



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

21 January 2010
Danang City
JICA Study Team

□ Contents

1. Approach to Environmental City
2. Planning Database and Situation Analysis
3. Overall City Development Strategies
4. Environmental Management Plan
5. Conclusion and Recommendations
6. Planning Tools Developed in DaCRISS
7. Next Steps

□ Vision of Danang City

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

Not only for the City but also to promote the Vision of Region

Realization of being "ECO – TECHS Region"
by promoting economic development, ecological balance, and ethnological harmony

through

- Technology – oriented solutions,
- Enhanced environmental management,
- Cultural value preservation,
- Human resource development, and
- Strategic infrastructure development

1. Approach to Environmental City

□ Place “Environment” as a Core Component in Each Subsector

Sector	Environmental Implication
■ Spatial	<ul style="list-style-type: none"> • Compact City • Area management (coastal, river basin, rural area...)
■ Landuse	<ul style="list-style-type: none"> • Environmental Zoning • Development Suitability
■ Economic	<ul style="list-style-type: none"> • Green business • R&D on environment technologies
■ Social	<ul style="list-style-type: none"> • Public awareness • Living conditions / environment
■ Transportation	<ul style="list-style-type: none"> • Public transport development • Greening of vehicles
■ Utilities	<ul style="list-style-type: none"> • 3R (reuse, reduce, recycle) • Energy saving system and renewable energy
■ Human resource	<ul style="list-style-type: none"> • Environmental education / training • Capacity improvement for services
■ Tourism	<ul style="list-style-type: none"> • Eco – tourism • MICE (meeting, incentives, conference, exhibition)
■ Finance	<ul style="list-style-type: none"> • CDM and Carbon tax (environmental tax) • PPP (public – private partnership)
■ Environment	<ul style="list-style-type: none"> • Decontamination (removing pollution) • Disaster prevention and preparedness • Ecological preservation

➔ Need for synchronization of SEDP, Construction Plan and Environmental City Plan ⁵

2. Planning Database and Situation Analysis

□ Preparation of Database

○ Existing data

- Official statistics
- Various map data
- Projects information
- Others

○ Household Interview Survey

- Hanoi: 25,000 households
- Danang: 5,000 households
- Comprehensive socio-economic profile and assessment by residents

○ Other Supplemental Surveys

- Transportation and traffic
- Environment
- Landscape
- Others

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

□ DaCRISS Database

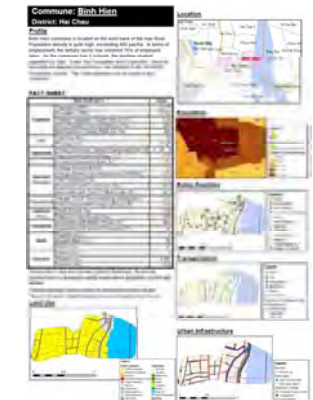
- GIS based system
- Easy access and use
- Shared information among Departments and civic organizations



DaCRISS ATLAS



Urban Karte



□ 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
- 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

