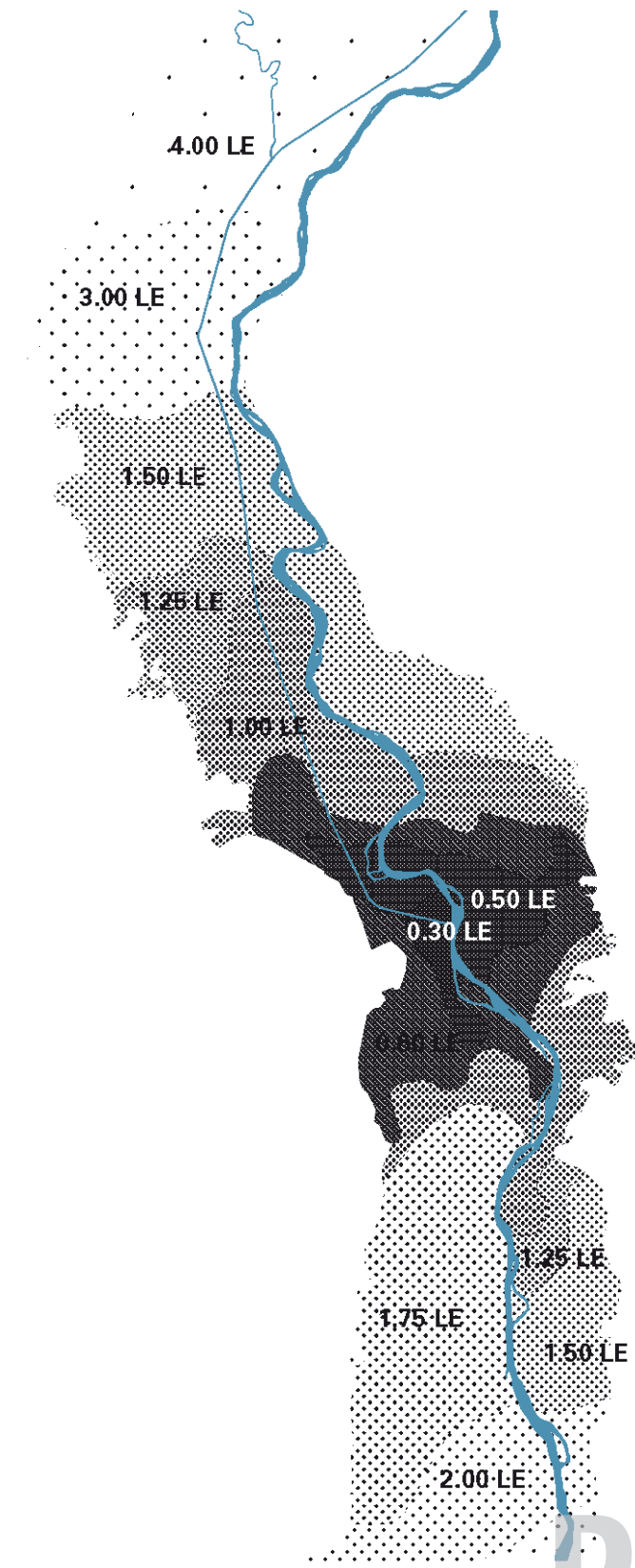
60%



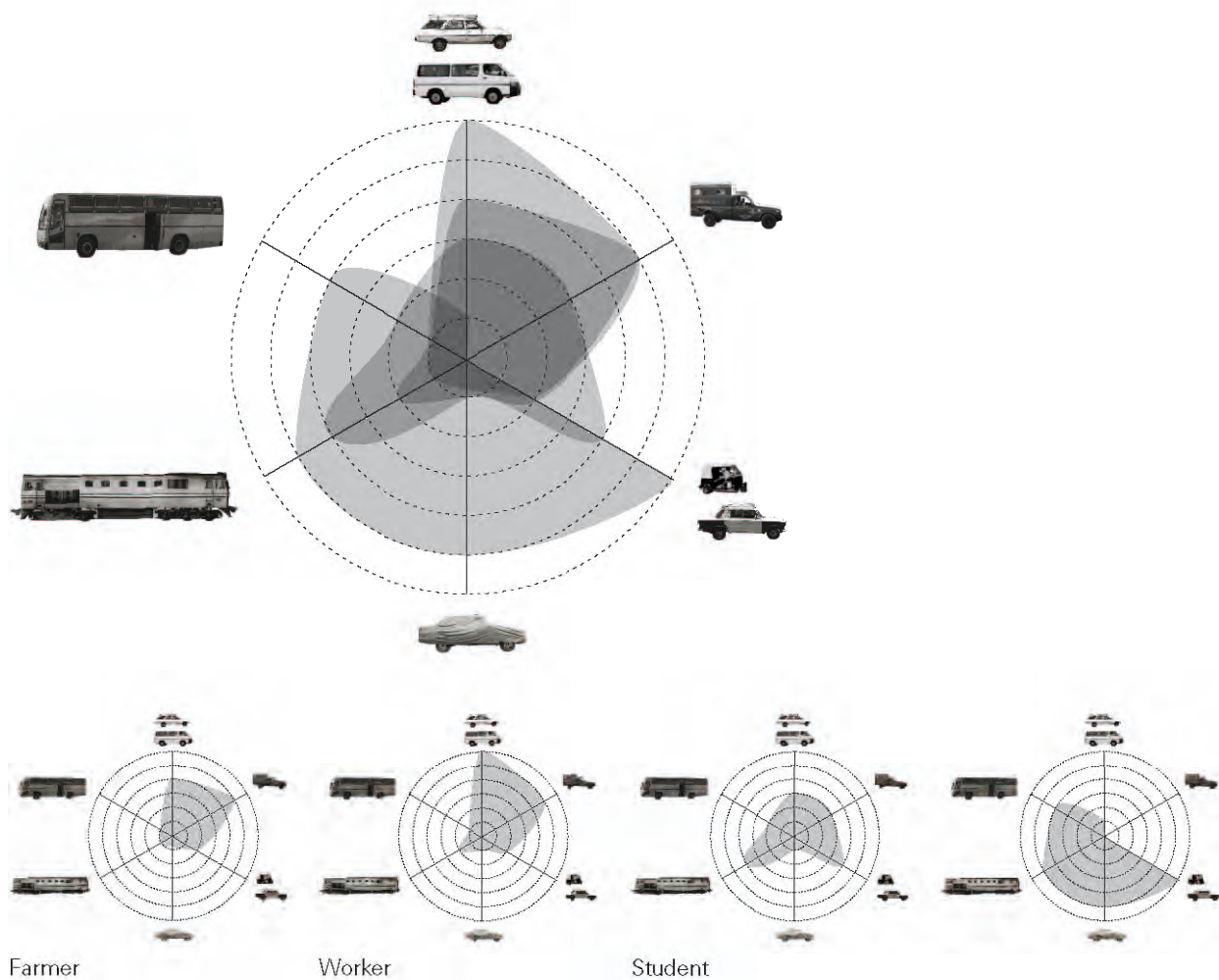
Food

Affordable Fares

Government pegged fares allow for wide-ranging economic accessibility because they are often set lower than market value. The ensuing price topography shapes Assiut's reach in the region and allows for an affordable commute from regions within the 0.60 -1LE price range, around 15-20km from the city core.

