



Subsector Meeting on **Urban Transportation Development**  
in  
Integrated Development Strategy for Danang City and Its  
Neighboring Area  
(DaCRISS)

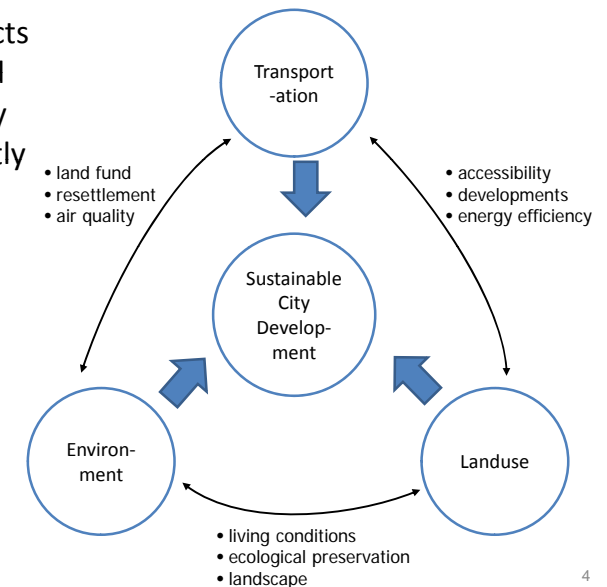
22 January 2010  
Danang City  
JICA Study Team

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2. Planning Database and Situation Analysis
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4. Proposed General Plan
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□ Implication of Transportation in Urban Development

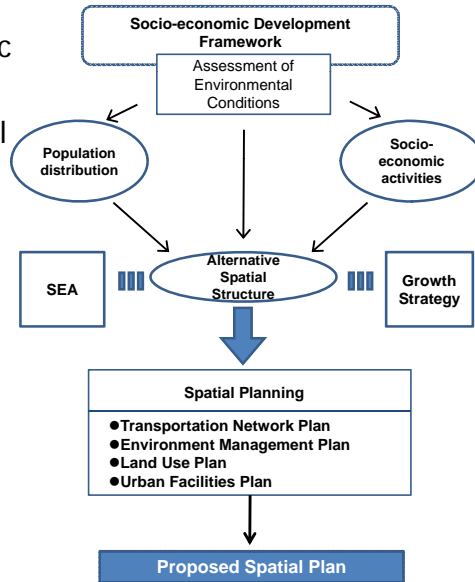
- Transportation affects landuse pattern and environment quality directly and indirectly
- Transportation requires large costs
- Transportation infrastructure investments are irreversible



1. Urban Transportation in Sustainable Urban Development

## □ Spatial Development

- Integration of socio-economic development framework
- Critical assessment of natural conditions and development orientation
- Assessment of alternative spatial structure
- Conditions of national/regional transport projects and activities



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## 2. Planning Database and Situation Analysis

## □ Preparation of Database

### ○ Existing data

- Official statistics
- Various map data
- Projects information

### ○ Household Interview Survey

- 5,000 households
- Comprehensive socio-economic profile and assessment by residents

### ○ Other Supplemental Surveys

- Transportation and traffic
- Environment
- Landscape

### Main Items Covered in HIS

1. Socio-economic Characteristics of Households
  - household composition
  - residential status
  - ownership of property and goods
2. Household Member Information
  - age, sex
  - employment, education
  - income
3. Information on Daily Travel/Transport
  - origin and destination
  - travel mode, travel purpose
  - time/fare spent
4. Assessment of Current Urban Services
  - transportation
  - utilities and urban services
  - living conditions and environment
5. Opinions/expectations for Improvement

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## □ DaCRISS Database

- GIS based system
- Easy access and use
- Shared information among Departments and civic organizations



DaCRISS ATLAS



Urban Karte



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## □ Analysis of Present and Future Situation

### ○ Objective of the Analysis

- to understand the situation correctly (current, past trend)
- to identify demand and supply gaps and needs by area
- to analyze baseline scenario (do-nothing scenario)

### ○ Analytical Tools

- performance indicators
- demand forecast
- gap analysis (infrastructure, transport, land & housing, etc.)
- scenario writing and assessment (urban growth, landuse, transport network, etc.)
- land development suitability analysis (environmental mapping)
- Urban Karte (comprehensive and participatory living condition assessment)
- transport network analysis/ assessment based on STRADA

## □ Living Conditions

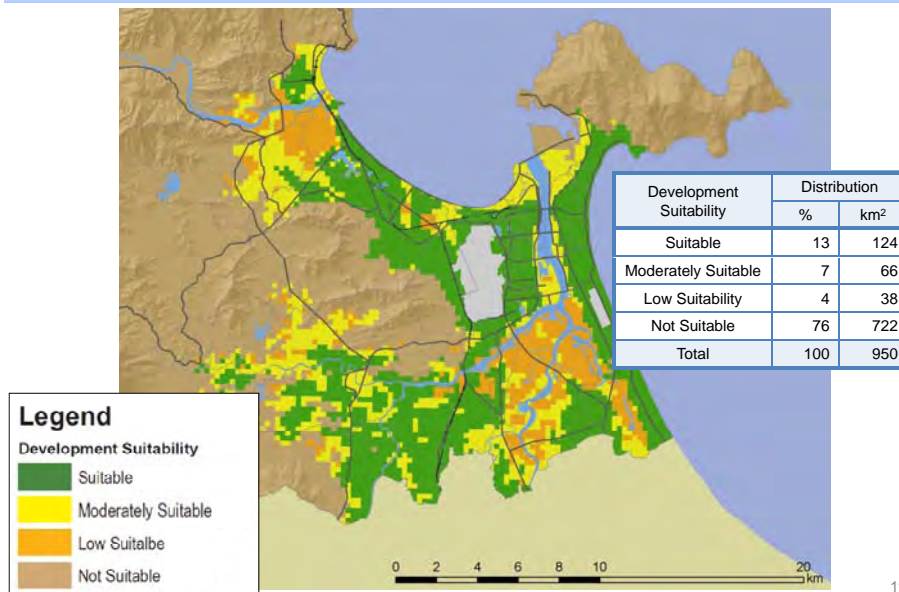
### ◆ Assessment of Overall Living Conditions