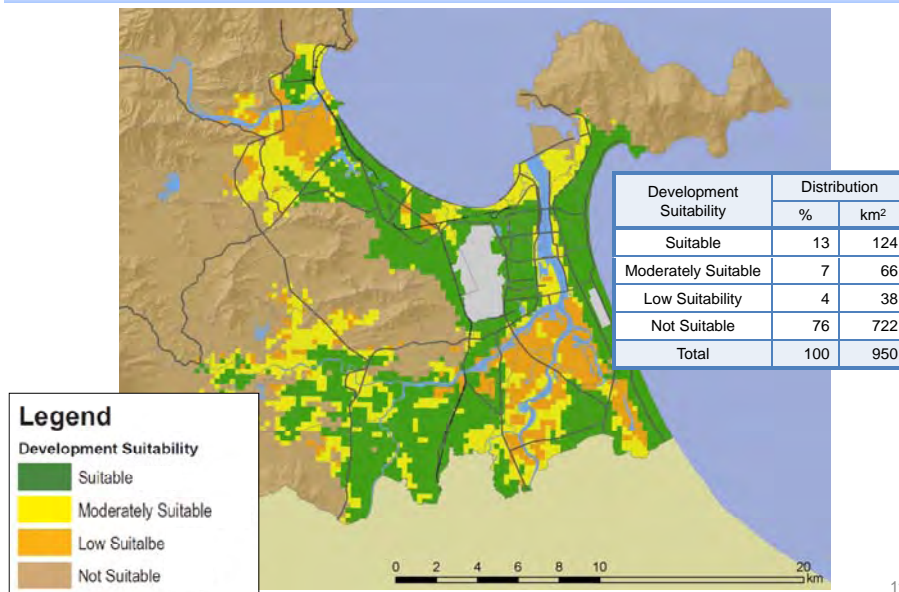
◆ Assessment of Overall Living Conditions

- 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	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)	12.7	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	407	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
Food Availability (% of area)	10.9	10.7	25.7	10.0	0.53	2	26	1.16	1.16
#Hrs with Permanent Housing (%)	99.2	98.0	98.4	100.0	0.52	1	12	1.17	1.17
Traffic Injuries per 100,000 Population	1.965	1.309	1.486	700	0.07	2	40	1.31	1.31
Health & Well-being					0.36	2	1	1.24	1.24
#Hrs with Piped Water Connection (%)	100.0	95.2	60.0	80.0	0.39	2	1	1.22	1.22
#Hrs 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
Amenity					0.68	1	18	1.28	1.28
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)	0.00	0.00	0.00	0.00	0.13	2	13	1.17	1.17
Green Areas per 1000 Population (ha)	0.00	0.01	290.95	300.00	0.03	2	12	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
Capacity					0.54	2	6	1.16	1.16
Average Annual Income (USD)	4,035	3,290	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	152	162	174	100	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



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□ Baseline Scenario Analysis

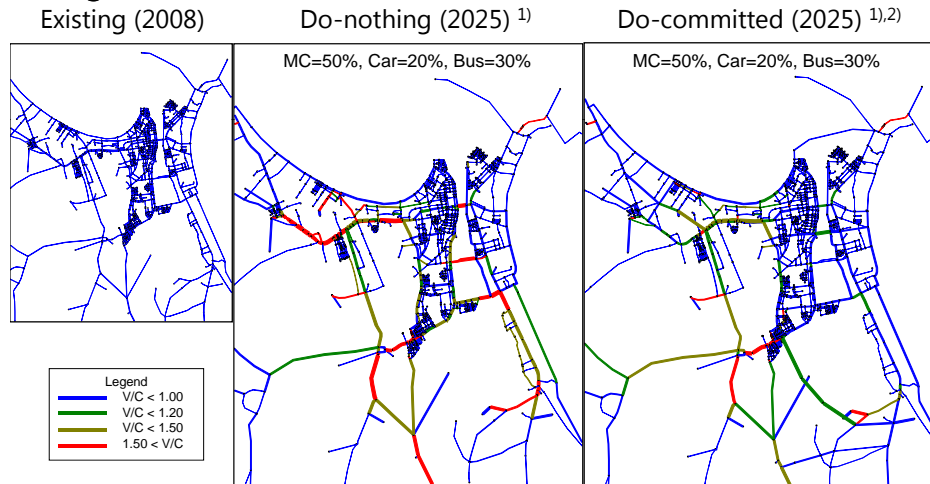
		Scenario 1 : Trend Growth	Scenario 2 : Current Plan	Scenario 3: Accelerated Growth
Profile	Population (000)	1,213 (2025)	1,500 (2025)	2,100 (2025)
	Land Suitable for Development (ha)	approximately 25,000 ha		
	Population Density (persons/ha)	59	62	84
Sustainability	Economic: • Industry mix level • Investment 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
	Social: • 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
	Environment: • 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