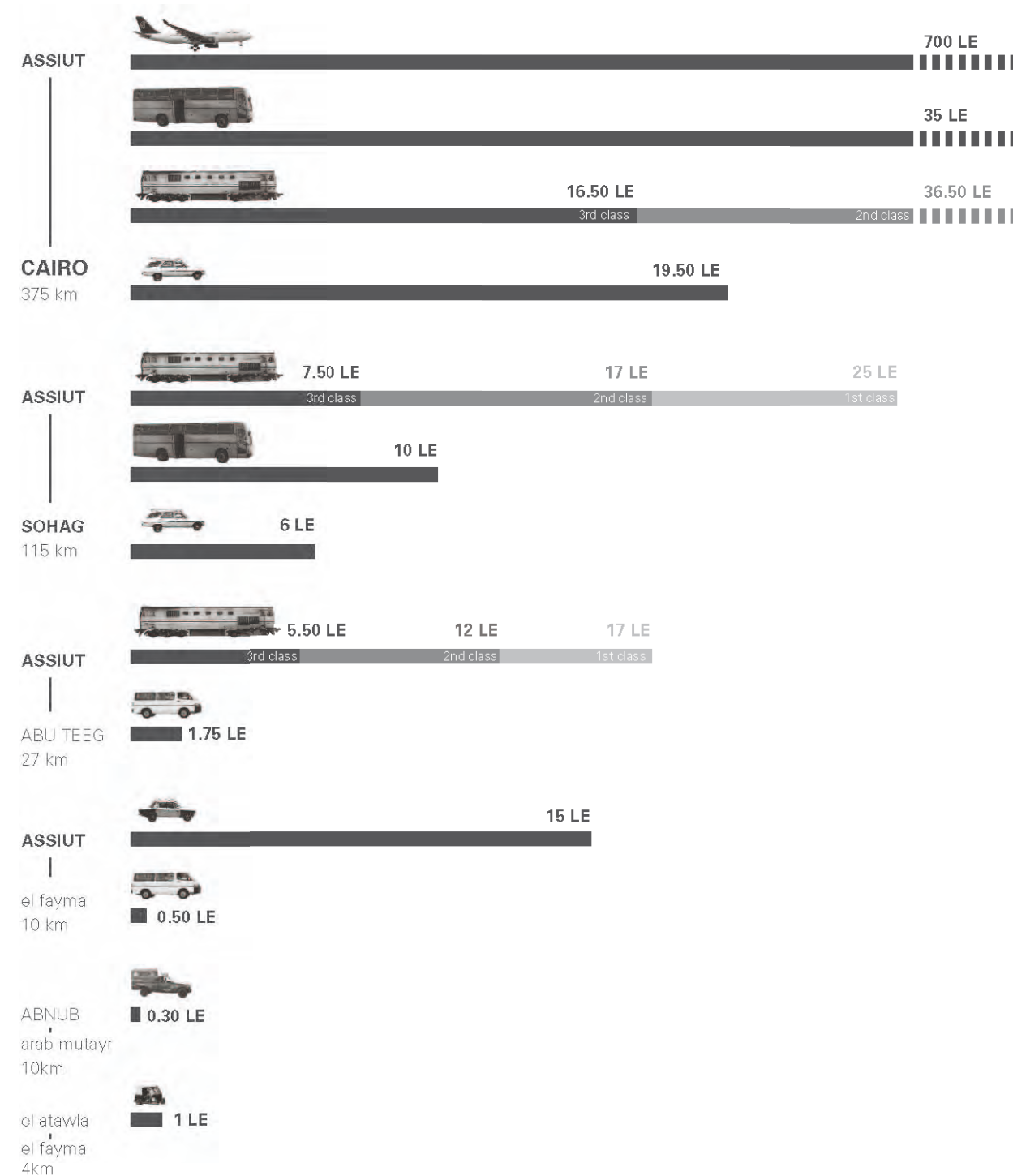


DRAFT
© ETH Studio Basel



Diverse Passenger Profiles

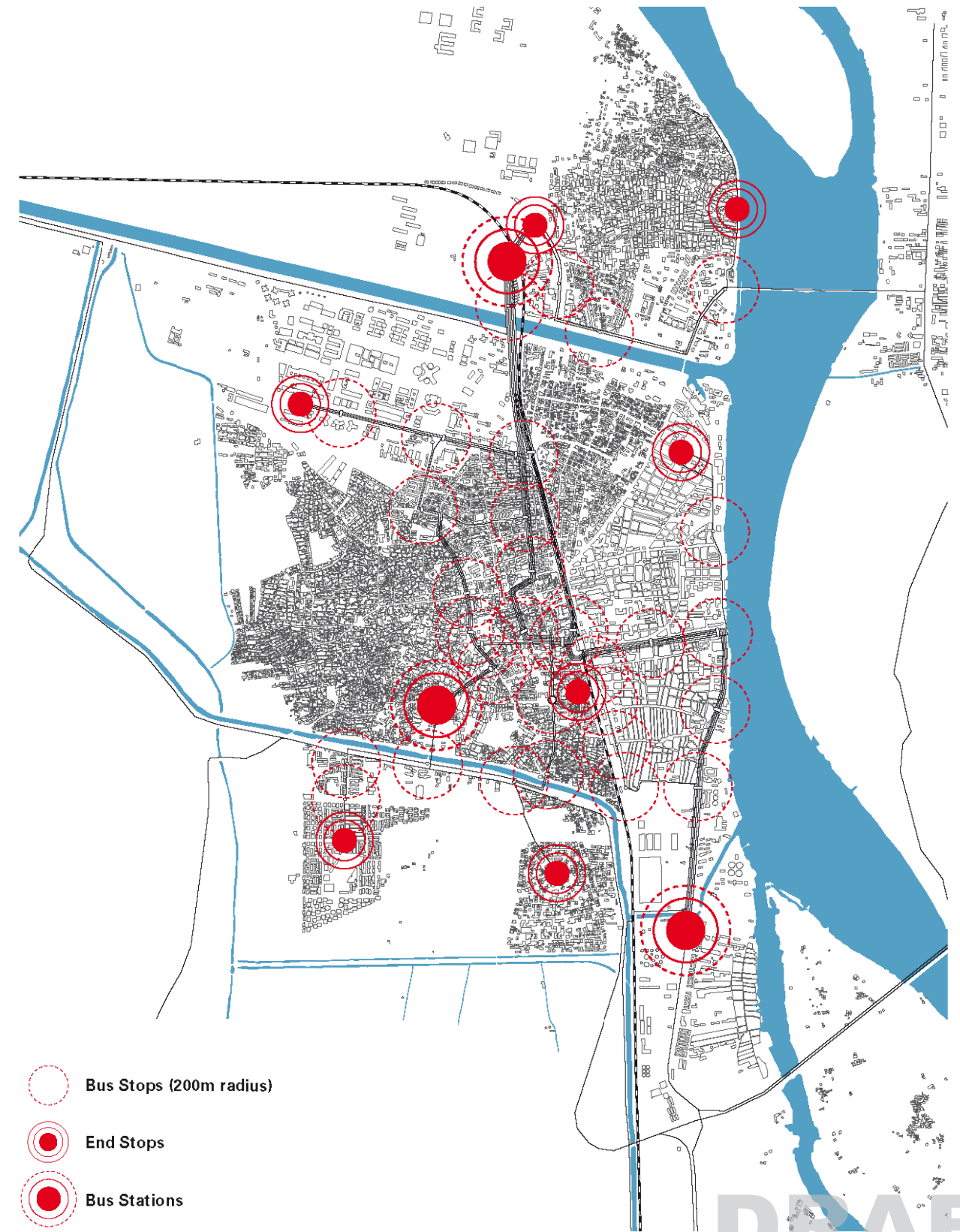
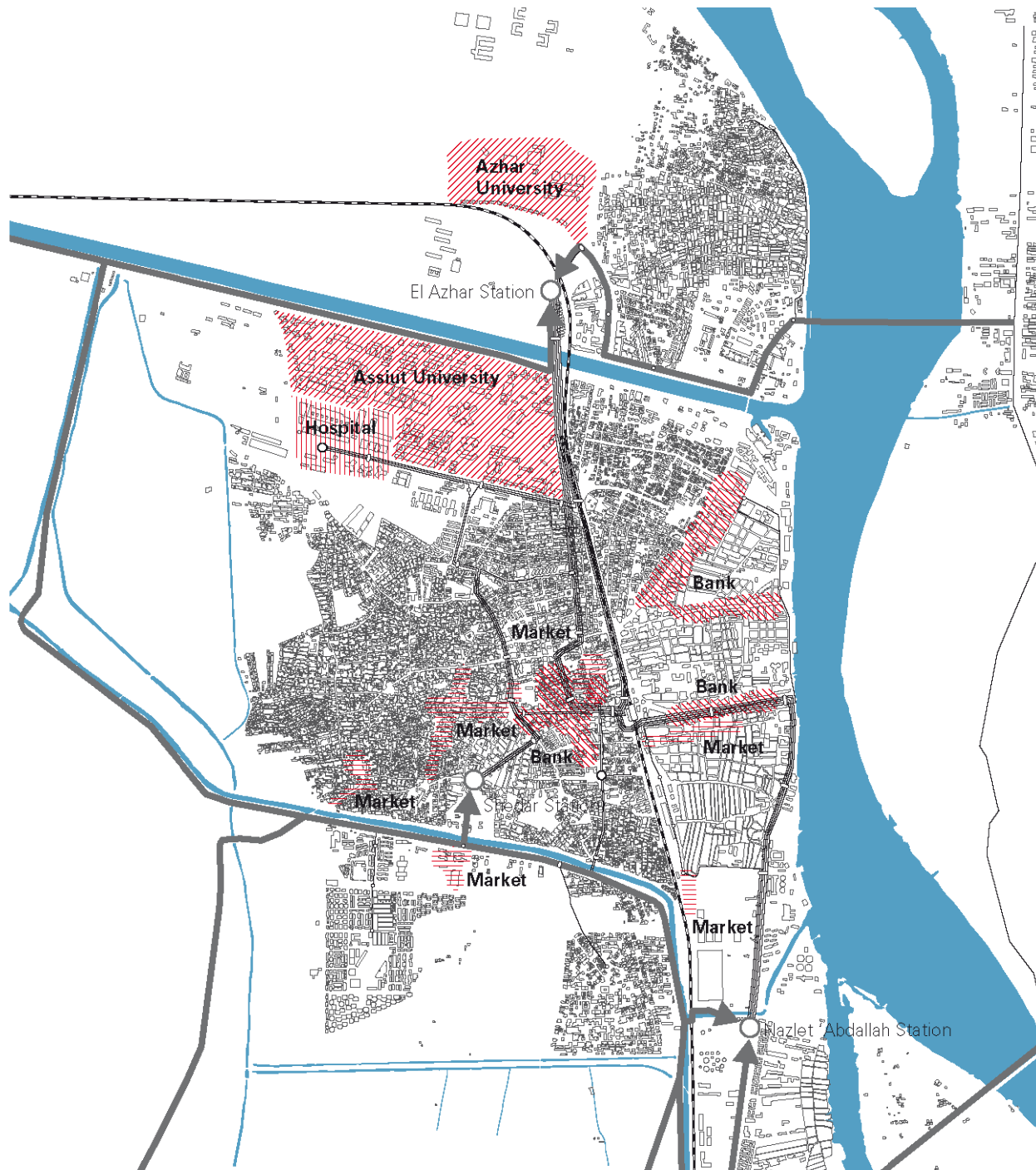
A high degree of overlap between user groups indicates that there is no inherent segregation within modes of mass transit, though self-segregation based on class can occur.



Scalar Alternatives

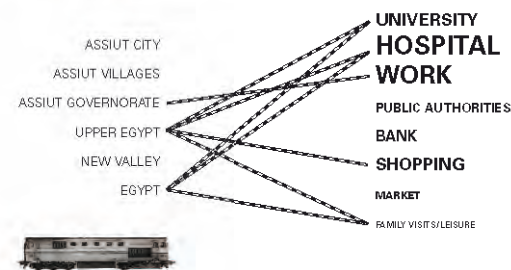
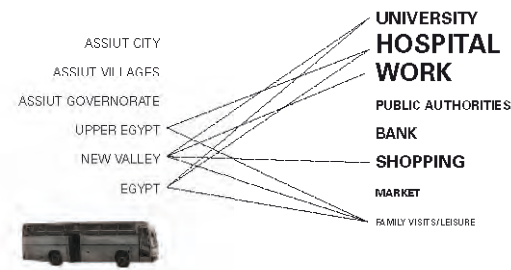
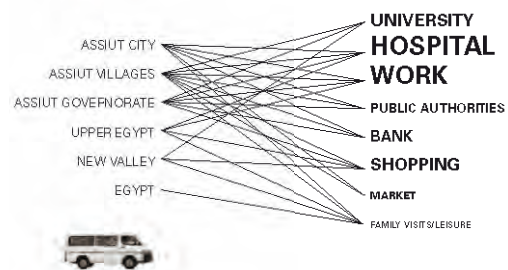
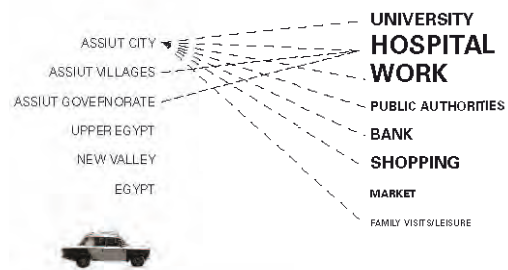
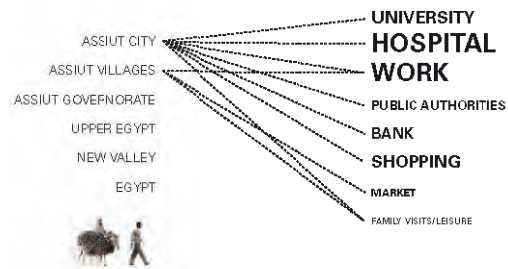
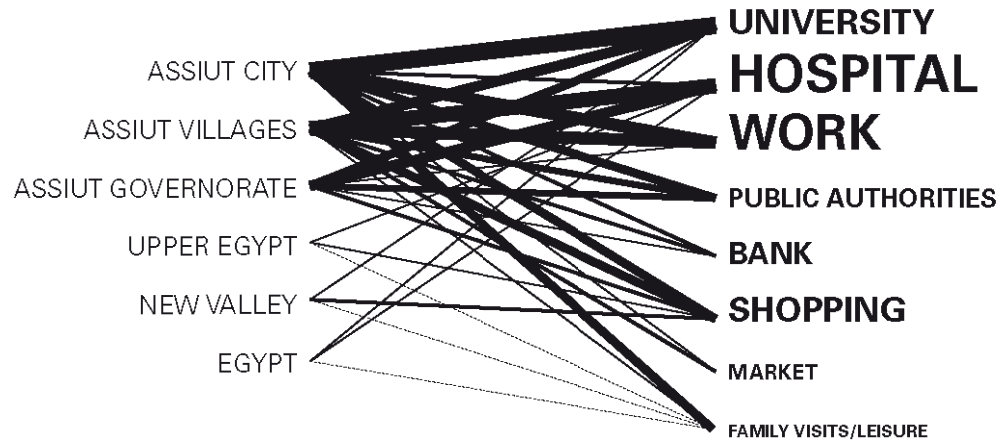
While regional transportation consists of inexpensive, singular options, larger scale distances command a greater range of vehicle alternatives and fares.





Supply City

Assiut's key urban indicators are the services it provides to the region. Access points cluster around major service programs. The linear configuration of the inner-city network and its redundancy of multiple lines emphasize Assiut as a service thoroughfare within the regional network.



Urban Attractors

The services provided by Assiut extend its urban reach to the rest of the region. Assiut University attracts students Egypt-wide, the University Hospital draws patients from Upper Egypt, and inner-city employment opportunities and services compose the urban epicenter of Assiut's regional network.



1



2



3



4

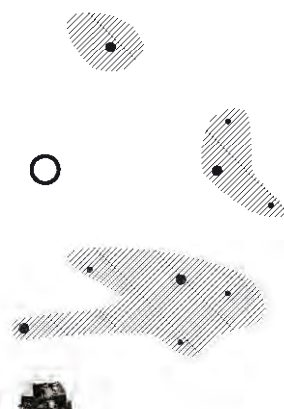
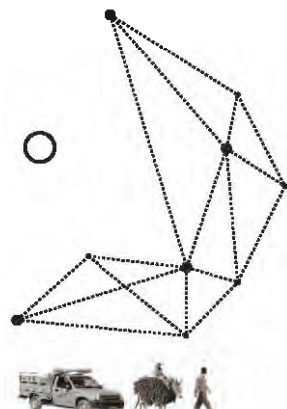
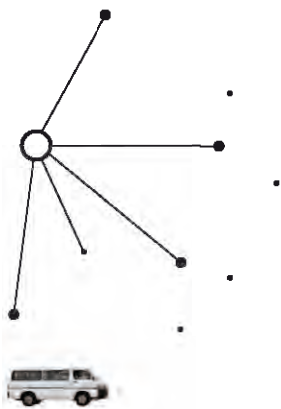
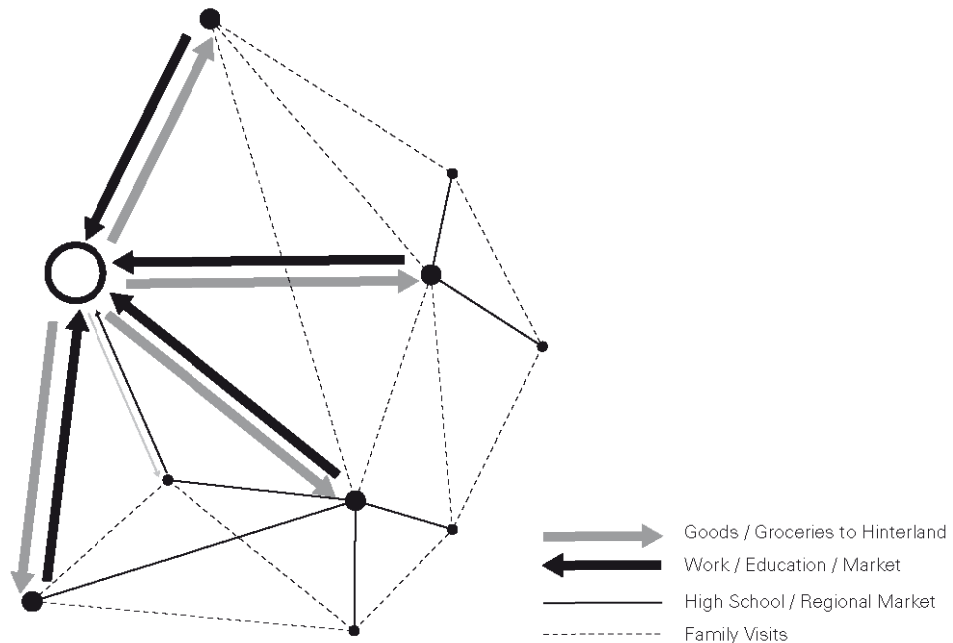


5



6

1. Assiut University
2. Hospital
3. Industrial Production
4. Public Authority
5. Bank
6. Shopping

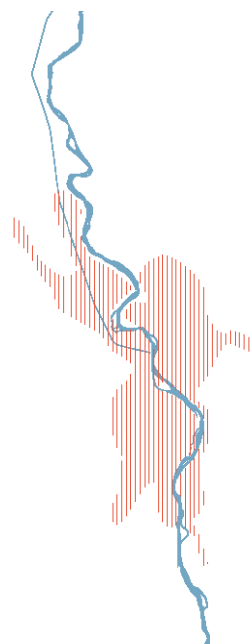
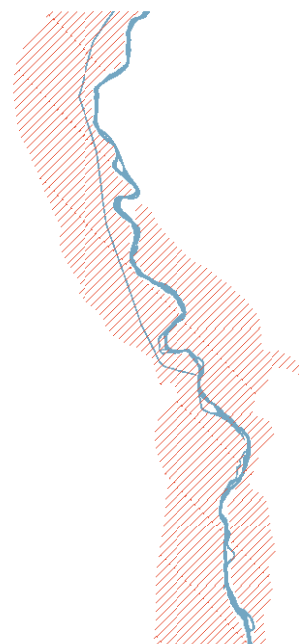


Supply Symbiosis

Assiut and its hinterland have a symbiotic relationship to optimize capital flows; without one, the other could not exist. Villages provide human capital while the city provides employment opportunities and diverse services unavailable in villages. The villages are strongly linked to Assiut and its services via numerous and frequent microbus shuttles. Since inter-village connections are primarily social, transit options are mostly limited to personal vehicles, although the tuk-tuk has recently emerged as a form of inter-village mass transit.