- Prepared based on HIS and other sources for all communes and districts of Danang
- Assessment Indicators: Convenience; Safety and Security; Health and Wellbeing; Amenity, Capability (subjective and objective assessments)



Commune: Hai Chau I		Hai Chau District		Danang City		Benchmark 2025 for Danang City		People's Assessment on Current Condition	
Statistical Data on Current Condition	Hai Chau Commune	Hai Chau District	Danang City	Benchmark 2025 for Danang City	Hai Chau Commune	Hai Chau District	Danang City	Objective Score	Subjective Score
Household Electricity Connection (%)	100	100	99	100	0.97	2	1	1.28	1.27
Road Area Ratio (% per net area)	22.0	19.8	12.8	15.0	0.80	2	7	1.14	1.14
Work Travel Time (min)	42.7	14.0	16.7	15.0	0.90	2	4	1.2	1.2
Work Trip by Public Transportation (%)	0.00	0.00	0.01	30.00	0.00	2	7	1.1	1.1
Motor Vehicle Ownership per 1000 Population	520	543	450	250	0.94	2	13	1.2	1.2
# of TV Sets per 1000 Population	403	487	323	300	0.43	2	7	1.37	1.37
# of Telephones per 1000 Population	223	227	290	300	0.43	1	17	1.31	1.31
Police Service Coverage (%)	100.0	99.0	71.0	80.0	0.40	2	19	1.39	1.39
Flood Vulnerability (% of area)	32.9	36.7	25.7	10.0	0.53	2	26	1.16	1.16
#Hts with Permanent Housing (%)	99.2	98.0	98.4	100.0	0.52	1	42	1.17	1.17
Traffic Injuries per 100,000 Population	1.965	1.304	1.486	700	0.07	2	40	1.31	1.31
Health & Well-being					0.36	2	1	1.24	1.24
#Hts with Piped Water Connection (%)	100.0	95.2	60.0	80.0	0.39	2	1	1.22	1.22
#Hts with Sewerage Systems (%)	89.4	87.7	51.0	80.0	0.74	1	16	1.18	1.18
Hospitals per 1000 Population	0.41	0.16	0.13	0.15	0.01	2	2	0.47	0.47
Cultural Facilities per 1000 Population	0.96	0.41	0.53	1.00	0.25	1	7	1.40	1.40
Water Areas per 1000 Population (ha)	1.03	1.20	5.52	10.00	0.05	1	29	1.33	1.33
Water Open Spaces per 1000 Population (ha)	0.06	0.03	0.48	0.50	0.13	2	13	1.11	1.11
Green Areas per 1000 Population (ha)	0.00	0.01	290.95	300.00	0.03	2	42	0.23	0.23
Average Living Space per Capita (m²)	20.5	22.4	75.3	50.0	0.49	2	48	1.17	1.17
Net Population Density (no./ha)	239	206	39	100	0.01	0	41	0.50	0.50
Average Annual Income (USD)	4,035	3,296	2,610	5,000	0.52	1	2	1.11	1.11
Motor Vehicle Ownership per 1000 Population	520	543	450	250	0.94	2	13	1.2	1.2
Internet Connections per 1000 Population	522	382	174	500	0.43	2	1	1.31	1.31
Mobile Phone Ownership per 1000 Population	478	477	351	500	0.43	1	1	1.37	1.37

## □ Development of Suitability Analysis

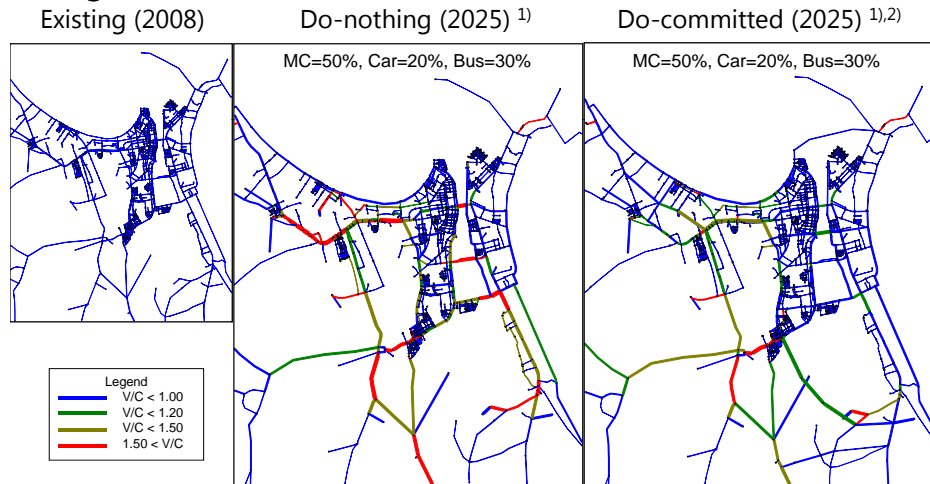


## □ Baseline Scenario Analysis

		Scenario 1 : Trend Growth	Scenario 2 : Current Plan	Scenario 3: Accelerated Growth
Profile	Population (000)	1,213 (2025)	1,500 (2025)	2,100 (2025)
	Land Suitable for Development (ha)	approximately 25,000 ha		
	Population Density (persons/ha)	59	62	84
Sustainability	<b>Economic:</b> • Industry mix level • Investment attractiveness • Impact on the region	Low: • Ineffective land use • Investment attractiveness decreased • Little positive impact on the region	Moderate:	High: • Modern compact CBD and subcenters • Strategic locations for new industries • Strengthened integration with adjoining provinces
	<b>Social:</b> • Inequality • Employment • Access to services	Low: • Employment opportunity limited • Living conditions may deteriorate	Moderate:	Moderate to High: • Expanded human resource development • Improved accessibility to services • Neighborhood community strengthened
	<b>Environment:</b> • Pollution level • Preserved ecosystem • Disaster preparedness	Low: • Pollution spread • Ecosystem negatively affected • Vulnerability worsen	Moderate to High:	Moderate to High: • Pollution free • Ecosystem preserved • Amenity improved • Disaster preparedness

