USNC Policy Team 2014

The US-Netherlands Connection Project

May 12-16, 2013

Delft, Netherlands

US Netherlands Connection Professional Program 2014, May 12 - 16

Monday May 12

Location: UNESCO-IHE, Institute for Water Education, Westvest 7, Delft
Coordination: Ir. Jan Luijendijk, Dr. Schalk-Jan van Andel

9:00 am	Welcome and introduction to UNESCO-IHE
9:10 am	Netherlands 101 – Jan Luijendijk, UNESCO-IHE
10:00 am	Coffee Break
10:15 am	More about Netherlands Water
11:15 am	Departure for The Hague **PLEASE TAKE YOUR PASSPORT WITH YOU**

Location: Rijkswaterstaat of the Ministry of Infrastructure and the Environment, Koningskade 4, The Hague
Coordination: Mr Ruud Staverman

12:00 pm	Arrival at the Ministry, welcome, introductions, lunch General introduction on role and tasks of Ministry, policy department and Rijkswaterstaat Short Presentation by US Team
1:15 pm	General introduction on role and tasks of Ministry, policy department and Rijkswaterstaat – Dr. Eric Boesenkool
2:15 pm	Break
2:30 pm	International Cooperation, the Innovation Project and the Delta Program – Hans Pietersen
3:30 pm	Break
3:45 pm	Dutch Water Law – Jitzke Brommet
4:45 pm	Closing remarks?
5:00 pm	Optional: Walking tour of The Hague, where we will visit Parliament, which is next to the US Embassy, the City Gates and the Queen's (now King's) Palace. Dinner in The Hague or you can choose to go back to Delft.

Tuesday May 13

Location: Province of Zeeland
Organizors: Rijkswaterstaat, Province of Zeeland
Coordination by: Piet Klip (Province of Zeeland); Dr. Tjeerd Blauw (Chief Scientist, Province of Zeeland)

8:00 am	Departure from Delft
9:15 am	Arrival at the Burghsluis dike reconstruction site • Introduction to the project by the site manager • Observations on the sand deficit and nature development in the Oosterschelde
10:15 am	Departure from the Burghsluis dike reconstruction site
10:30 am	10:30 Arrival at De Val, location of the IMARES oyster reef trial Short introduction by Tjeerd Blauw (Delta programme policy specialist, Spatial Planning Department, Province of Zeeland)
11:00 am	Depart from De Val
11:15 am	Arrival at the Watersnoodmuseum

- coffee and Zeeland "bolus"
- Welcome and introduction to the 1953 floods and the Watersnoodmuseum, by Ria Geluk, Founding Director of the museum
- Visit to the museum
- Introduction on Flood Impact Reduction and demonstration of the 3D Flood Aware simulation by Ylva Peddemors (policy expert flood protection, Province of Zeeland) en Bart Willemse (GIS specialist, Province of Zeeland).

Presentation by Dr. Tjeerd Blauw
Visit to the inside of the storm surge barrier

1:15 pm Depart from Watersnood Museum – on the route to the Storm Surge Barrier
- The Plompetoren, remnant from a village lost to the sea in the 16th century
- Plan Tureluur, nature development area

1:45 pm Arrival at the Storm surge barrier.
- Lunch "the taste of Zeeland", specialities from the Delta waters

3:00 pm Visit to the Topshuis, control centre of the Storm Surge Barrier
- Introduction by Jos Geluk, (Rijkswaterstaat, Ministry of Infrastructure and the Environment)
- Introduction on the strategic choices in the Delta program by Tjeerd Blauw.
- Visit to the inside of one of the pillars.

5:00 pm Departure from the Storm surge barrier
5:30 pm Arrival in Zierikzee; short walk through the historical centre.
6:30 pm Start departing dinner
9:30 pm Arrival at UNESCO-IHE in Delft

Tidal information at	storm surge barrier	
low tide	07:54	-1.40 m
high tide	14:05	+1.68 m
low tide	20:13	-1.35 m

Wednesday May 14

Location: Kinderdijk, Biesbosch
Coordination by: Dick Kanters (Regional Water Authority Rivierenland), Pim Nijssen (Twijnstra Gudde)

9:15 am Departure from Delft to Kinderdijk
10:00 am Arrival at the pumping station at Kinderdijk
History of Water Management in Alblasserwaard, presentation by Mr. Dick Kanters
11:00 am Watch movie, Visit one of the 19 old windmills at Kinderdijk
12:00 pm Lunch at Restaurant Buena Vista
1:15 pm Departure for Biesbosch Museum, Hilweg 2 Werkendam
2:00 pm Watch movie on the Biesbosch
Presentation on the Room for the River project by Pim Nijssen
3:00 pm Visit model of Room for the River, visit museum
4:00 pm Boat tour of the Biesbosch National Park, one of the last freshwater tidal areas in the Netherlands
5:15 pm Departure for Delft; Dinner on our own

Thursday May 15

Location: Rotterdam Environment Center, Futureland at Maasvlakte II (Port of Rotterdam), Maeslant Barrier, Sand Engine
Coordination by: Christoph Maria Ravesloot, Professor at Rotterdam University of Applied Science