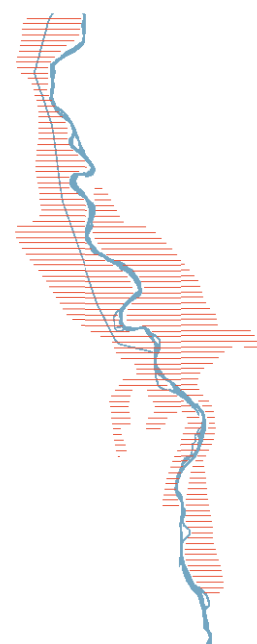


DRAFT
© ETH Studio Basel



Hospital

Work

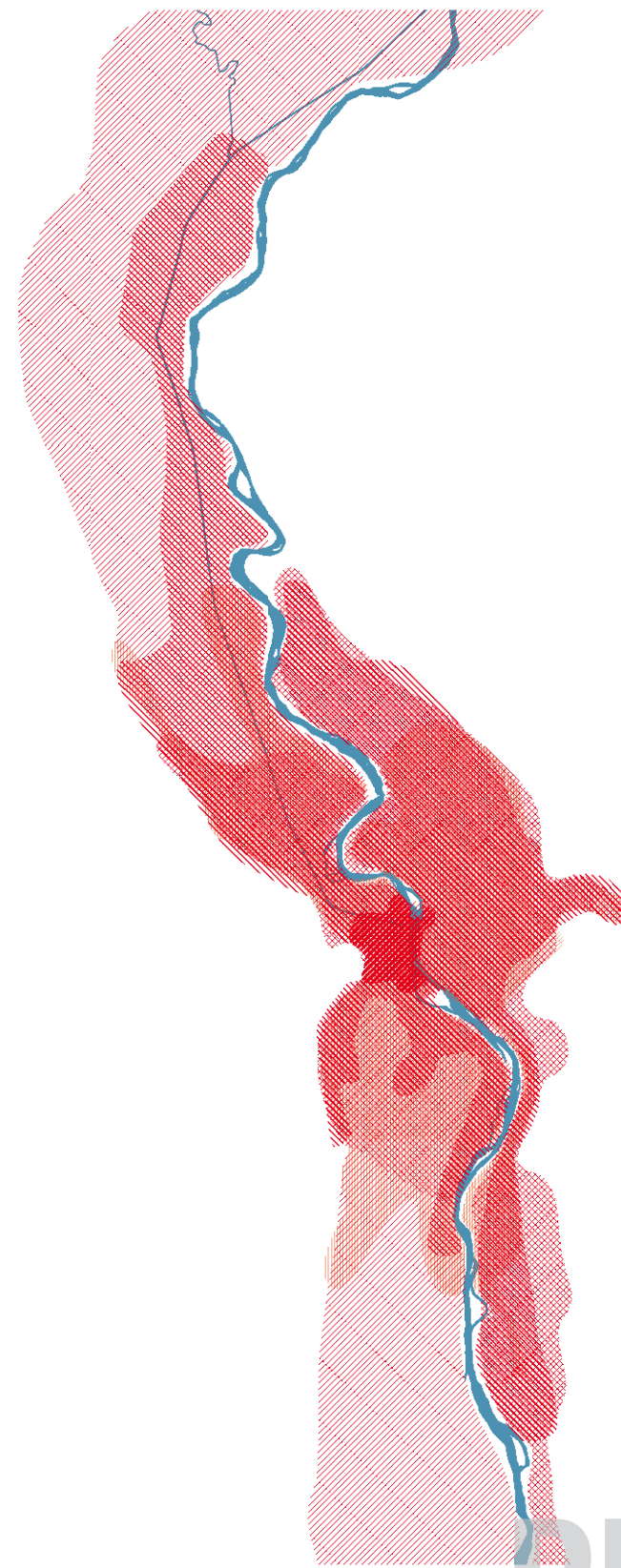


Bank

Shopping

Assiut's Reach

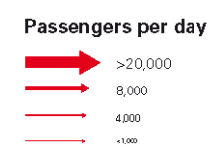
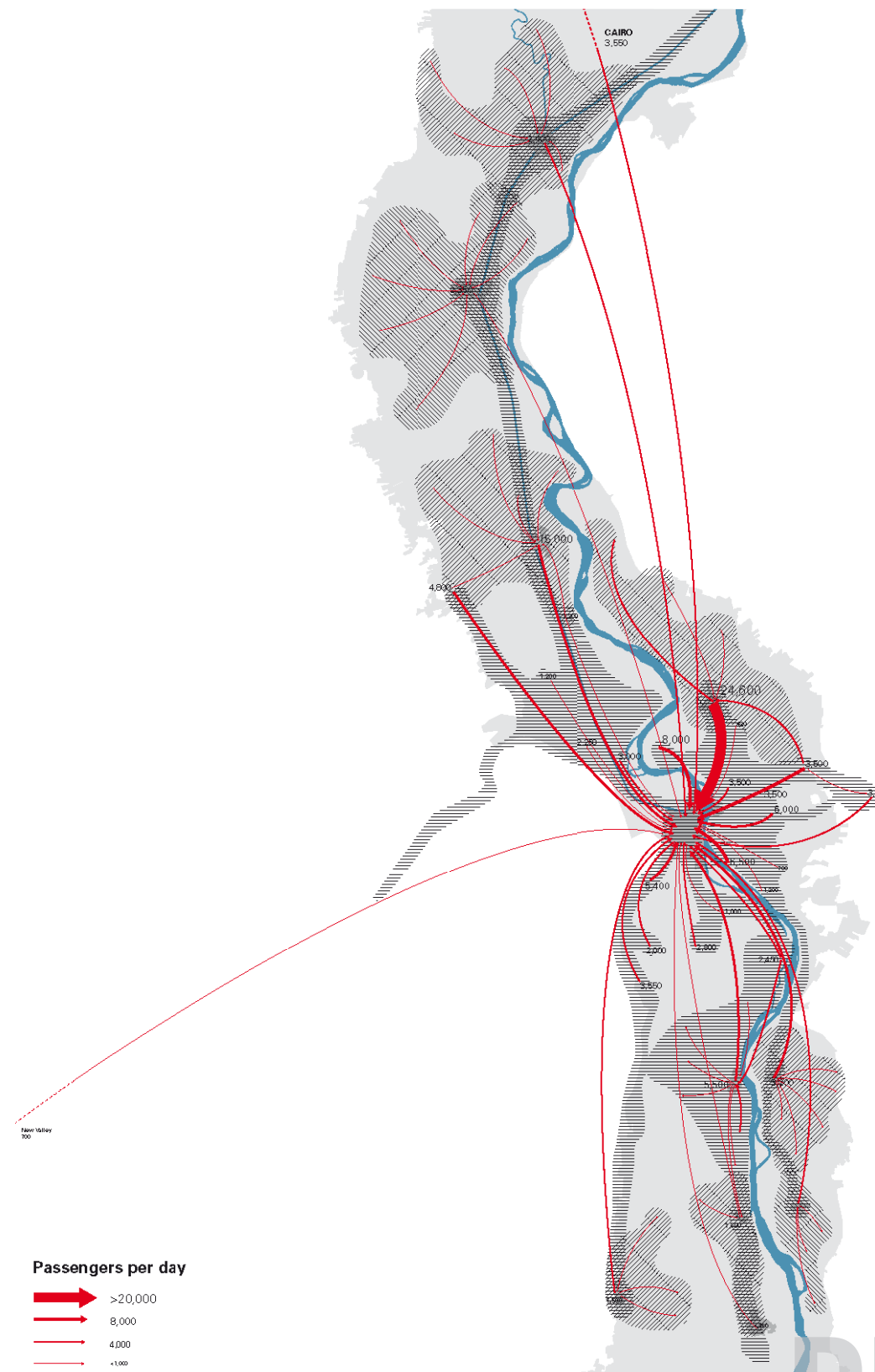
Overlaying service catchment areas produces Assiut's urban reach, and indicates that the city offers a range of services suited to different scales of regional need; Assiut's influence extends well beyond administrative borders.





Commuter Central

Around 130,000 people circulate through Assiut City on a given day, radiating from smaller scale distribution points into the city as the focus point of regional movement. Larger scale movement patterns of inhabitants of dormitory suburbs such as Abnub indicate the occurrence of service-commuting, where inhabitants go to Assiut for services but work in industrial areas in the city outskirts.



DRAFT
© ETH Studio Basel



AHMED
Bani Murr

Prayer
daily
Work (Prayer in Mosque in Assiut)
30 LE transportation costs/month



SUADA
El Hadaya

High School Students
6 days/week
Secondary School in next Village
10 LE transportation costs/month



MOHAMED
El Hadaya

retired worker at Assiut University
El Hadaya
weekly
Services, Shopping
5 LE transportation costs/month



SA'AD AHMED
Kharga (New Valley)

Accountant, Student
2 times/month
Lectures at University of Assiut
48 LE transportation costs/month



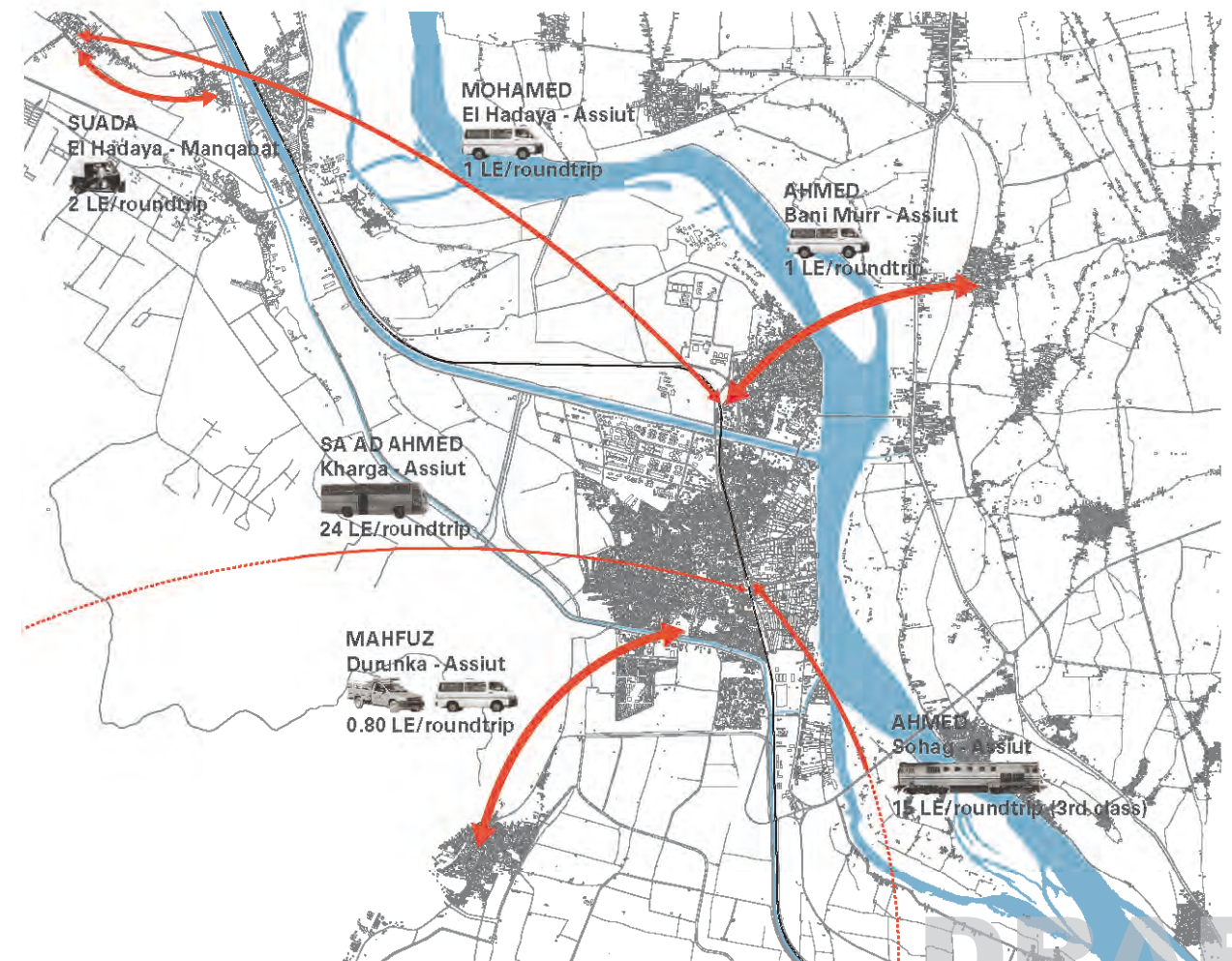
MAHFUZ
Durunka

Cattle Dealer
several times/day
Cattle Dealer at Market in Assiut



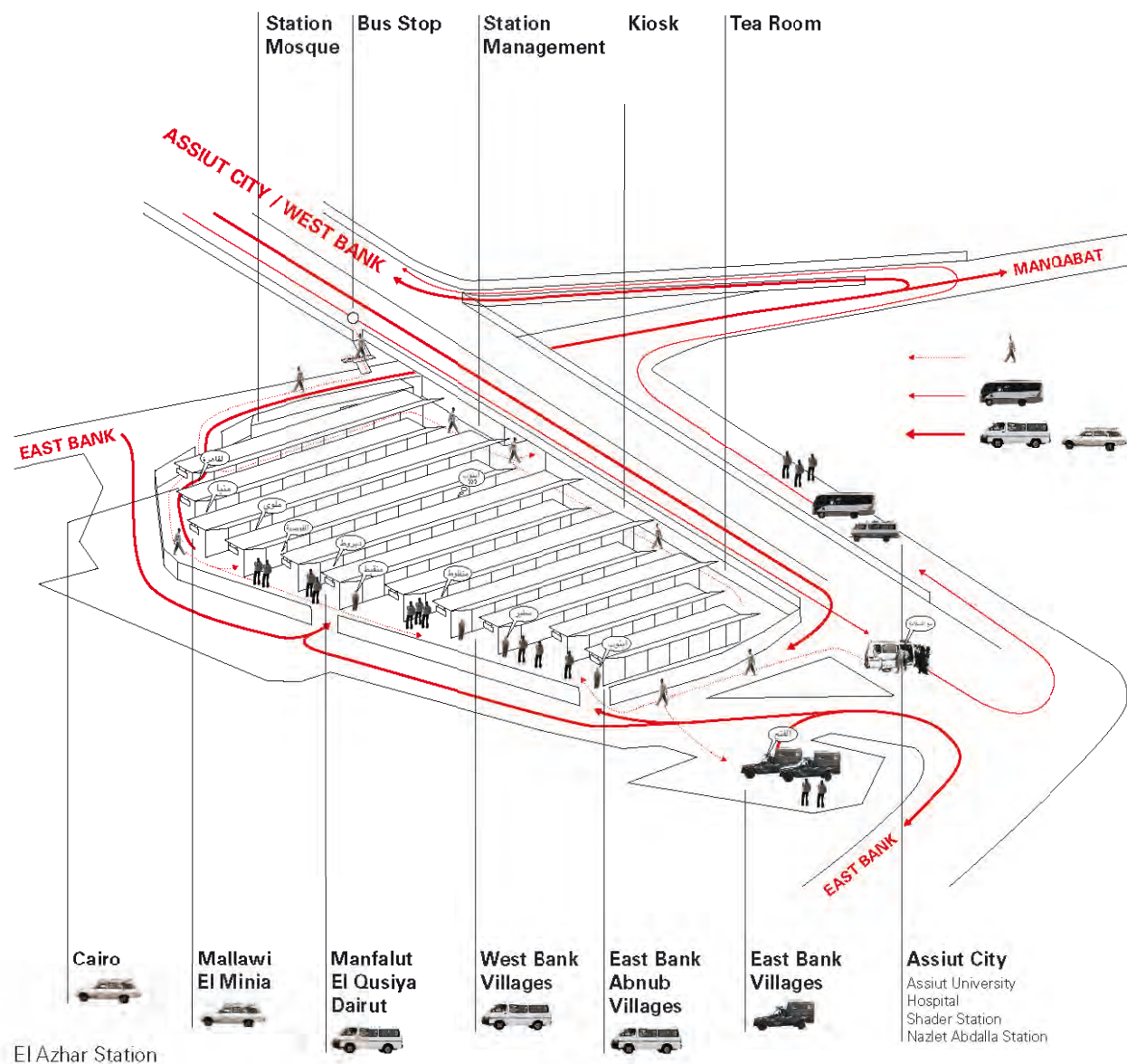
AHMED
Assiut

Law Student at Assiut University
every weekend
Family Visit
70 LE transportation costs/month



Mobile Society

A sampling of transportation patterns reveal a myriad of education, employment, and service needs fulfilled over diverse scales with no exclusion.