## □ Baseline Scenario Analysis (Transportation)

### Assigned Traffic

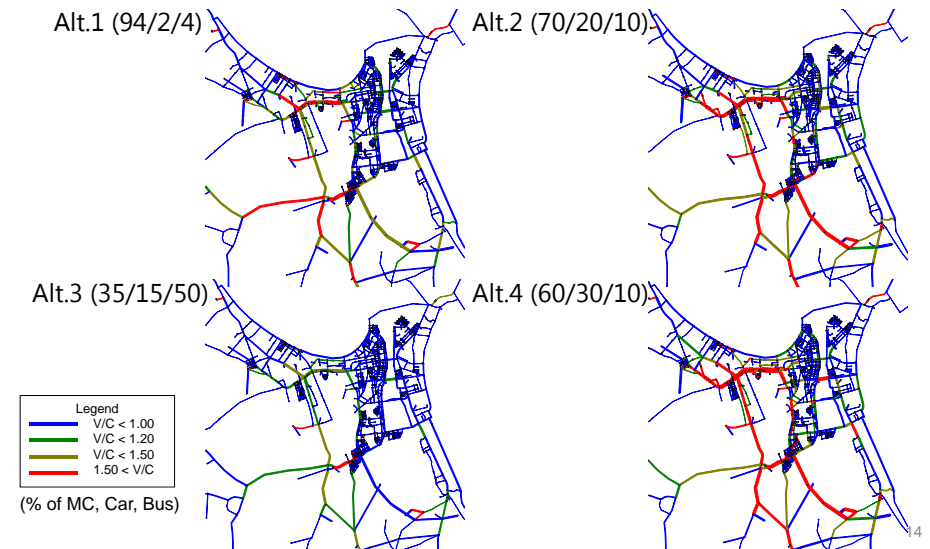


1) Assumed modal share (%) of motorcycle, car and bus: 50/20/30, Average occupancy: motorcycle 1.3, car 2.0 and bus 36  
2) Expressway is not included

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## □ Baseline Scenario Analysis (Transportation)

### Traffic Assignment on Do-Committed Network by Scenario



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## □ Main Planning Issues in Relation to Transportation

- Increasing passenger car traffic which accelerate traffic congestions and air pollution all over the city
- Urgent development of public transportation system
- Densification in CBD due to construction of high – rise buildings and expected increase in traffic congestions
- Sprawling development in fringe areas, requiring inefficient investments on roads
- Conflict of high – rise buildings with restriction of airport operation
- Lack of measures to improve existing urban areas (narrow alleys which cannot allow emergency vehicles to enter)
- Considerations of natural disaster and impact of climate change in urban areas development, requiring appropriate design standards of transport infrastructure

→ integrated development with transportation and environment

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## 3. Overall City Development Strategies

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## □ Vision

### Danang to be an Internationally Competitive Environmental City Beyond being Pollution - free

#### ◀ Urban Development Goal = Sustainable City ▶

- Competitiveness (economic sustainability)
- Livability (social sustainability)
- Environmental sustainability
- Management/Governance

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## □ Overall Growth Strategy

- Respond to regional role of Danang including (i) Danang to function as a strong socio – economic and physical binder for north and south integration of the country, (ii) Danang to play much bigger role to facilitate development and growth of CFEZ, and (iii) Danang to contribute to the development and growth of GMS through East – West Corridor
- Need for different growth strategy from those of NFEZ and SFEZ based on the strength (rich natural and cultural resources, Danang University) and by overcoming the weakness (small market, poor infrastructure) and threats (natural disasters)
- Maximize opportunities by strengthening connectivity with the world through expanded air transport and much improved information system

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## □ Main Socio – economic Indicators (Estimated)

- Danang is tasked to become a significant core city not only in Central Region but also in Vietnam.

		2007	2025	2025/ 2007
Population (000)		887 <sup>1)</sup>	2,100	2.4 <sup>1)</sup>
GRDP (VND billion) 2007 price		15,107	133,161	8.8
GRDP / capita	VND million	18.7	63.4	3.4
	USD	1,100	3,730	
Vehicle Ownership (% of HH)	Car	1.5	69.9	46.6
	M / C	90.1	23.2	0.3

<sup>1)</sup> Data for 2009

→ Future of Danang City is quite different from today.

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## □ Key Sector Development Strategies (1)

- **Economic development:** Shift to knowledge – based and environment business / industry including eco – tourism, healthcare, services, while strengthening competitive activity base for existing industries.
- **Tourism development:** Expand tourism (eco – tourism, MICE\*) in coordination with provinces and integration with other related sectors such as transportation, environment, human resource development...
- **Human resource development:** Danang to become a national centre for human resource development for tourism, services, environmental business and knowledge industries by expanding / upgrading higher education and training centres

A8-234 \* MICE: Meeting, Incentives, Conference, and Exhibition

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## □ Key Sector Development Strategies (2)

- **Urban development and infrastructure provision:** Promote development of efficient urban areas by developing high – quality public transport system integrated with flood free and environmentally rich urban lands with efficient utilities and services. Enforcement of updated Urban Plan is also to be strengthened.
- **Transportation development:** Ensure future mobility and accessibility of the people and visitors by strengthening connectivity of services at international, regional and city levels, and providing competitive public transport services and eco – vehicles.
- **Housing and living conditions:** Develop affordable, disaster proof and energy – saving collective housing and industries to meet increasing demand for housing by the people including migrants. Farther improve basic services and empower peoples' initiatives to improve living conditions at community level.