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□ Baseline Scenario Analysis (Transportation)

Assigned Traffic

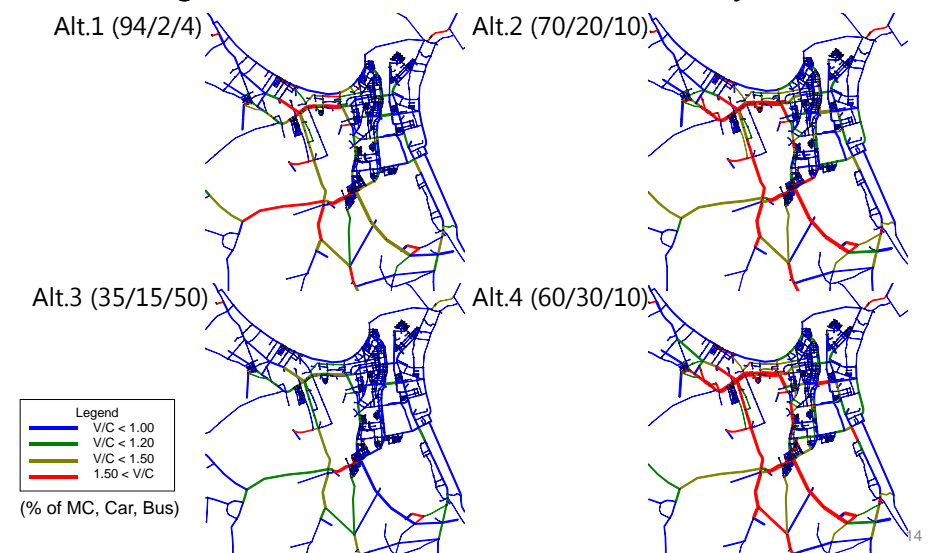


1) Assumed modal share (%) of motorcycle, car and bus: 50/20/30, Average occupancy: motorcycle 1.3, car 2.0 and bus 36
2) Expressway is not included

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□ Baseline Scenario Analysis (Transportation)

Traffic Assignment on Do-Committed Network by Scenario



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□ Main Planning Issues

- Densification in CBD due to construction of high – rise buildings
 - Sprawling development in fringe areas
 - Conflict of high – rise buildings with restriction of airport operation
 - Lack of measures to improve existing urban areas including IZs
 - Considerations of natural disaster and impact of climate change in urban areas development
- management of urban growth
- integrated development with transportation and environment

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 ¹⁾	2,100	2.4 ¹⁾
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

¹⁾ 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

A8-249 * 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

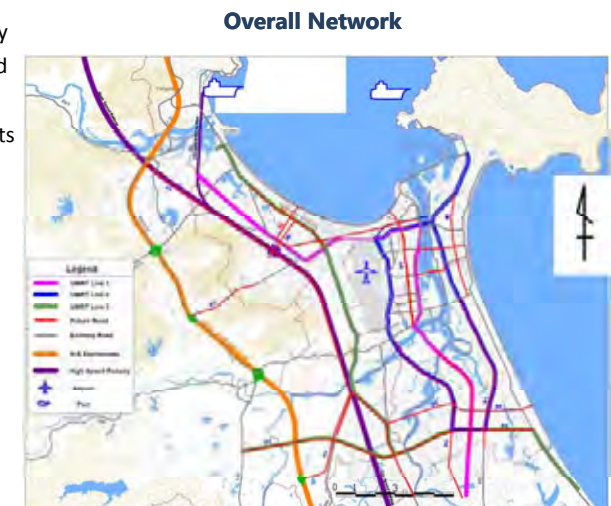
- Assessment of natural conditions (topography, ecosystems, river system, flood, erosion...)
- Broad zoning (conservation and development suitability)
- Regional transportation development (air, road, expressway, rail, high – speed rail, shipping)
- Height restriction around Airport
- Approved projects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