El Azhar Station

Anatomy of a Bus Station

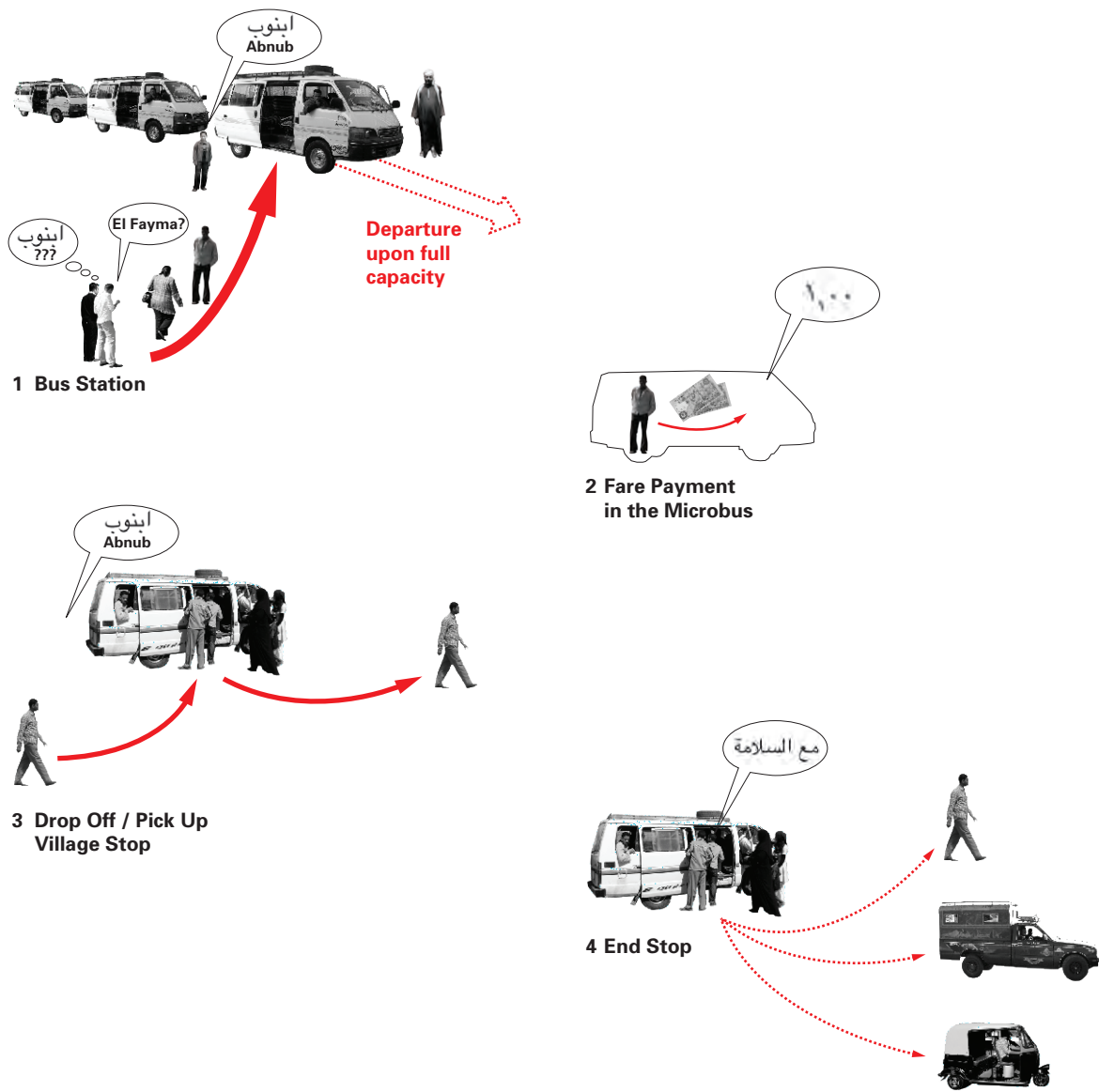
Not only serving as a transit hub, a bus station also functions as an exchange point of services. Accommodating a body of human needs with small grocery stands and religious and social programs, the station facilitates services to waiting passengers and idling drivers. Stations specialize in different regional purposes; El Azhar Station primarily links northern cities and villages to Assiut, Shedar Station and Nazlet 'Abdallah Station are more oriented toward the south, as portals to Upper Egypt.



DRAFT
© ETH Studio Basel





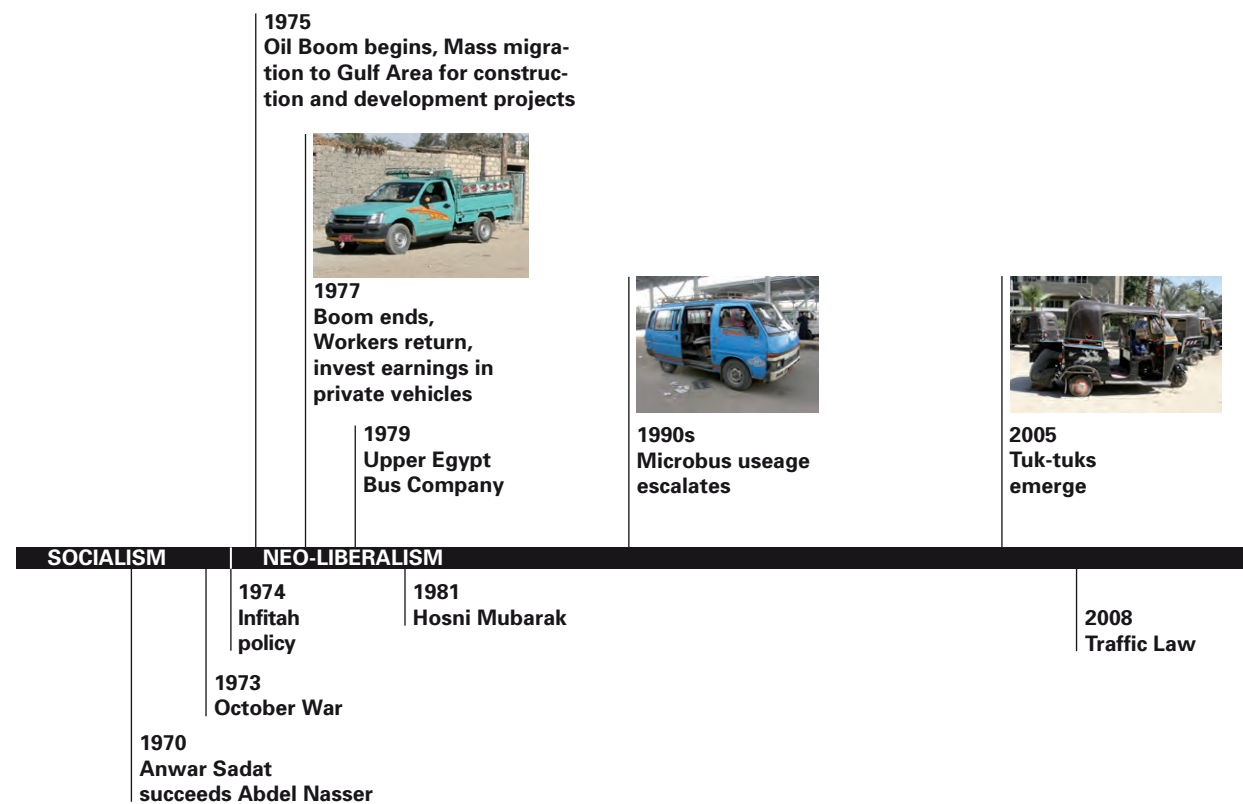


How to Ride a Microbus

The speed and reliability of a microbus stems from its functional flexibility and opportunistic nature. Convenient because it does not adhere to fixed schedules or route stops, nor does it require tickets, the microbus is the most prevalent mode of transportation.

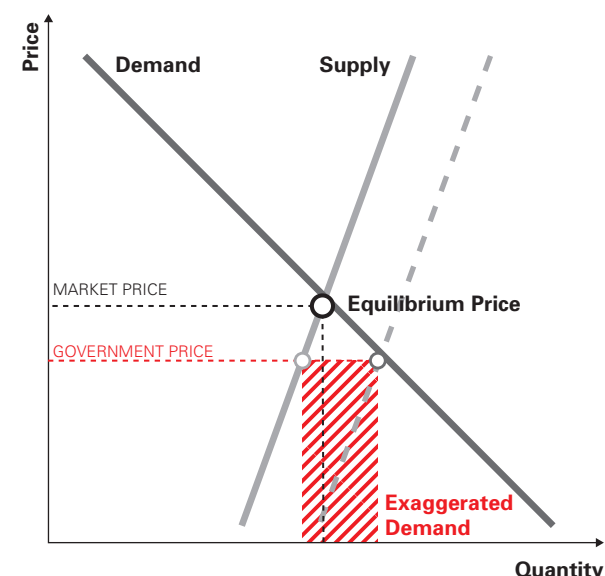
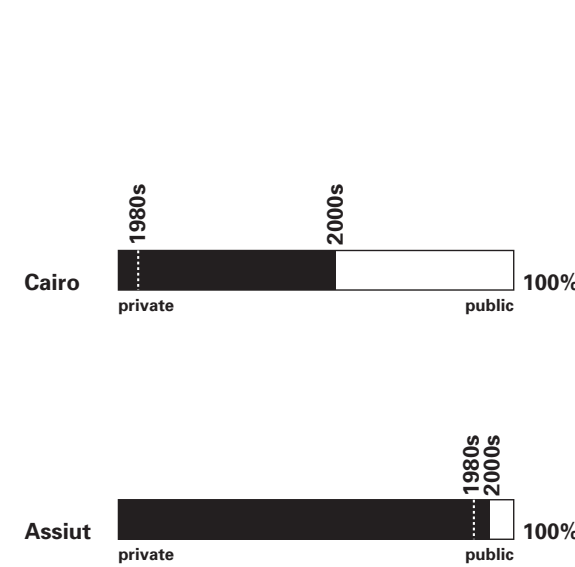
LAISSEZ-FAIRE REGULATION

Assiut performs as a regional hub due to its political and economic systems which adapt to the transportation needs of its rural population. Rather than being planned by the state, the mass transit system has formed from self-regulating supply and demand of passengers, and is executed by private sector operators with minimal state intervention. While this liberal approach encourages self-organized entrepreneurship, it lacks a mechanism to safeguard people from negative impacts, namely threats to public safety. In this aspect, the government assumes an authoritarian stance in order to protect passengers, by mandating vehicle registration and renewal, and imposing penalties on dangerous driving.



Opening the Market

Sadat's Infitah (Open Door) economic policy of 1974 enabled a capitalistic free market, allowing the emergence of a modern entrepreneurial and consumerist society in Egypt.



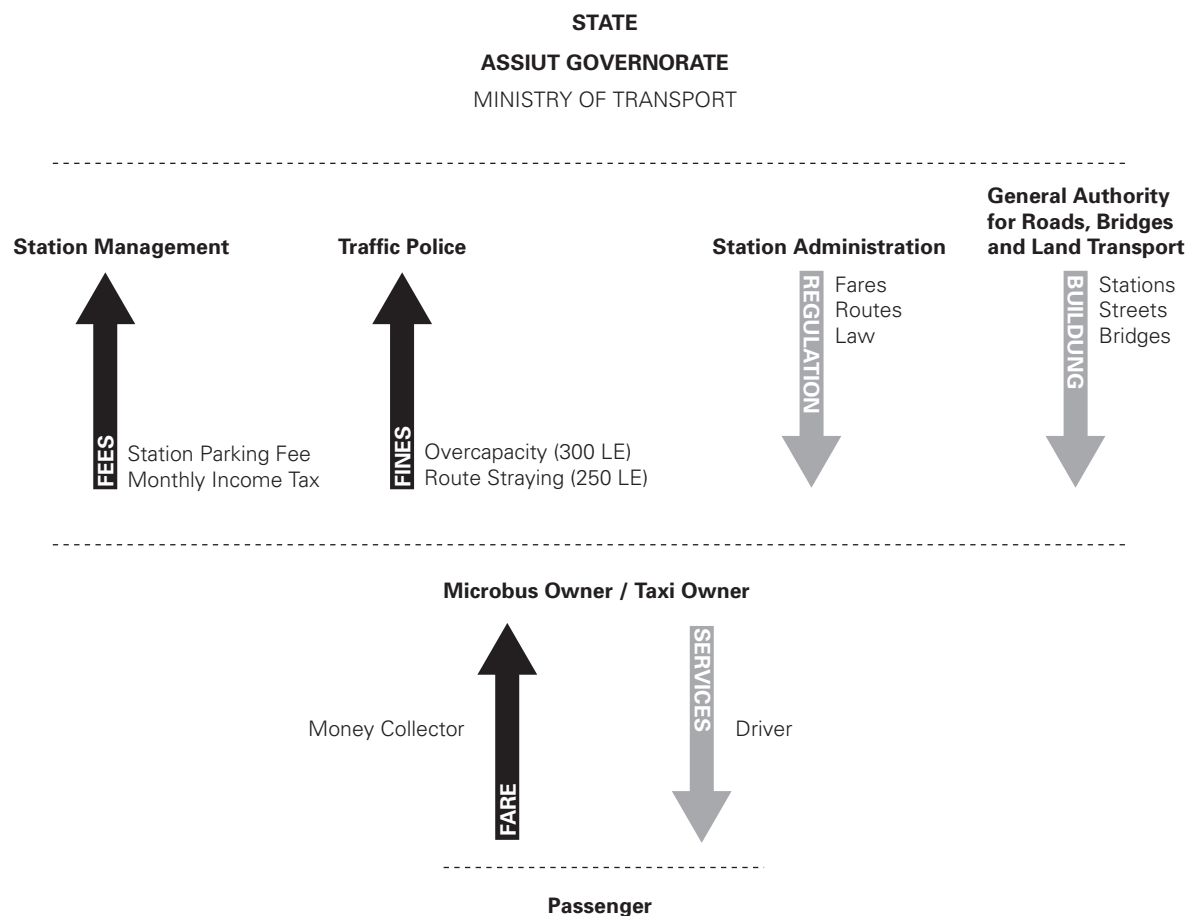
Private Sector Takeover

In the 1980s, public transport was the main metropolitan transit mode, but did not develop in Assiut because taxis offered adequate coverage. Public transport yielded to the private sector because the government allows it to function independently without economically burdening the state.