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## □ Key Sector Development Strategies (3)

- **Environmental management:** While sector strategy involves (i) protection and enhancement of ecosystems, (ii) removal of pollution from hot spots, (iii) strengthening of energy – saving measures, and (iv) strengthening of preparedness against disasters, environmental component is incorporated in strategies of other sectors on such as compact city in urban development, public transportation in urban transportation, etc.
- **City management:** Strategies include (i) establishment of transparent and accountable city management system, (ii) strengthening of municipal funding basis by expanding user charges, PPP, etc. and (iii) strengthening of inter – provincial coordination.

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## □ Concept on Future Urban Structure

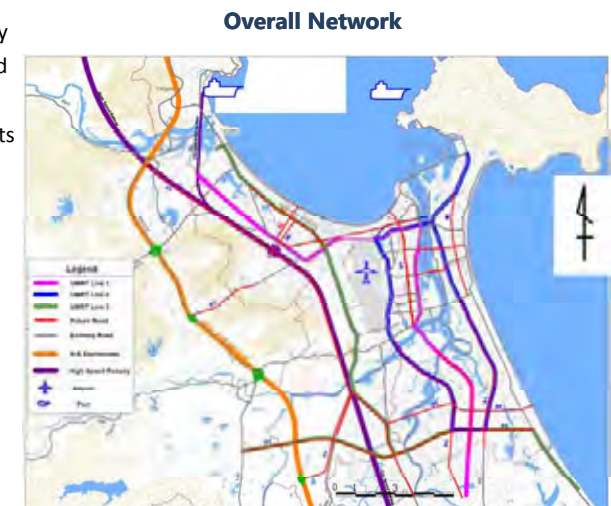
- Assessment of natural conditions (topography, ecosystems, river system, flood, erosion...)
- Broad zoning (conservation and development suitability)
- Regional transportation development (air, road, expressway, rail, high – speed rail, shipping)
- Height restriction around Airport
- Approved projects / plans
- Expansion and Integration of urban areas in Quang Nam



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## □ Transportation

- **Regional transportation**
  - National highway, expressway
  - Vietnam railway, high – speed railway
  - International airport and ports
- **Urban transportation**
  - Primary & secondary roads
  - Bus services
  - Mass – transit (BRT, LRT)
  - Water transportation
  - Non – motorized transport
  - Parking
  - Traffic management
- **New services**
  - Car sharing
  - Eco - vehicles



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## □ Proposed Mass – transit System

- Main urban areas will be covered within walking distance of UMRT (BRT, LRT)
- Entry of car / motorcycle can be restricted through congestion pricing
- Need for integrated urban development at and around stations



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## □ Outline of Mass – transit Lines (preliminary)

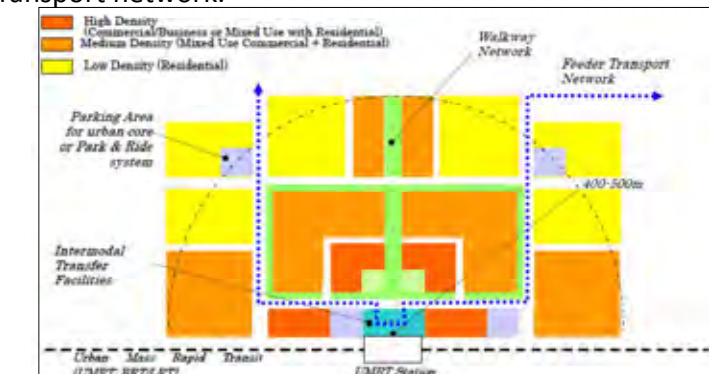
Line No. (color code)	Section	System	Structure <sup>1)</sup>	Length (km)
Line 1 (pink)	Ton Duc Thang–Dien Bien Phu	LRT	EL	8.8
	Dien Bien Phu–Le Duan–Tran Phu–Nui Thanh	LRT	UG	5.7
	Nui Thanh–New road to Hoa Xuan	LRT	EL	3.8
	New road to Hoa Quy and south towards Quang Nam	LRT	AG	10.2
Line 2 (blue)	Ngo Quyen–Ngu Hanh Son–Le Van Hien – Provincial road 603–New East West road – Nguyen Huu Tho	BRT	AG	21.3
	Le Duan–Dien Bien Phu–Nguyen Tri Phuong–Nguyen Huu Tho	BRT	AG	11.1
Line 3 (green)	North South Line : Nguyen Luong Bang–Hoa Khanh Bac new urban area road–Truong Chinh–Hoa An–Hoa Phat	BRT	AG	19.7
	East West Line: new east west road in Hoa Chau–Hoa Quy–Hoa Hai.	BRT	EL	19.1
Total				99.7

Note: EL = elevated, UG = underground, AG = at grade

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## □ An Important Factor in Compact City Concept

- Integrated landuse and urban development with main public transport network.



Curitiba

Nagoya

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## □ Bus and LRT



Bus Way (Bogota)



Curitiba



A8-236 Sky Train (Bangkok)



LRT at grate (Barcelona)

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## □ Proposed Bus Routes (2009 – 2015)



Source: The Feasibility Study for Improvement of Public Transport in Danang 2008–2015, KfW (2009)

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## □ Estimated Number of Buses

Item	2008	2015	2025	
Total Daily Demand: 000 trips	4,168	6,971	10,976	
Demand on Bus: 000 trips (% to total)	176 (4%)	1,046 (15%)	3,842 (35%)	
Share by bus size (assumed)	Large (80pax)	10%	20%	30%
	Standard (60pax)	50%	50%	50%
	Medium (24pax)	40%	30%	20%
Required No. of Bus fleets	Large (80pax)	15	174	960
	Standard (60pax)	98	581	2,134
	Medium (24pax)	196	871	2,134
	<b>Total</b>	<b>308</b>	<b>1,627</b>	<b>5,229</b>

Source: DaCRIS Study Team

Note:

No. of required bus (Nb) =  $T_n / T_d$

$T_n$ : Required No. of bus trips/day (= Pax/Cb/LF)

Pax: No. of bus demand (trips)