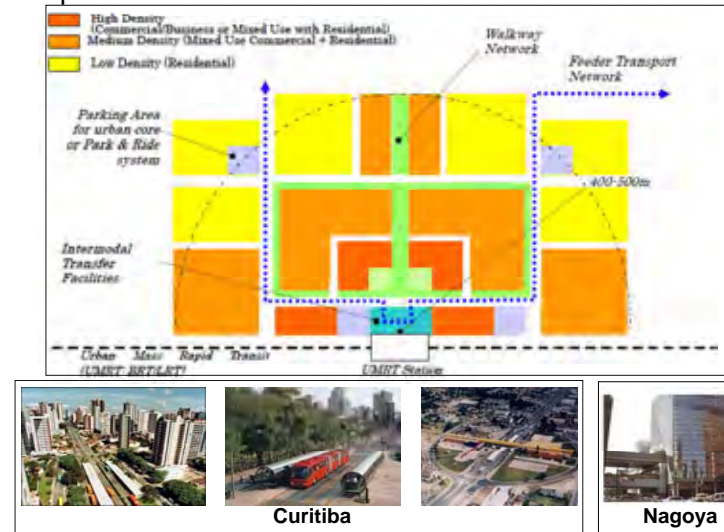
- Main urban areas will be covered within walking distance of UMRT (BRT, LRT)
- Entry of car / motorcycle can be restricted through congestion pricing
- Need for integrated urban development at and around stations



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□ An Important Factor in Compact City Concept

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



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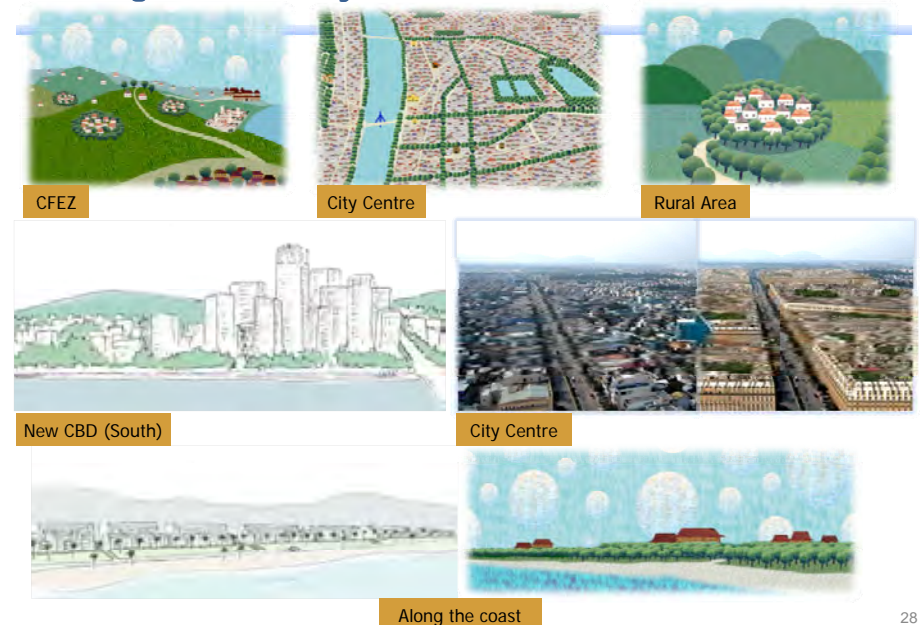
□ Proposed General Plan

- Compact urban area
Population: 0.8 to 2.1 million
Urban area: 120km² to 173km²
- 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



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□ Image of the City



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□ 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.