Adapting Price Elasticity

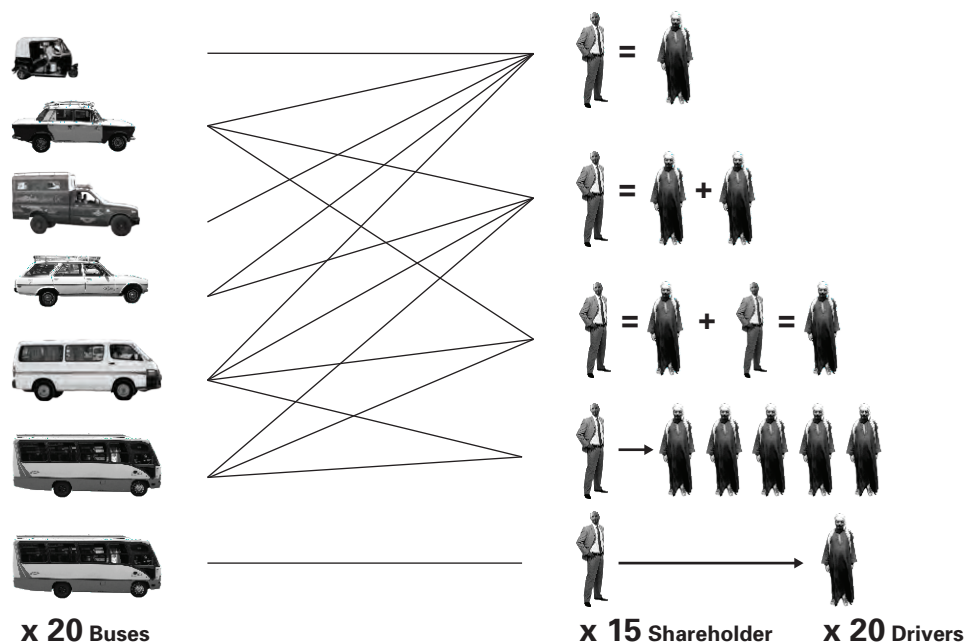
Because the government pegs fares lower than the market value, driver net revenue decreases, leading to insufficient driver earnings. Drivers operate within an elastic market in which prices vary between the market-favored equilibrium and the government pegged price.

DRAFT
© ETH Studio Basel

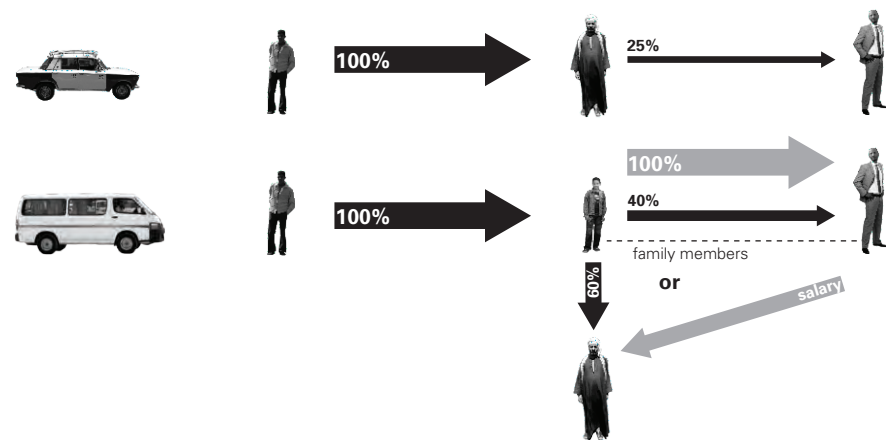


Landlord Economics

Within a negotiation of top-down vs. bottom-up power, the government regulates intercity prices while allowing individual operators to set outer-city prices at a market rate. The government gains revenue through taxes and fines, leaving the fare revenue distribution to the discretion of the owner. Owners allow drivers to keep a percentage of their earnings, or pay them a monthly salary, protecting their profits by often employing family members as money collectors. The state's presence within the private sector is often limited to an unobtrusive administrative hut to which drivers pay dues and organize licensing matters.



Private Ownership



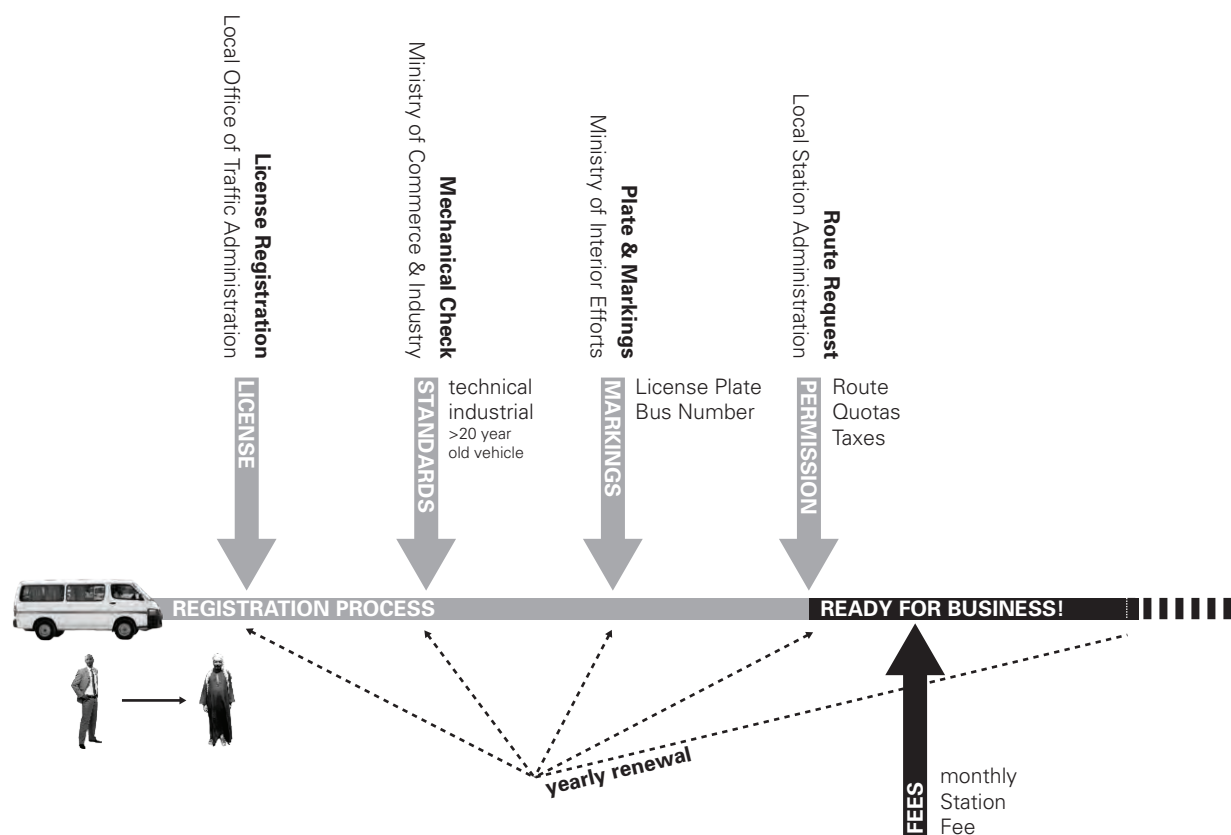
Payments

P2P Network

The inception of private ventures most often produced a one-to-one relationship between owners and drivers, who operated as individuals within the transportation industry. To increase operational efficiency, the government encourages joint ventures via private collective ownership to pool resources and self-organize in a peer-to-peer network. These collaborations expand capital and managerial capacity, also creating a reserve of ready-to-work drivers to fill in the gaps when individual drivers are unable to make their shifts.



DRAFT
© ETH Studio Basel



How to Register a Microbus

Vehicles must pass through a circuit of legal and mechanical checkpoints administered by state ministries and local government to ensure legal accountability for vehicles and drivers. Toward the renewal of Egypt's aging vehicle population, the Prime Minister initiated a fund-raising effort towards subsidizing the purchase of replacement vehicles from a fund supported by the Ministry of Finance. The government has also instituted specific markings for vehicles based on their function and service area.

DRAFT
© ETH Studio Basel



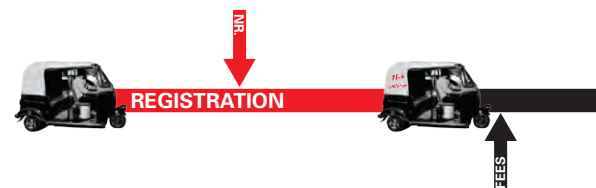
1 Inspired by India, businessmen import tuk-tuks from China



2 Internal mobility in villages improves



3 Hit-and-run accidents escalate

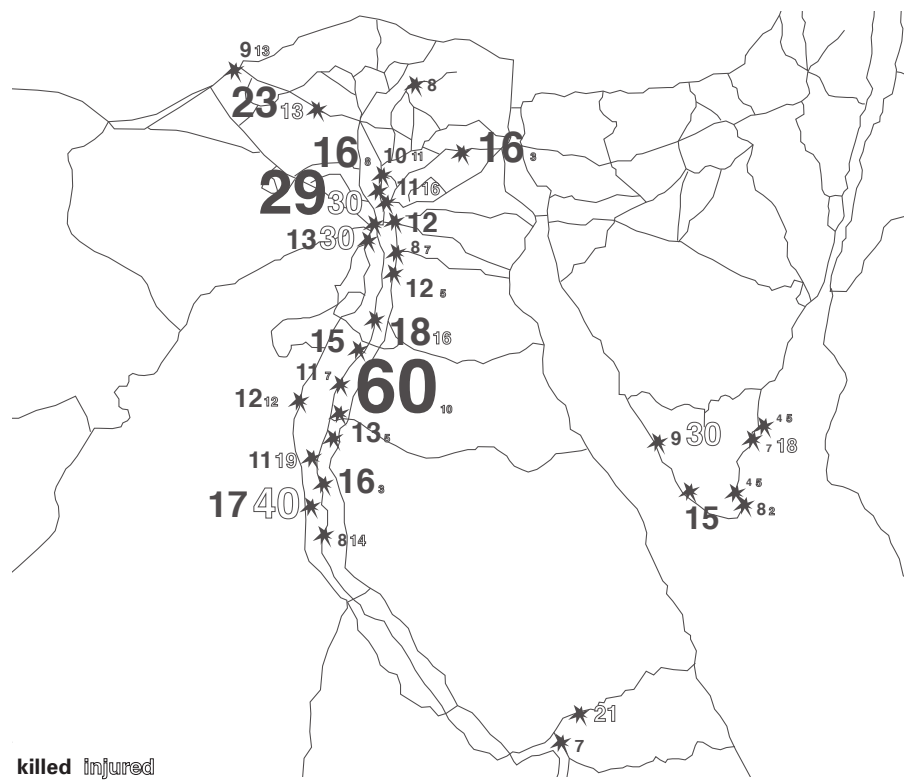


4 Government implements registration procedures

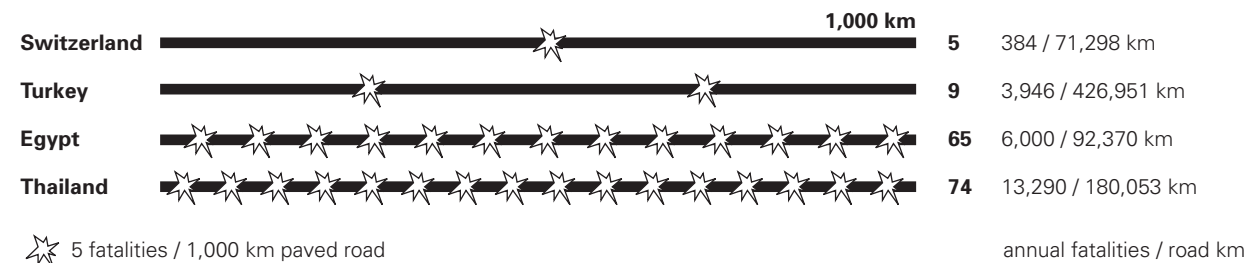
Tuk-tuk Transition

Because of their highly demanded services and lucrative purchasing value, Egyptian tuk-tuks have increased their numbers from zero to 1.2 million in three years. Tuk-tuks solve transportation problems in their maneuverability within villages and also serve as employment opportunities. However, hit-and-run accidents have escalated, along with other public safety concerns; since unregistered vehicles have no legal status, the owners hold no accountability and no one is able to identify the perpetrators. While the government is generally hands-off toward informal entrepreneurial efforts, it intervenes by imposing license registration and traffic regulations via the 2008 Traffic Law.





killed Injured



Accidents Take Toll

Bad driving, lax traffic rules, and poor road conditions have led to a series of catastrophic crashes that caused public outcry over the government's record of road and transport safety; in 2008, the Shura Council announced that the economic impacts of road accidents amounted to 16 billion LE, 3% of the national GDP, prompting the government to pass the 2008 Traffic Law penalizing for hazardous driving.



1



2



3



4

- Using the horn with no reason (unless to prevent possible harm) 100-300 LE
- Exceeding the maximum stated speed / 300-1500 LE / Or jail for a period not less than 6 months
- Driving over capacity (Microbus: 15, Minibus: 23, Bus: 52) 304 LE
- Failure to provide vehicle with reflecting triangle or first aid kit. 100-300 LE / 1-3 month license suspension.

MASS TRANSITION

Nile Valley mass transit mediates the urbanization of Upper Egypt regional networks. A nexus of the Nile, Assiut is one of multiple exchange centers interlinked along the river. Within a condensed network of passengers and roadways, and with varying intensities and transit modes to facilitate exchange of services, regional mobility allows less migration to the Nile Delta and further development of the Nile Valley. Rather than drawing fixed conclusions, these investigations open issues about the sustained development of this unique system and how rural mass transit will continue to pave the way for Nile Valley urbanization.