Cb: Capacity of bus

LF: Average load factor of bus (assumed at 60%)

$T_d$ : Trips per day for a bus (= KMr/Rave/UF)

KMr: Maximum km a bus can run in a day (assumed at 200km)

Rave: Average route length in km (assumed at 20km)

UF: Average utilization factor of bus (assumed at 90%)

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## □ Green Transit Network (Preliminary)



Source: DaCRIS Study Team

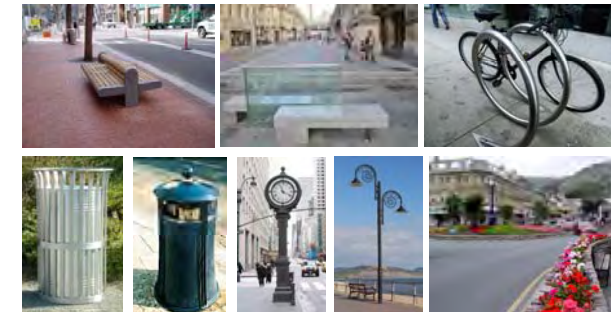
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## □ Environment and Amenity for Pedestrians

### Pedestrian Way



### Street Furniture



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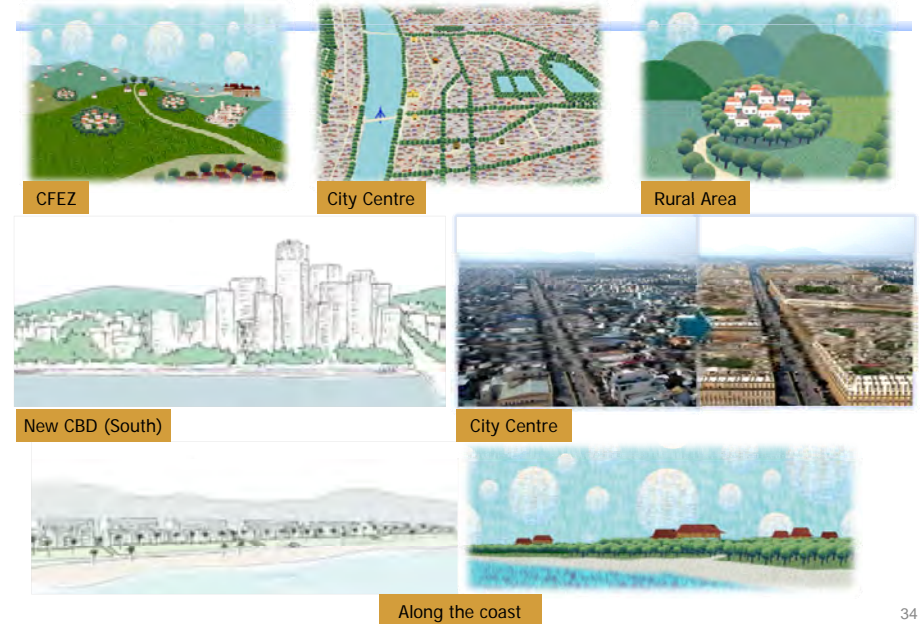


## □ Proposed General Plan

- Compact urban area  
Population: 0.8 to 2.1 million  
Urban area: 120km<sup>2</sup> to 173km<sup>2</sup>
- Growth boundary
- 3 CBDs
- Cluster development
- IZs along regional transport network
- Consolidated development in flood prone area
- Farther expansion of urban area towards Quang Nam



## □ Image of the City



## □ Strategic Environmental Assessment (SEA)

### ■ Definition

“SEA is the analysis and prediction of potential environmental impacts of development strategy and project planning prior to approval, in order to ensure the achievement of sustainable development”

### ■ Implementing Body of SEA: Environment Technology Centre (ENTEC)

### ■ Process

- First SEA meeting in April 2009 with participation of government officials, professors and experts of related fields, as well as those of Fatherland Front Union, Science and Technology Association, Association of Conservation of Nature and Environment.
- Stakeholder meetings were held in August 2009 with the participation of the above as well as representatives of Districts and private enterprises.

## 4. Proposed General Plan

## □ Assessment of Alternative Scenarios

	Items	Scenario 1 (Trend Growth)	Scenario 2 (Current Plan)	Scenario 3 (Accelerated Growth)
Pollution	Air Quality	B	B	E
	Noise and Vibration	D	D	D
	Water Quality (groundwater and surface water)	B	E	E
	Soil	-	-	-
	Wastewater	B	E	E
	Solid Waste	B	E	E
	Coastal Area	C	C	C
Natural Environment	Forest Conservation & Management	C	C	C
	Flora and Fauna (Biodiversity)	C	C	C
	Ecosystem	B	C	C
	Global Warming	B	B	E
Social Environment	Involuntary Resettlement	B	B	A
	Regional Severance & Community Dividend	-	-	-
	Socially Vulnerable Group (poverty, indigenous & ethnic)	B	E	E
	Cultural & Historical Heritage (cultural & historical assets)	-	E	E
	Landscape	A	A	E
	Greenery, Park & Open Space	A	E	E
	Healthcare & Public Health (Hygiene)	C	C	C
	Living Environment	B	C	E
	Safe & Security (crime, disaster management, etc)	C	E	E
	Local Economy (commercial business)	C	+	+
	Existing Social Infrastructure & Social Services	C	+	+
	Uneven Distribution of Benefit & Damage	-	-	-
	Offensive Odor	-	-	-
	Accidents	B	B	+
	Other Social Issues (social stability, inequality, etc)	-	-	-
Overall Evaluation	V	VV	VV	

A: Most significant impact - - -> E: Small impact, +: Positive impact, -: No impact  
V: Negative impact, VV: Negative impact to some extent, VVV: No negative impact

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## 5. Consolidated Plan and Program