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□ 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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4. Environmental Management Plan

□ Environmental City Development Plan

■ Goals

- To create a trademark of Environmental City for Danang
- To prevent from and reduce pollutions
- To strengthen capacity for environmental protection and management
- To raise public awareness
- To formulate a pioneer model of environmental management in Vietnam

Numerical Targets Stated in the Plan

No.	Criteria	Status 2005	Requirement 2020
Air Quality			
1	Air Pollution Indices (API)	N. A.	API < 100
2	Noise levels in: - Residential areas - Roadside of main roads	N. A.	< 60 dB(A) < 75 dB(A)
3	Coverage of smoke and dust control area	N. A.	> 90 %
4	Green coverage in inner city	2 m ² /resident	> 6 - 8 m ² /resident
Water Quality			
5	Percentage of people using clean water: - in the inner city - rural areas	57.4% 4.1%	> 95% > 70%
6	Compliance rate of water quality at the source for the central supplied drinking water	98.5%	> 96%
7	Treatment rate of urban domestic waste water	N. A.	> 50%
8	Compliance rate of industrial wastewater discharge	N. A.	100%
Soil (Solid Waste Management)			
9	Rate of collecting domestic solid waste	86%	> 90%
10	Reuse rate of Industrial solid waste	N. A.	> 70%

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□ Focal Measures and Actions Addressed in the Existing Plan for the Danang- the Environmental City

	Period 1 2008 - 2010	Period 2 2011 - 2015	Period 3 2015 - 2020
Objectives	To solve urgent environmental problems	To focus on resolving urgent environmental issues towards 2015	To complete all projects during 2008-2015 and ensure all criteria set for the Environmental City
Water	<ul style="list-style-type: none"> Complete treatment in problem areas Prevent onshore water pollution Build wastewater treatment systems in industrial zones 	<ul style="list-style-type: none"> 90% of urban and 70% of rural residents to get access to clean water 90% of waste water treatment form industrial parks and EPZs 90% of residential grey water treatment; Control sources of toxic water 	<ul style="list-style-type: none"> 100% treatment of industrial and residential waste water Recycle 25% of treated water
Air	<ul style="list-style-type: none"> Resolve air pollution in factories of metal industry, cement, seafood processing Reduce transport dusts Plant socializing trees 	<ul style="list-style-type: none"> Pollution index of less than 100 Accelerate reforestation to increase the cover to 50.6% of the total forest area Increase green areas in inner city with 3-4 m²/resident 	
Soil	<ul style="list-style-type: none"> Collect all hazardous waste Privatized the entire SWM, including collection, transfer & treatment Promote source-segregation activities Increase solid waste recycling rate to 30% 	<ul style="list-style-type: none"> Construct a system to collect and treat toxic and hospital waste Pursue a PPP funding for SWM Increase solid waste recycling rate to 50% 	<ul style="list-style-type: none"> Increase solid waste recycling rate to 70%

Source: The Plan for "Developing Danang-the Environmental City, Oct., 2008, arranged by DaCRISS Study Team

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□ Phase 1: Priority Projects 2008 – 2010

	Task/Project	Chair Agency	Coordinating Agency	Cost (Mill. VND)	Duration
Air Environment	1. Plan and build an automated meteorological network for air quality monitoring	DONRE	Local administration and agencies	20,000	2008—2012
	2. Promote use of pure fuel (gas or alcohol) and reduce polluting exhaust emissions from mobile and fixed sources	DONRE	DOT, ROST, DPI	42,000	2008—2010
	3. Develop public greeneries	DOC	DONRE, ARD, DO, District PC	10,000	2008—2010
Water Environment	4. Operate and manage Rong Pond's environmental protection program	Hai Chau District PC	DOT, DOC, DONRE, ARD	10,000	2008—2010
	5. Operate and manage Bau Tram's environmental protection program	Lien Chieu District PC	DOT, DOC, DONRE, ARD	5,000	2008—2010
	6. Plan and build automatic water quality monitoring system	DONRE	DPC, District PC, DOC	15,000	2008—2010
	7. Build central wastewater treatment system in industrial zones (IZs): Lien Chieu, Hoa Khanh Expansion	Infrastructure development company- IZ- DN	DOF, DONRE, DOC, PMU of IZs & IPZs	40,000	2008—2009
	8. Carry out additional garbage leakage treatment project at the new Khanh Son dump site	SG-DN Investment JSC	DOF, DONRE, DOC, PMU of IZs & IPZs	20,000	2008—2010
	9. Build central wastewater treatment system at Danang IZ	DONRE	DOC, Lien Chieu District PC	7,000	2008—2009
	10. Improve 'Phu Loc River's environment (PIIP-Da Nang City)	Masda Venture Company	DOF, DONRE, DOC, PMU of IZs & IPZs	9,000	2008—2009
	11. Develop eco-tourism, establish ecological village models, and expand them	DOT	DONRE, Districts OC	132,931	2008—2010
Total				310,931	