Catalyzing Connectivity

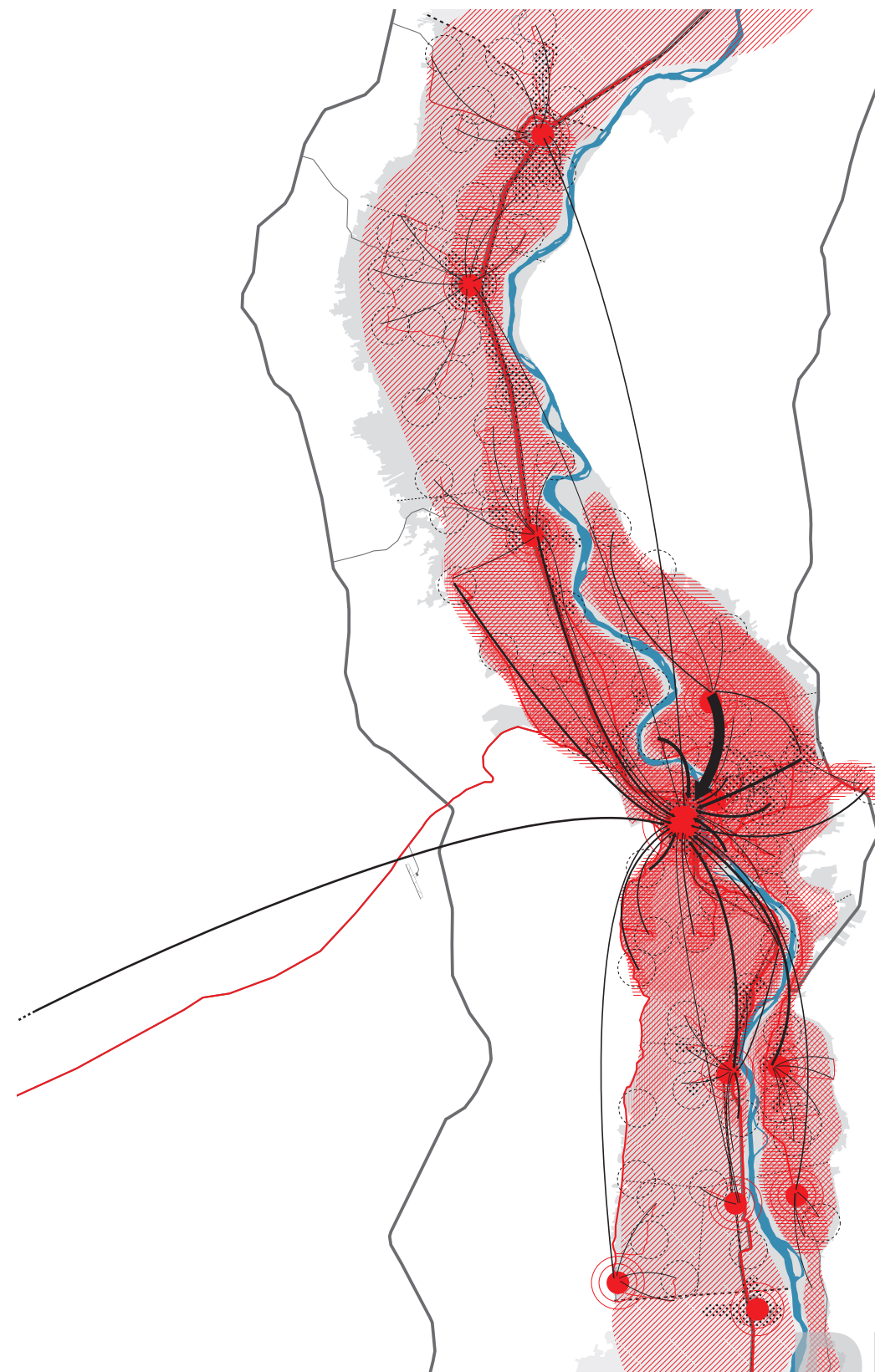
In the same way that mobility acts as a catalyst and indicator of Assiut's urban condition, insufficient mass transit hinders urban growth and development. While regional demands evolved a mass transit system of high mobility in the Nile Valley, state-initiated to develop desert cities have failed due to lack of density and passenger demand to develop sufficient linkages. Continued expansion of the Nile Valley into the desert will require fine tuning of transit proposals to instigate urbanization-facilitating mobility.

P2P Monopoly

Egypt's liberalism has enabled informal entrepreneurship within a highly efficient mass transit industry. However, laissez-faire governance can backfire in the event of political dissatisfaction of this highly powerful driver base; a strike could paralyze the mobility of a nation without state-developed transit alternatives. Additionally, lax enforcement of laws and regulation has eroded state power in curbing financial and public safety problems such as black market fares and anonymous crime in unregistered vehicles. Improving state efficacy in regulation implementation is critical to protecting passenger welfare and preserving the economic sustainability of this transit system.

Rural Hub

A regional mass transit system supports the symbiotic relationship between Assiut and its surrounding villages, resulting in urban flows within a rural setting and forming a commuter hub for its services. With Egypt's fourth-oldest University, a leading medical school, and numerous public services, Assiut has become a rural hub of its region, sometimes touted as the "capital of Upper Egypt." Yet, one may question whether Assiut will develop into something more than a supply city. While many Egyptian residents "dream of Cairo," Assiut's highly mobile governorate has yet to determine what their city can offer as "stuff dreams are made on"; commuting culture can evolve to another culture altogether.



SOURCES

BOOKS

World Health Organization, Peden, Margie (Ed) et al. (2004), “World Report on Road Traffic Injury Prevention,” Geneva
http://www.who.int/violence_injury_prevention/publications/road_traffic/world_report/en/index.html

Firestone, Matthew et al. (2008), “Egypt,”
Lonely Planet, London

MAGAZINES

Gheit, Zeinab Abul, “Death on Wheels” In: Egypt Today (August 2008)
www.egypttoday.com/article.aspx?ArticleID=8116

Nassr, Nahed, “Tuk-Tuk Talk” In: Al-Ahram Weekly (8 - 14 November 2007/Issue No. 870)
<http://weekly.ahram.org.eg/2007/870/fe1.htm>

Nkruma, Gamal, “In the fast lane” In: Al-Ahram Weekly Online (24 - 30 July 2003/Issue No. 648), <http://weely.ahram.org.eg/2003/648/feature.htm>

PAPERS

International Association of Public Transport (November 2007), “Overview of Public Transport in Middle-East and North Africa. 1st Version“
<http://www.uitp.com/uitpworldwide/mena/>

Ministry of Transportation Egypt (April 23 2008), “Public Private Partnership in Transport. Reforms & Investment Opportunities”

LAWS

Ministry of Interior Egypt (2008), “Law 121/2008. New Traffic Law”, Cairo
<http://www.scribd.com/doc/3998614/Traffic-Law-08>

MAPS

GeoGraphic Publishers (2009), Paper map 1:800,000 (Egypt)

INTERVIEWS

Ahmad, Mohamed A., Assiut University Department of Civil Engineering, Personal Interview (23 March 2009)

El-Toony, Ahmad, Assiut Governorate Ministry of Traffic Management, Personal Interview (25 March 2009)

Hassan, Said Nagib, Assiut Governorate Station Management, Personal Interview (25 March 2009)

Walid, A., Assiut Governorate Station Management, Personal Interview (25 March 2009)

INTERNET

<http://www.airlinehistory.co.uk/Africa/Egypt/Airlines.asp>
<http://www.assiut.gov.eg/>
<http://www.bus.com.eg/EBus/OnlineServicesEn/Home/up-peregypt/index.aspx>
<https://www.cia.gov/library/publications/the-world-factbook/>
<http://www.egyptair.com>
<http://www.egypttrail.gov.eg/docs/index.html>
<http://www.reuters.com>
<http://statistic.admin.ch>
<http://www.sis.gov.eg>

IMAGE CREDITS

All graphics and photos by Andrea Grolimund, Franziska Singer, Tiffany Wey, and students of ETH Studio Basel SS09, except where noted.

P. 6
http://www.enjoyart.com/single_posters/egypt/egyptian_state_railways.htm
<http://www.life.com/>

P. 7
<http://www.egyptgiftshop.com/egyptguide/egyptair.html>
<http://www.geocities.com/MotorCity/2529/ramses.html>

P. 11
http://www.intute.ac.uk/sciences/worldguide/html/image_474.html

P. 63
http://www.flickr.com/photos/hazy_jenius/291472672/
<http://afp.google.com/article/ALeqM5hBulbk7OJzd-pOTj9QxTmMzMUuIMg>

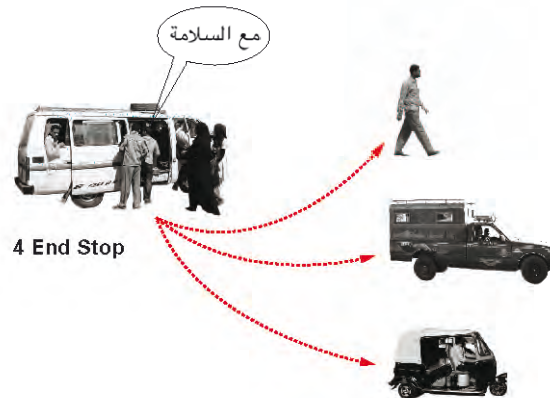
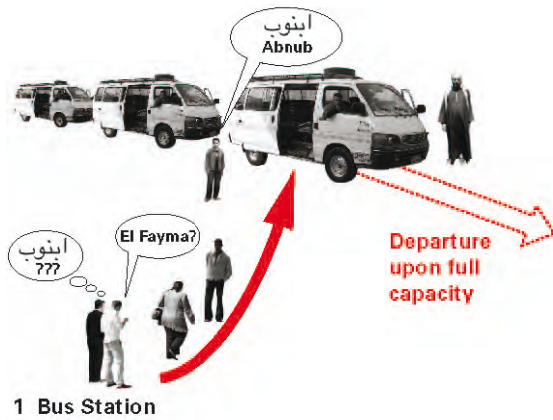
ACKNOWLEDGMENTS

PERSONS

Sara Abd Al Fadi Labib, Assiut University
Dr. Ahmed Abdel-Rahim, University of Idaho
Dr. Mohamed A. Ahmad, Assiut University
Nevine Fikry Badry, Assiut University
Dr. Aymen Hashem, Assiut University
Ahmed Hassan, Assiut University
Sarah Ehrler, Universität Zürich
Mohamed Farag Aly, Universität Zürich
Dr. Aymen Hashem, Assiut University
Hesham Mahmoud, Assiut University
Karim Noureldin
Mu’ataz Tarshem, Assiut University
Mohamed Zaki Al Bossaty, Assiut University

INSTITUTIONS

Assiut University, Department of Architecture
Embassy of Switzerland, Cairo

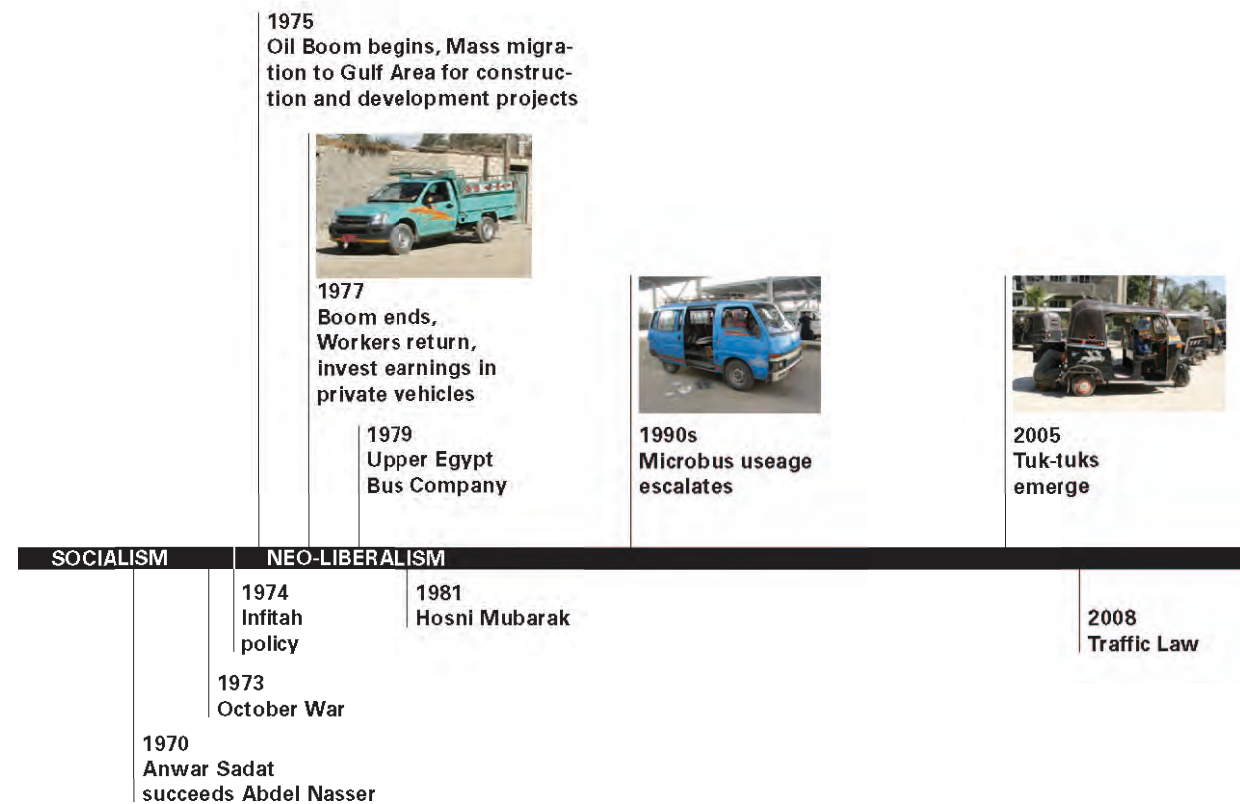


How to Ride a Microbus

The speed and reliability of a microbus stems from its functional flexibility and opportunistic nature. Convenient because it does not adhere to fixed schedules or route stops, nor does it require tickets, the microbus is the most prevalent mode of transportation.