## □ Consolidated Plan

### ■ Candidate projects:

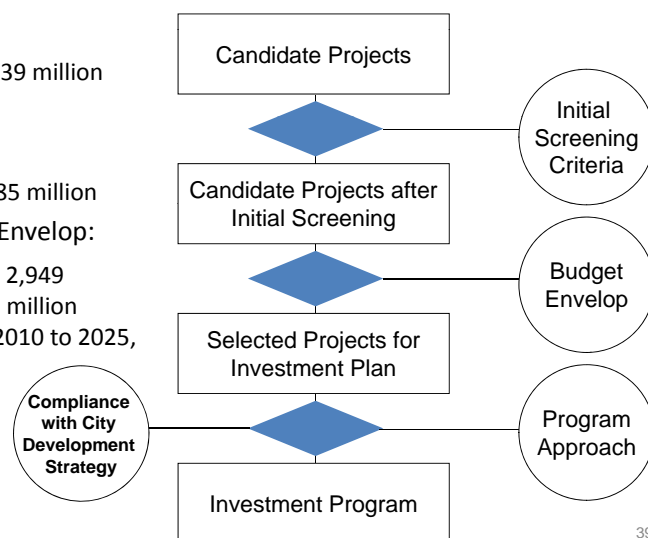
- No. of projects: 245
- Total Costs: USD 4,539 million

### ■ Selected projects:

- No. of projects: 147
- Total Costs: USD 2,685 million

### ■ Estimated Budget Envelop:

- Range between USD 2,949 million to USD 5,898 million (accumulated from 2010 to 2025, vary by scenario)



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## □ Summary of Selected Projects

Sector	Type of Project			Invested By		Total	
	Infra-structure	Manage-ment	Technical Assistance	Govern-ment	PFI	No. of Projects	Total Cost (USD Mill.)
Economic Development	0	5	0	4	1	5	78
Social Development	10	2	3	12	3	15	81
Environmental Management	4	30	4	34	4	38	212
Spatial Development	2	7	2	11	0	11	154
Housing and Living Environment	3	1	0	4	0	4	26
Transportation Development	14	5	0	18	1	19	628
Urban Infrastructure and Utilities Development	19	13	1	32	1	33	1198
Human Resource Development	4	1	0	4	1	5	220
Municipal Finance Capacity Development and Management	0	1	0	1	0	1	0.006
Administrative Capacity Development	0	4	0	4	0	4	0.4
Tourism Development	8	4	0	7	5	12	88
<b>Total</b>	<b>64</b>	<b>73</b>	<b>10</b>	<b>131</b>	<b>16</b>	<b>147</b>	<b>2,685</b>

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## □ Programming of Selected Projects (1)

Proposed Strategic Program		No. of Projects	Cost (USD mil.)
<b>A. Economic Development</b>	P1. Program to promote eco – business / environmental industries and those on healthcare and human resource	8	212
	P2. Program to develop and promote eco – tour-ism	12	105
	P3. Program to develop higher – education on environment, high – tech, medical, and those related to new industries	13	401
<b>B. Urban development and infrastructure provision</b>	P4. Program to strengthen enforcement of up-dated Urban Master Plan, development permit process and environmental zoning	5	1
	P5. Program to develop attractive public transportation	4	175
	P6. Program to develop effective urban roads	11	392
	P7. Program to further develop facilities and utilities including waste water treatment and drainage system and to improve their operation and management	25	1,162
	P8. Program to upgrade existing IZ and develop new green and clean industrial / business parks	4	75
<b>C. Environmental management</b>	P9. Program to remove pollutions in identified hot spots and strengthen monitoring and enforcement	16	141
	P10. Program to strengthen policy dialogue at regional and international levels	11	9
	P11. Program to develop flood free urban lands and settlements	10	49
	P12. Program to establish and operate cross sec-tor participatory mechanism to monitor and manage environment	3	2

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## □ Programming of Selected Projects (2)

Proposed Strategic Program		No. of Projects	Cost (USD mil.)
<b>D. Livability</b>	P13. Program to develop new collective eco – housing (affordable, disaster – proof, energy saving) to meet increasing demand by citizens and immigrants	4	26
	P14. Program to establish landscape and urban design guidelines and enforcement mechanism to enhance city image and identity	7	27
	P15. Program to improve / enhance rural villages and quality of life in rural areas	2	7
	P16. Program to establish participatory mechanism to assess living environment and implement needed measures at community level	13	35
<b>E. Management</b>	P17. Program to expand application of IT in city management including GIS to promote e-government and e-city	1	3
	P18. Program to establish improved user charge and PPP mechanism with city's initiative to expand funding sources	4	55
	P19. Program to strengthen investment promotion	2	124
	P20. Program to strengthen inter – provincial co-ordination on integrated planning and policy implementation	4	176

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## □ Summary of Transportation Projects

Type	No. of Projects	Quantity (km)	Cost (US\$ million)
Roads	Primary	5	41.4
	Secondary	10	101.5
	Total	15	142.9
Traffic Management	8	-	234
Public Transport	5	-	236
Regional Transport	5	21.3	148
<b>Total</b>	<b>33</b>	<b>164.2</b>	<b>1,080</b>

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## □ Grouping of Transportation Projects

Project Group	No. of Projects	Cost (USD million)
Establish interfaces with regional transport	1	68
Upgrade the existing airport	1	75
Upgrade the existing railway station	2	106
Upgrade bus services	2	55
Ensure better environment for non - motorized transport	2	10
Attend global environmental issues	3	24
Develop effective roads system in integration with landuse	15	461
Strengthen traffic management system	3	200
Develop water transport services	4	80
<b>TOTAL</b>	<b>33</b>	<b>1,080</b>

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## □ Proposed Priority Strategic Program (Tentative)

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- Environment Hot Spots Removal Program: Waste water from Tho Quang IZ, Hoa Cam IZ, hospitals; air pollution; solid waste; water pollution, etc.
- New Industries Development Program: Locations of eco – business + clean and green IZs (existing) + Improved management
- Tourism Development Program: Eco – tourism + Inter – provincial coordination + Infrastructure / environment improvement (follow – up study)
- New Urban Areas (Southern CBD) Development Program: Flood free urban lands + competitive mass – transit / infrastructure + rich environment
- New Public Housing Industries Development Program: “affordable”, “disaster proof”, “energy saving” collective housing