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□ Consolidated Plan

■ Candidate projects:

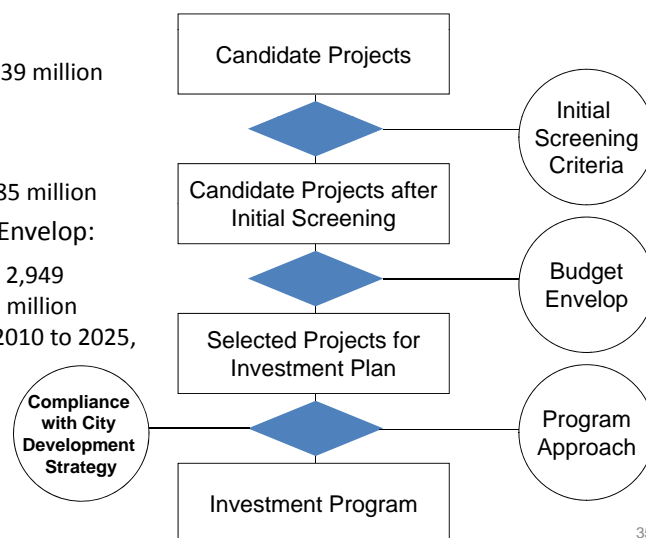
- No. of projects: 245
- Total Costs: USD 4,539 million

■ 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
Total	64	73	10	131	16	147	2,685

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□ Programming of Selected Projects (1)

Proposed Strategic Program		No. of Projects	Cost (USD mil.)
A. Economic Development	P1. Program to promote eco – business / environmental industries and those on healthcare and human resource	8	212
	P2. Program to develop and promote eco – tourism	12	105
	P3. Program to develop higher – education on environment, high – tech, medical, and those related to new industries	13	401
B. Urban development and infrastructure provision	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
C. Environmental management	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 sector 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.)
D. Livability	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
E. Management	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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□ Integrated Coastal Zone Management (ICZM) in Danang

- **Context:** rapid urbanisation and industrialisation => increased pressure on the coastal and marine ecosystems and number of use conflicts between activities (urbanisation, tourism, fisheries, etc.)
- **ICZM project :** Danang as demonstration site for the ICZM PEMSEA program (*phase 1 : 2000-2007, phase 2 : 2008-2011*)
- **Need to continue the process with :**
 - ✓ Implementation of the ICZM strategy and action plan
 - ✓ Interprovincial approach for the management of the coastal zone (first step with the definition of Thua Tien Hue and Quang Nam as replication sites) : regional planning and interprovincial initiatives
 - ✓ Better enforcement of the regulation and zoning, environmental monitoring

□ Proposed Priority Strategic Program (Tentative)

- **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

5. Conclusion and Recommendations

□ Conclusion and Recommendations

- 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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6. Planning Tools Developed in DaCRISS