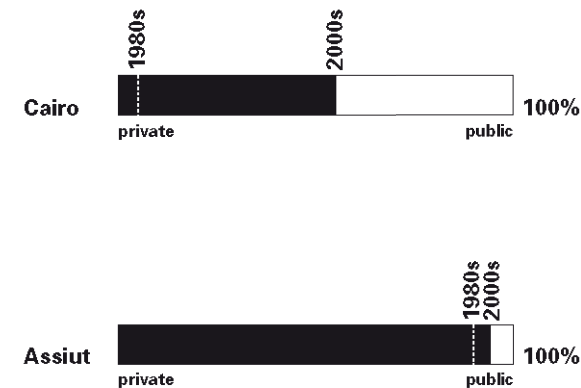
LAISSEZ-FAIRE REGULATION

Assiut performs as a regional hub due to its political and economic systems which adapt to the transportation needs of its rural population. Rather than being planned by the state, the mass transit system has formed from self-regulating supply and demand of passengers, and is executed by private sector operators with minimal state intervention. While this liberal approach encourages self-organized entrepreneurship, it lacks a mechanism to safeguard people from negative impacts, namely threats to public safety. In this aspect, the government assumes an authoritarian stance in order to protect passengers, by mandating vehicle registration and renewal, and imposing penalties on dangerous driving.



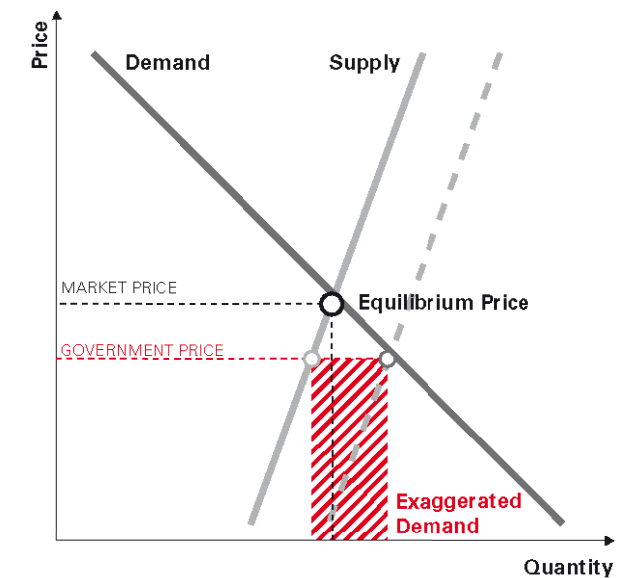
Opening the Market

Sadat's Infitah (Open Door) economic policy of 1974 enabled a capitalistic free market, allowing the emergence of a modern entrepreneurial and consumerist society in Egypt.



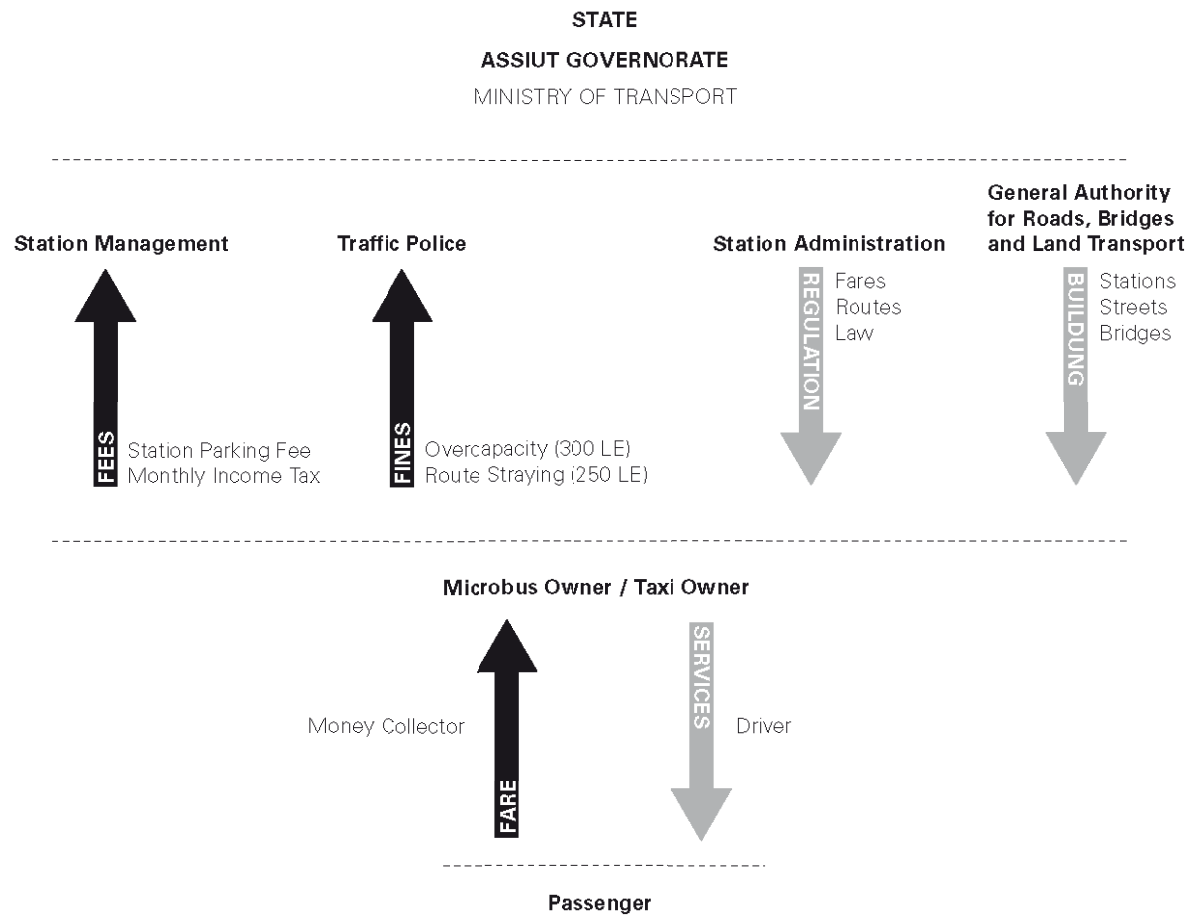
Private Sector Takeover

In the 1980s, public transport was the main metropolitan transit mode, but did not develop in Assiut because taxis offered adequate coverage. Public transport yielded to the private sector because the government allows it to function independently without economically burdening the state.



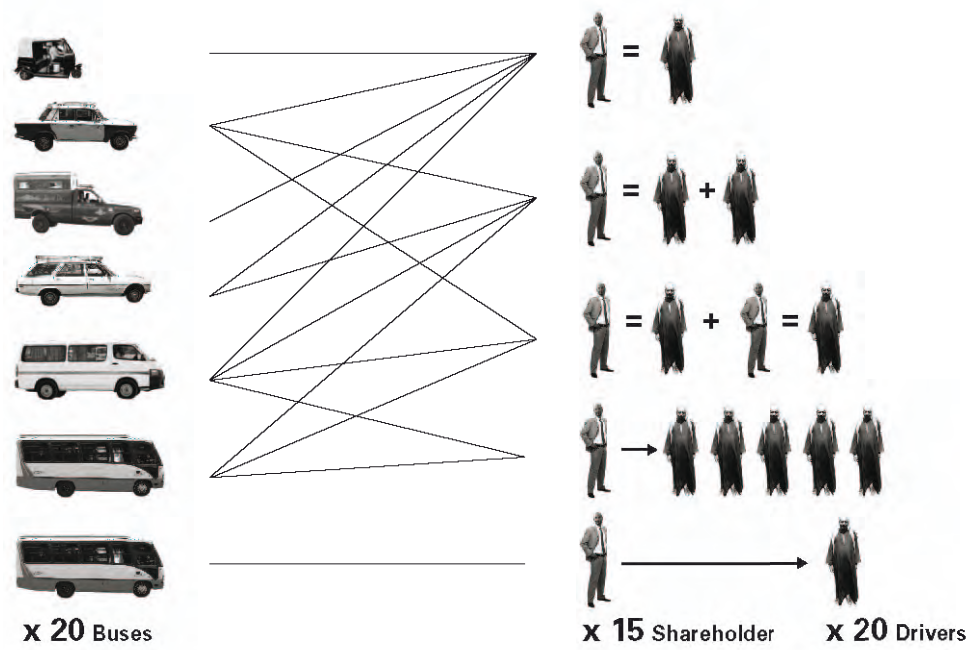
Adapting Price Elasticity

Because the government pegs fares lower than the market value, driver net revenue decreases, leading to insufficient driver earnings. Drivers operate within an elastic market in which prices vary between the market-favored equilibrium and the government pegged price.

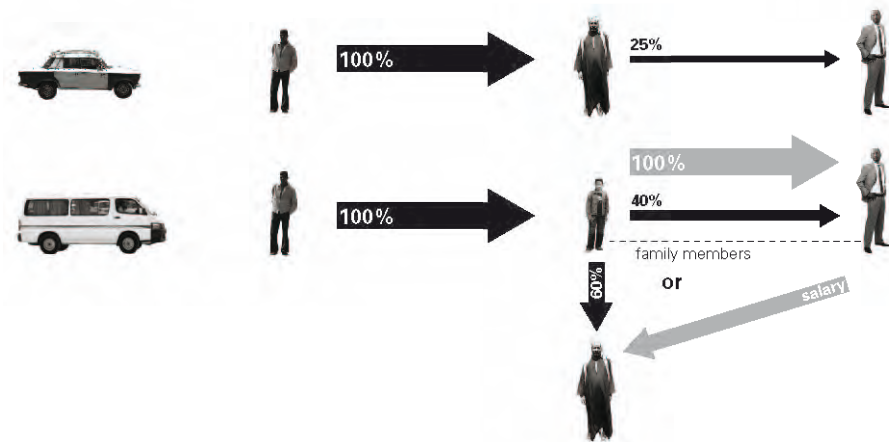


Landlord Economics

Within a negotiation of top-down vs. bottom-up power, the government regulates intercity prices while allowing individual operators to set outer-city prices at a market rate. The government gains revenue through taxes and fines, leaving the fare revenue distribution to the discretion of the owner. Owners allow drivers to keep a percentage of their earnings, or pay them a monthly salary, protecting their profits by often employing family members as money collectors. The state's presence within the private sector is often limited to an unobtrusive administrative hut to which drivers pay dues and organize licensing matters.



Private Ownership

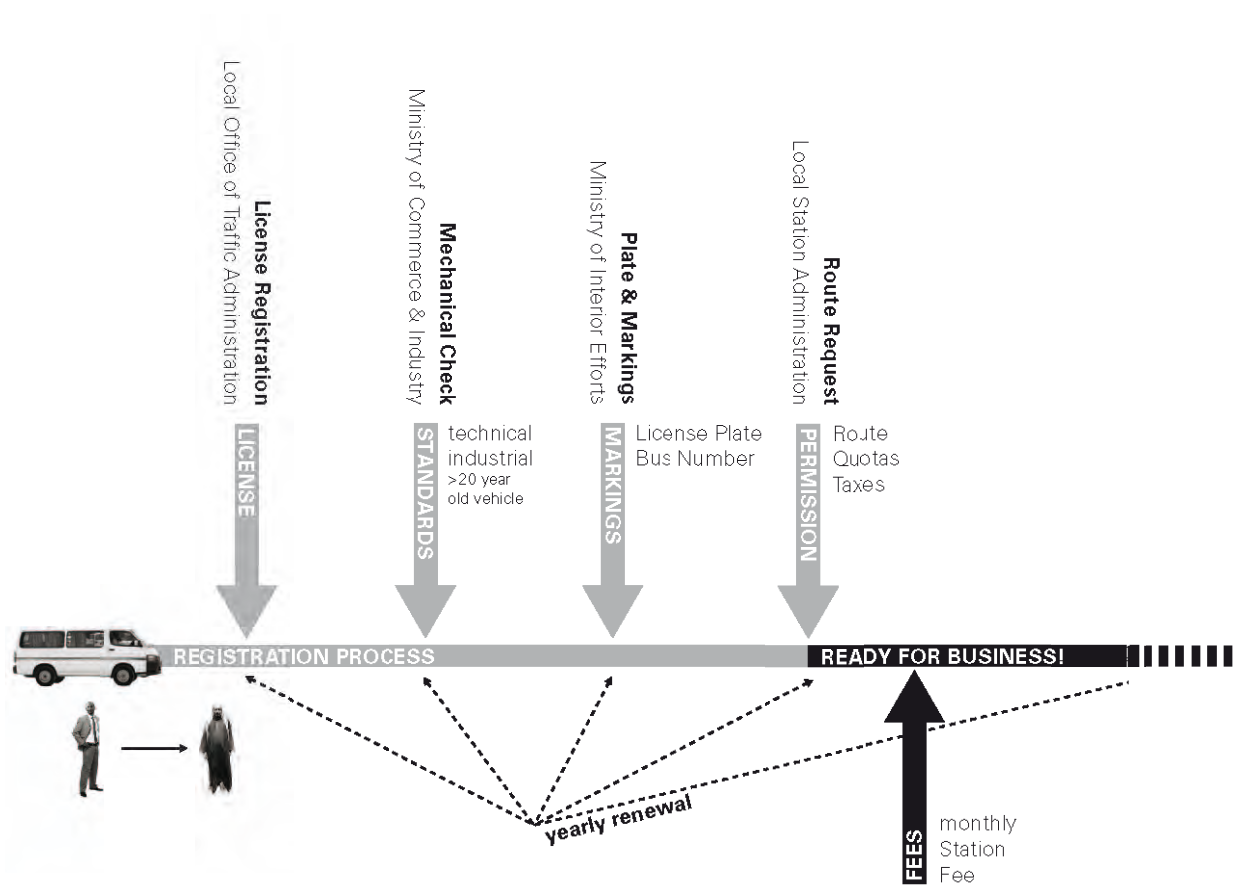


Payments

P2P Network

The inception of private ventures most often produced a one-to-one relationship between owners and drivers, who operated as individuals within the transportation industry. To increase operational efficiency, the government encourages joint ventures via private collective ownership to pool resources and self-organize in a peer-to-peer network. These collaborations expand capital and managerial capacity, also creating a reserve of ready-to-work drivers to fill in the gaps when individual drivers are unable to make their shifts.





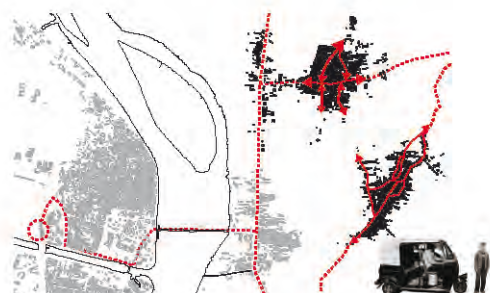
How to Register a Microbus

Vehicles must pass through a circuit of legal and mechanical checkpoints administered by state ministries and local government to ensure legal accountability for vehicles and drivers. Toward the renewal of Egypt's aging vehicle population, the Prime Minister initiated a fund-raising effort towards subsidizing the purchase of replacement vehicles from a fund supported by the Ministry of Finance. The government has also instituted specific markings for vehicles based on their function and service area.