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## 6. Conclusion and Recommendations

## □ Conclusion and Recommendations

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- Danang City has ample opportunities to become not only a truly environmental city but also a significant growth centre in Vietnam and the region.
- Danang City must accelerate its growth through development and promotion of new type of industries (tourism, eco – business, human resource development), strategic urban area development (compact city incorporating rich environment and high – quality mass – transit) and much strengthened regional integration at international and national levels.
  - Update of investment strategies
  - Strengthening of enforcement of and guidance for developments based on updated Master Plan which needs further integration with environment, landuse, transportation,...
  - Integrate Danang City development strategy with priority national development agenda

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## 7. Planning Tools Developed in DaCRISS

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## □ Planning Tools Developed in DaCRISS

- GIS (initial)
- Urban Karte for comprehensive assessment of living conditions at commune level
- Assessment of natural conditions to define suitable areas for development and critical areas for environmental preservation
- Others

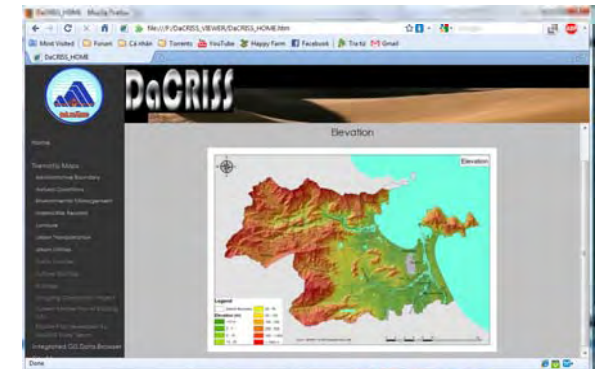
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## □ Key Issues in Developing GIS

- Objective and coverage of GIS and users
- Development and update of database
- Sharing of database
- Utilization of GIS for planning work
- Required skill and qualification of users
- Management of GIS

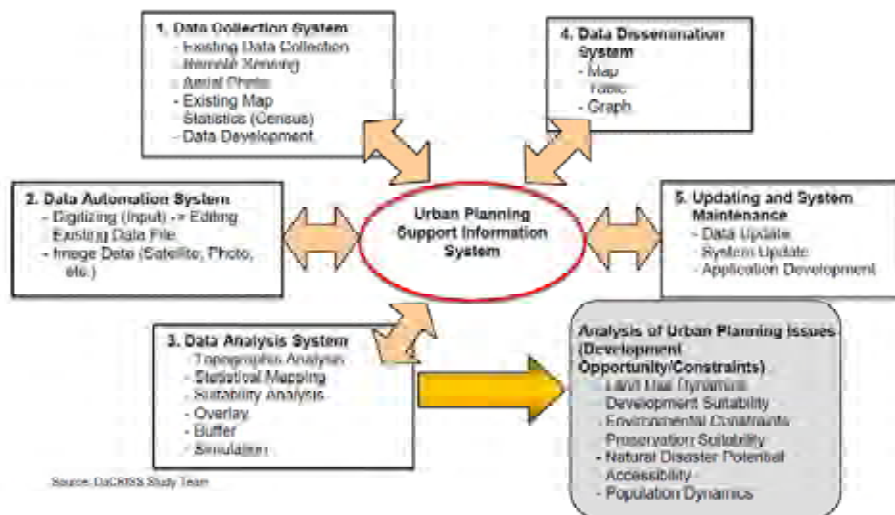


**DaCRISS prepared initial GIS for urban planning which can provide a basis for farther discussion on developing appropriate GIS for Danang City**



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## □ GIS Database developed in DaCRISS



Source: DaCRISS Study Team

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## □ Utilization of DaCRISS GIS Database

Category	Contents of Data	Utilization	Responsible Agency for Data Update
<b>Base Map</b>	Outline of the city boundary and basic items which consists the topographic condition of the city	This data can be utilized to see the jurisdictional area and topographical conditions of the target area.	DONRE, DOT, DARD, DOC
<b>Urban Planning Tools</b>	Socio-economic condition, assessment of natural environmental condition, transportation system, land use, development suitability analysis	This data can be utilized to know the spatial distribution of socio-economic conditions and natural environmental conditions, and it will assist the decision making of urban planning issues.	DPI, DONRE, DOT, DARD, DOC
<b>Urban Utilities</b>	Water supply network, drainage and sewerage network, electricity network, dumping site	This data can be utilized to know the spatial distribution of the urban facilities.	DOT, DOC, DOIT, DONRE
<b>Public Facilities</b>	Various public facilities (administrative, educational, medical, recreational, religious)	This data can be utilized to know the spatial distribution of the public facilities and to manage the current condition of the facilities.	DOC, DOIC, DOCST, DOH, DOET, DOIT
<b>Master Plan</b>	DOC Maser Plan, on-going construction projects	This data shows the current master plan prepared by DOC and on-going construction projects by the Departments of Danang City or Government.	DOC, all Departments

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## □ Urban Karte

- A set of indicators were selected based on 5 living condition evaluation factors (Convenience, Safety / Security, Health / Wellbeing, Amenity, Capability)
- For each set of indicators, objective indicators and subjective indicators (mainly the people's assessment based on the results from the Household Interview Survey done in August to October 2008).

### Objective Indicators (current living conditions)

For example, for "Convenience"...