□ 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

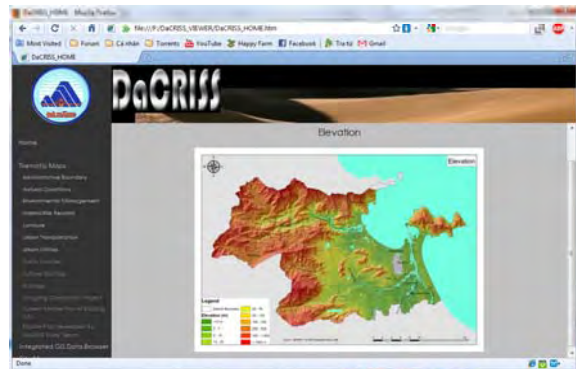
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□ Key Issues in Developing GIS

- 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

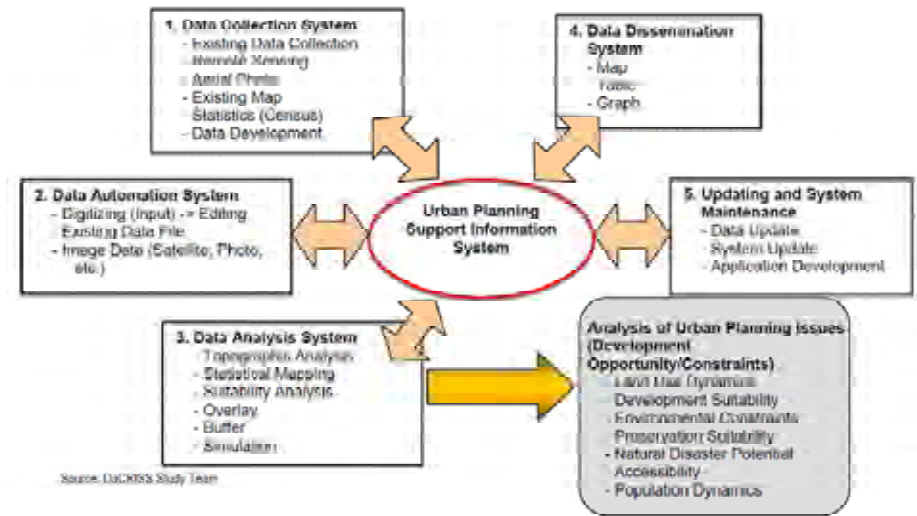


DaCRISS prepared initial GIS for urban planning which can provide a basis for farther discussion on developing appropriate GIS for Danang City



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□ GIS Database developed in DaCRISS



Source: DaCRISS Study Team

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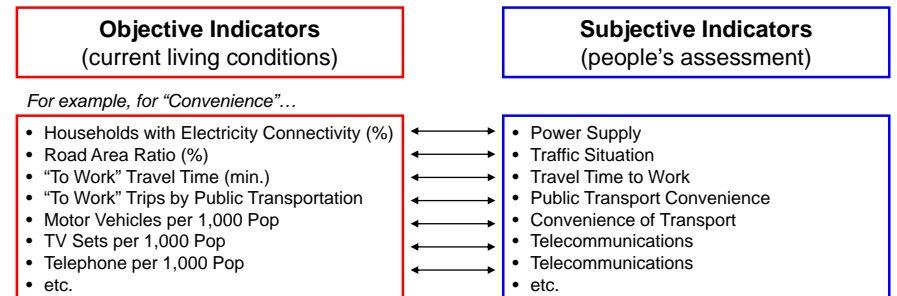
□ Utilization of DaCRISS GIS Database

Category	Contents of Data	Utilization	Responsible Agency for Data Update
Base Map	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
Urban Planning Tools	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
Urban Utilities	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
Public Facilities	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
Master Plan	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