DRAFT
© ETH Studio Basel



1 Inspired by India, businessmen import tuk-tuks from China



2 Internal mobility in villages improves



3 Hit-and-run accidents escalate

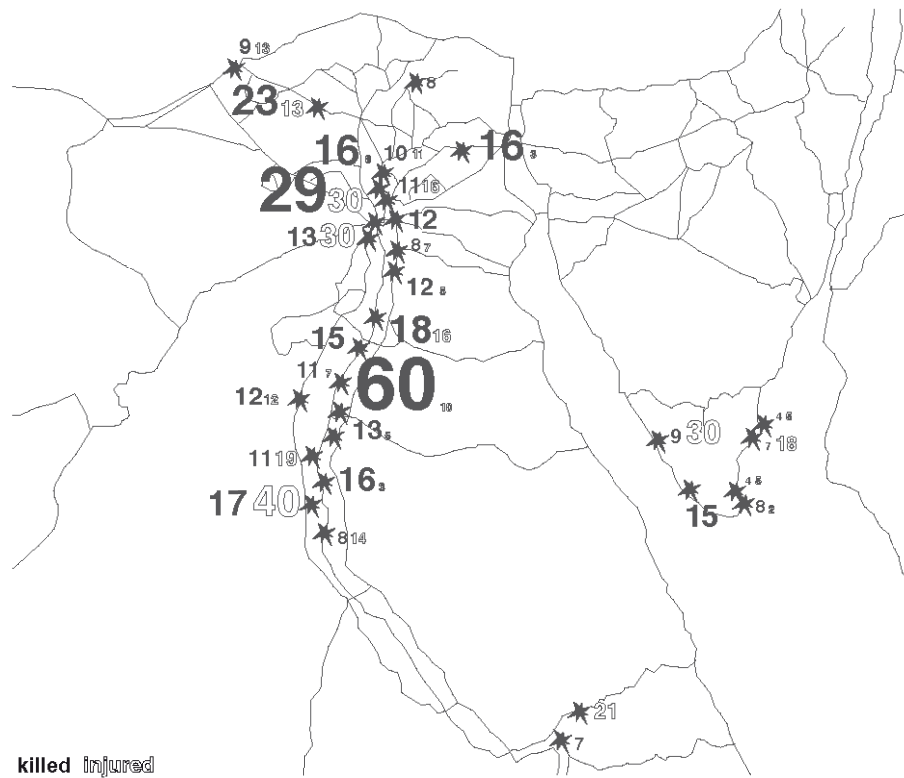


4 Government implements registration procedures

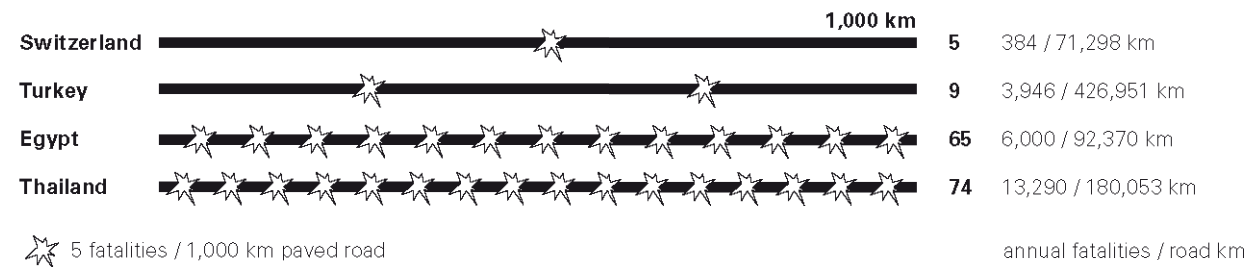
Tuk-tuk Transition

Because of their highly demanded services and lucrative purchasing value, Egyptian tuk-tuks have increased their numbers from zero to 1.2 million in three years. Tuk-tuks solve transportation problems in their maneuverability within villages and also serve as employment opportunities. However, hit-and-run accidents have escalated, along with other public safety concerns; since unregistered vehicles have no legal status, the owners hold no accountability and no one is able to identify the perpetrators. While the government is generally hands-off toward informal entrepreneurial efforts, it intervenes by imposing license registration and traffic regulations via the 2008 Traffic Law.





killed Injured



Accidents Take Toll

Bad driving, lax traffic rules, and poor road conditions have led to a series of catastrophic crashes that caused public outcry over the government's record of road and transport safety; in 2008, the Shura Council announced that the economic impacts of road accidents amounted to 16 billion LE, 3% of the national GDP, prompting the government to pass the 2008 Traffic Law penalizing for hazardous driving.



1



2



3



4

- Using the horn with no reason (unless to prevent possible harm) 100-300 LE
- Exceeding the maximum stated speed / 300-1500 LE / Or jail for a period not less than 6 months
- Driving over capacity (Microbus: 15, Minibus: 23, Bus: 52) 304 LE
- Failure to provide vehicle with reflecting triangle or first aid kit. 100-300 LE / 1-3 month license suspension.

MASS TRANSITION

Nile Valley mass transit mediates the urbanization of Upper Egypt regional networks. A nexus of the Nile, Assiut is one of multiple exchange centers interlinked along the river. Within a condensed network of passengers and roadways, and with varying intensities and transit modes to facilitate exchange of services, regional mobility allows less migration to the Nile Delta and further development of the Nile Valley. Rather than drawing fixed conclusions, these investigations open issues about the sustained development of this unique system and how rural mass transit will continue to pave the way for Nile Valley urbanization.

Catalyzing Connectivity

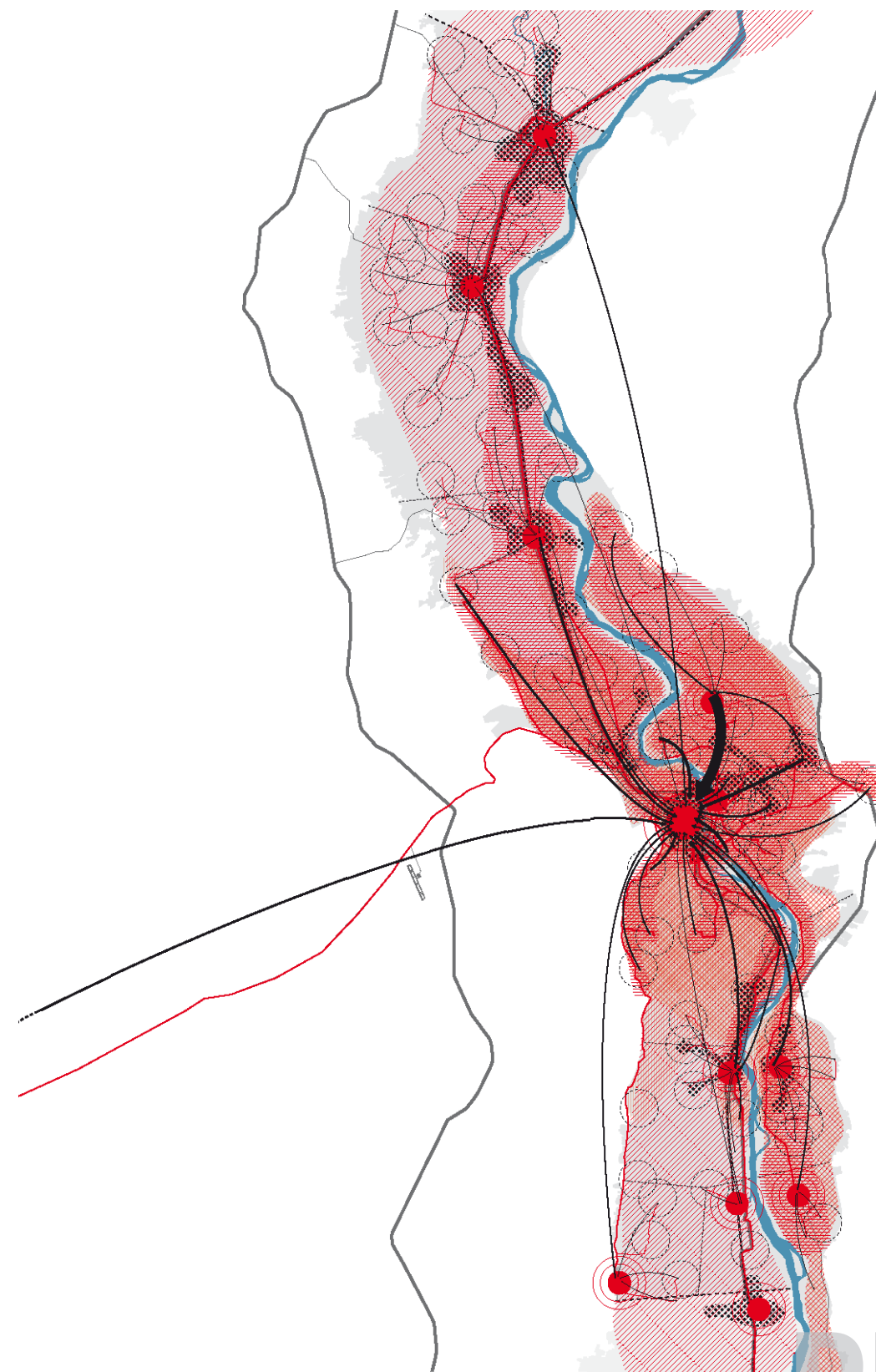
In the same way that mobility acts as a catalyst and indicator of Assiut's urban condition, insufficient mass transit hinders urban growth and development. While regional demands evolved a mass transit system of high mobility in the Nile Valley, state-initiatives to develop desert cities have failed due to lack of density and passenger demand to develop sufficient linkages. Continued expansion of the Nile Valley into the desert will require fine tuning of transit proposals to instigate urbanization-facilitating mobility.

P2P Monopoly

Egypt's liberalism has enabled informal entrepreneurship within a highly efficient mass transit industry. However, laissez-faire governance can backfire in the event of political dissatisfaction of this highly powerful driver base; a strike could paralyze the mobility of a nation without state-developed transit alternatives. Additionally, lax enforcement of laws and regulation has eroded state power in curbing financial and public safety problems such as black market fares and anonymous crime in unregistered vehicles. Improving state efficacy in regulation implementation is critical to protecting passenger welfare and preserving the economic sustainability of this transit system.

Rural Hub

A regional mass transit system supports the symbiotic relationship between Assiut and its surrounding villages, resulting in urban flows within a rural setting and forming a commuter hub for its services. With Egypt's fourth-oldest University, a leading medical school, and numerous public services, Assiut has become a rural hub of its region, sometimes touted as the "capital of Upper Egypt." Yet, one may question whether Assiut will develop into something more than a supply city. While many Egyptian residents "dream of Cairo," Assiut's highly mobile governorate has yet to determine what their city can offer as "stuff dreams are made on"; commuting culture can evolve to another culture altogether.



SOURCES

BOOKS

World Health Organization, Peden, Margie (Ed) et al. (2004), “World Report on Road Traffic Injury Prevention,” Geneva
http://www.who.int/violence_injury_prevention/publications/road_traffic/world_report/en/index.html

Firestone, Matthew et al. (2008), “Egypt,” Lonely Planet, London

MAGAZINES

Gheit, Zeinab Abul, “Death on Wheels” In: Egypt Today (August 2008)
www.egypttoday.com/article.aspx?ArticleID=8116

Nassr, Nahed, “Tuk-Tuk Talk” In: Al-Ahram Weekly (8 - 14 November 2007/Issue No. 870)
<http://weekly.ahram.org.eg/2007/870/fe1.htm>

Nkruma, Gamal, “In the fast lane” In: Al-Ahram Weekly Online (24 - 30 July 2003/Issue No. 648), <http://weely.ahram.org.eg/2003/648/feature.htm>

PAPERS

International Association of Public Transport (November 2007), “Overview of Public Transport in Middle-East and North Africa. 1st Version”
<http://www.uitp.com/uitpworldwide/mena/>

Ministry of Transportation Egypt (April 23 2008), “Public Private Partnership in Transport. Reforms & Investment Opportunities”

LAWS

Ministry of Interior Egypt (2008), “Law 121/2008. New Traffic Law”, Cairo
<http://www.scribd.com/doc/3998614/Traffic-Law-08>

MAPS

GeoGraphic Publishers (2009), Paper map 1:800,000 (Egypt)

INTERVIEWS

Ahmad, Mohamed A., Assiut University Department of Civil Engineering, Personal Interview (23 March 2009)

El-Toony, Ahmad, Assiut Governorate Ministry of Traffic Management, Personal Interview (25 March 2009)

Hassan, Said Nagib, Assiut Governorate Station Management, Personal Interview (25 March 2009)

Walid, A., Assiut Governorate Station Management, Personal Interview (25 March 2009)

INTERNET

<http://www.airlinehistory.co.uk/Africa/Egypt/Airlines.asp>
<http://www.assiut.gov.eg/>
<http://www.bus.com.eg/EBus/OnlineServicesEn/Home/up-peregypt/index.aspx>
<https://www.cia.gov/library/publications/the-world-factbook/>
<http://www.egyptair.com>
<http://www.egypttrail.gov.eg/docs/index.html>
<http://www.reuters.com>
<http://statistic.admin.ch>
<http://www.sis.gov.eg>

IMAGE CREDITS

All graphics and photos by Andrea Grolimund, Franziska Singer, Tiffany Wey, and students of ETH Studio Basel SS09, except where noted.

P. 6
http://www.enjoyart.com/single_posters/egypt/egyptian_state_railways.htm
<http://www.life.com/>

P. 7
<http://www.egyptgiftshop.com/egyptguide/egyptair.html>
<http://www.geocities.com/MotorCity/2529/ramses.html>

P. 11
http://www.intute.ac.uk/sciences/worldguide/html/image_474.html

P. 63
http://www.flickr.com/photos/hazy_jenius/291472672/
<http://afp.google.com/article/ALeqM5hBulbk7OJzd-pOTj9QxTmMzMUuIMg>

ACKNOWLEDGMENTS

PERSONS

Sara Abd Al Fadi Labib, Assiut University
Dr. Ahmed Abdel-Rahim, University of Idaho
Dr. Mohamed A. Ahmad, Assiut University
Nevine Fikry Badry, Assiut University
Dr. Aymen Hashem, Assiut University
Ahmed Hassan, Assiut University
Sarah Ehrler, Universität Zürich
Mohamed Farag Aly, Universität Zürich
Dr. Aymen Hashem, Assiut University
Hesham Mahmoud, Assiut University
Karim Noureldin
Mu'ataz Tarshem, Assiut University
Mohamed Zaki Al Bossaty, Assiut University

INSTITUTIONS

Assiut University, Department of Architecture
Embassy of Switzerland, Cairo