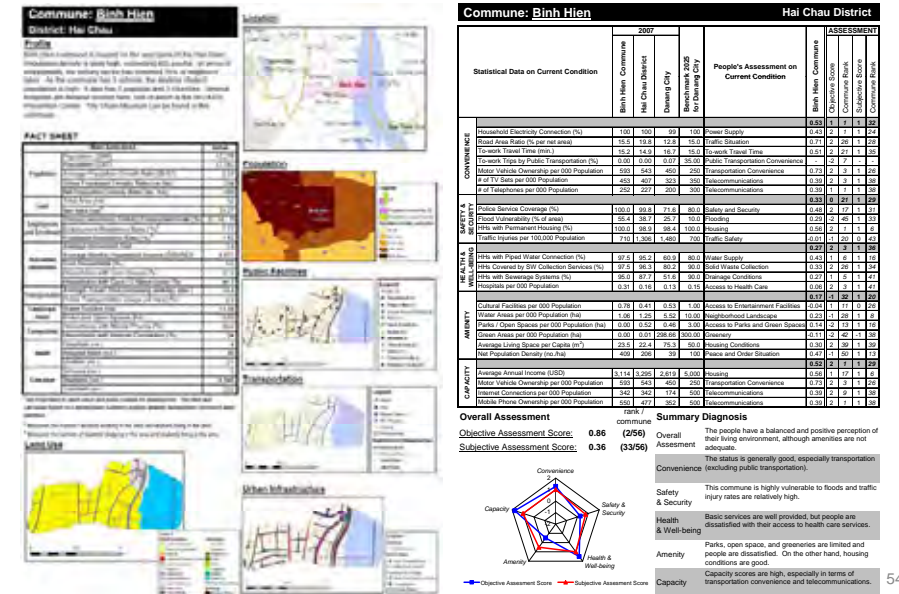
- Households with Electricity Connectivity (%)
- Road Area Ratio (%)
- "To Work" Travel Time (min.)
- "To Work" Trips by Public Transportation
- Motor Vehicles per 1,000 Pop
- TV Sets per 1,000 Pop
- Telephone per 1,000 Pop
- etc.

### Subjective Indicators (people's assessment)

- Power Supply
- Traffic Situation
- Travel Time to Work
- Public Transport Convenience
- Convenience of Transport
- Telecommunications
- Telecommunications
- etc.

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## □ Example of Urban Karte



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## □ DaCRISS Atlas

### ■ Objective

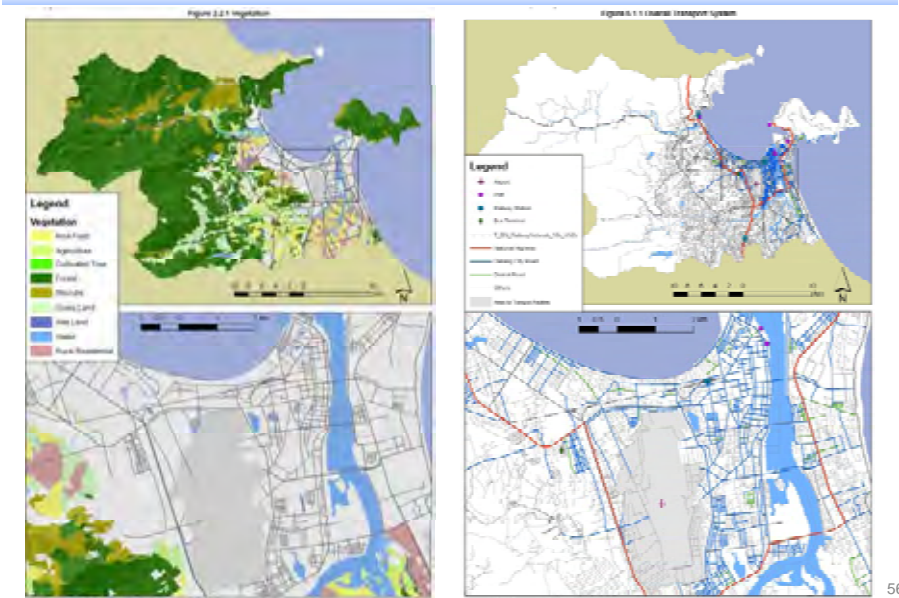
- Thematic maps prepared in DaCRISS Study has been organized in to DaCRISS Atlas, an A4 size booklet, to see the output map by hands.

### ■ Outline

- DaCRISS Atlas has been classified into five categories;
  - (A)Base Map: to see the administrative area and topographical condition of the City
  - (B)Urban Planning Tools: to know the spatial distribution of urban planning issues, such as socio-economic conditions, natural conditions, environmental management, hazard/risk records, existing urban land use, urban transportation, and development suitability
  - (C)Urban Utilities: to know the spatial distribution and manage the utilities
  - (D)Public Facilities: to know the spatial distribution and manage the facilities
  - (E)Master Plan: to know the spatial distribution of the current master plan and construction projects

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## □ Example of DaCRISS Atlas



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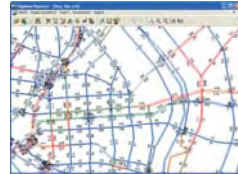
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## □ STRADA

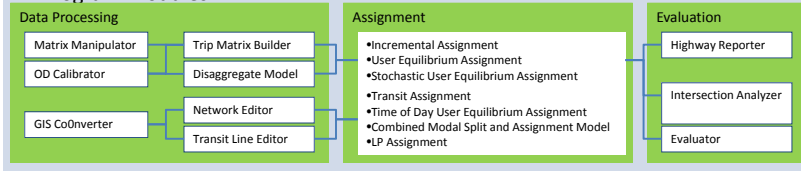
- STRADA is a package of a number of programs for transport demand forecast that are operated on the Windows.
- First version of STRADA was developed in 1997 by JICA to provide a common tool of transport planning and to build up common database thereof, for its technical assistance program in the transport sector for developing countries.

### Features

- Multi-lingual operation
- Enhanced ease of editing by commercial applications
- Improved convertibility of GIS data
- Increased availability of models for demand forecast
- Increased model for evaluation



### 17 Program Modules



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## 8. Next Steps

## □ Next Steps

- To finalize the Report based on the comments of Sub – sector Meetings
- To conduct tourism development strategy study (Danang, Hue, Quang Nam) to formulate projects package for possible ODA funding
- To provide support to identify adequate projects for ODA funding

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