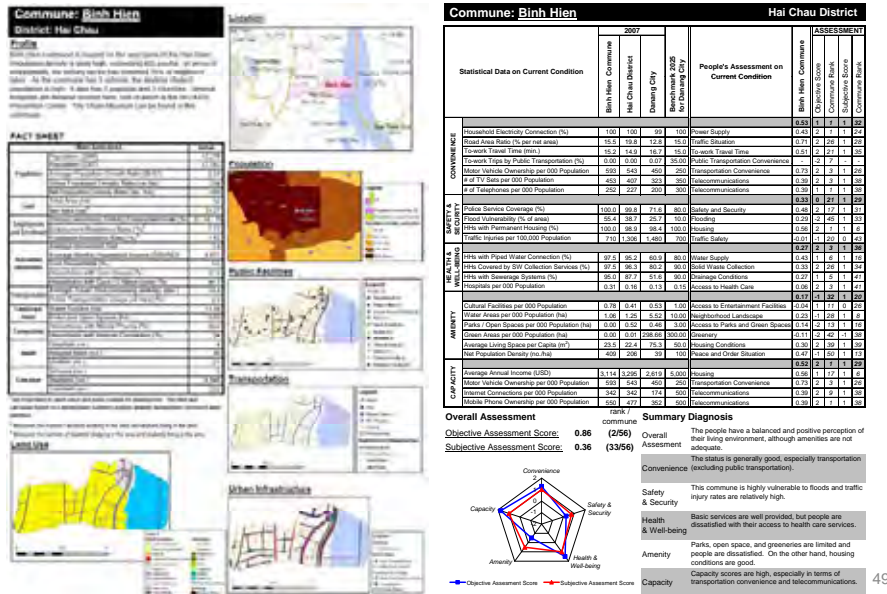
- A set of indicators were selected based on 5 living condition evaluation factors (Convenience, Safety / Security, Health / Wellbeing, Amenity, Capability)
- For each set of indicators, objective indicators and subjective indicators (mainly the people's assessment based on the results from the Household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



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□ Example of Urban Karte



□ DaCRISS Atlas

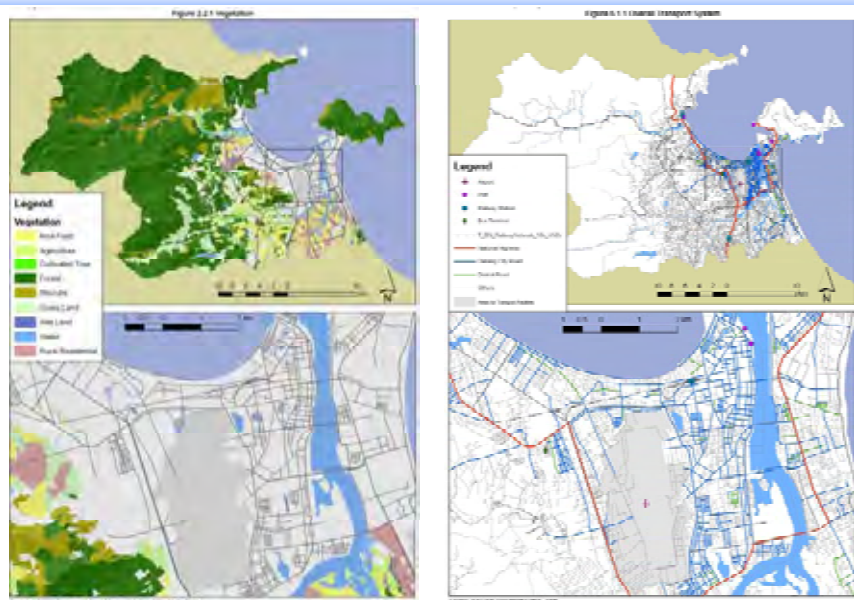
■ Objective

- 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;
 - Base Map:** to see the administrative area and topographical condition of the City
 - 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
 - Urban Utilities:** to know the spatial distribution and manage the utilities
 - Public Facilities:** to know the spatial distribution and manage the facilities
 - Master Plan:** to know the spatial distribution of the current master plan and construction projects

□ Example of DaCRISS Atlas



7. 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 finalize environmental sector program for possible ODA funding