8:15 am	Departure from Delft to Rotterdam Environment Centre
9:00 am	Coffee Presentation on water management and green roofs by Mr Christoph Maria Ravesloot Discussion
10:00 am	Visit green roof
11:00 am	Departure for FutureLand, the information centre for the new port and industrial zone reclaimed from the North Sea, at Maasvlakte II
12:00 pm	Presentation
1:30 pm	Lunch on the beach/bus
2:25 pm	Ferry trip to Hook of Holland, across the Port
3:00 pm	Bus to Keringhuis, information Centre for the Maeslant Storm Surge Barrier, in Hoek van Holland
3:15 pm	Movie on the construction, presentation and a guided tour.
4:30 pm	Departure for Sand Engine
5:00 pm	Presentation on the Sand Motor project by Marcel Stive of TU Delft (tbc)
?	Departure for Delft

Friday May 16

Location: Deltares
Coordination by: Mary Fencl, Delatres Liaison to US

8:30	Welcome and Introduction to Deltares *Karel Heynert, Specialist, Rivers and Coasts,* *Hydrodynamics and Real-time Systems Department, Marine and Coastal Systems Unit*
9:15	Delta Programme *Patrycja Enet, Senior Advisor,* *Climate Adaptation and Risk Management Department, Scenarios and Policy Analysis Unit*
9:45	Adaptation Pathways *Marjolijn Haasnoot, Senior Advisor,* *Climate Adaptation and Risk Management Department, Scenarios and Policy Analysis Unit*
10:15	Break
10:30	Building with Nature *Bregje van Wesenbeeck, Senior Advisor,* *Ecosystems & Sediment Dynamics Department, Marine and Coastal Systems Unit*
11:00	Recent Advances in Flood Modeling and Mapping *Hans Gehrels, Expert Advisor* *Catchment Hydrology Department, Inland Water Systems*

Location: UNESCO-IHE, Institute for Water Education, Delft
Coordination by: Florida Earth and UNESCO-IHE

4:00 pm	Welcome by Dr. Stephan Ulenbrook
4:15 pm	Debriefing session Wow and Yuck moments? Presentation by the US group on water policy in the US including their observations on the similarities and the differences between approaches, technologies and practices in the US and the Netherlands
5:00 pm	Drinks and networking
6:30 pm	Farewell dinner

2014 Policy Team Members

Claudia Avendano, University of Southern California

Doctor in Public Policy, Planning and Development Candidate at the Sol Price School of Public Policy. International Coastal Manager and GIS practitioner for over fifteen years; Claudia is currently working with members of the California Coastal Commission, on a Collaborative DSS Model to improve the Local Coastal Plans Updating process, and with the Ventura Region to draft model ordinances for Sea Level Rise Adaptation in to Local Coastal Plans. Her contribution draws from the principles of collaborative governance, land-use, spatial analysis, geomorphology, and GIS Decision Support Systems Theory. She is a proponent of a Decision Support Matrix to evaluate different shoreline management strategies in response to different Sea Level Rise Scenarios. Guidance provided by the results of the DSSM, will be translated into local government shoreline management policies, that could be adopted into Local Coastal Plans (LCP) and policy making strategies for delivery of Coastal Adaptation Policies. Her practice and research interests are multidisciplinary; encompassing planning research methods for land use, environmental planning and multi-scale level collaborative governance. Her work is intended to advance the current professional practices with applied research theories to inform the foundational framework of coastal urban lands design in California. She has worked as research and teacher assistant at USC for over ten years holding various appointments in the Price School of Public Policy, the School of International Relations, the Wrigley Institute of Environmental Sciences and the USC, Dana and David Dornsife College of Letters Arts and Sciences, Department of Geography and had the opportunity to participate in the establishment and operation of “Natural Hazards”, a general education (GE) class awarded the Best Practices Gold Award for Distance Learning Programming National Level by the United States Distance Learning Association (USDLA); research assistant and GIS analyst, for various NSF, METRANS and NHI founded projects involving multiple principal investigators across schools and disciplines with a focus on removing barriers to multi-disciplinary collaboration.

Alan F. Blumberg, Stevens Institute of Technology

Alan F. Blumberg is George Meade Bond Professor of Ocean Engineering, and Director of The Davidson Laboratory at Stevens Institute of Technology. The main focus of his work is directed towards understanding and predicting the physical dynamics of estuarine and coastal ocean circulation and the creation of ocean observing and forecasting systems which are used for environmental studies, surface vessel operations, and for securing the future safety and sustainability of urban coastal regions. Dr. Blumberg is presently leading several major studies to predict and assess storm flooding events in New York and New Jersey. He is working with the NY City Mayor's office on the effects of sea level rise on coastal flooding, with the NJ Governor's Office on state-wide storm surge reduction alternatives and with NASA and NOAA assessing impacts from storms of the future. His recent work called Blue Dunes with Rebuild by Design, an initiative of President Obama's Hurricane Sandy Rebuilding Task Force, has attracted considerable attention for its innovation in regional coastal resiliency. He is recognized as one of the pioneer and leading experts in modern estuarine and coastal ocean prediction and presently leads the New York Harbor Observation and Prediction System, which includes a storm surge warming system that was particularly accurate during Hurricanes Irene and Sandy. He has written over 140 peer-reviewed journal articles and conference proceedings. Dr. Blumberg currently serves as a member UCACN, a body of scientists, who provide advice to the National Weather Service thorough its National Centers for Environmental Prediction on all aspects of its operation and planning and is a member of the New York City Panel on Climate Change. Dr. Blumberg is the recipient of the 2001 American Society of Civil Engineers (ASCE) Karl Emil Hilgard Hydraulic Prize and the 2007 Denny Medal from the Institute of Marine Engineering, Science and Technology. In 2013 he was elected a Fellow of the American Meteorological Society and in 2006 he was elected a Fellow of the ASCE. Dr. Blumberg is often called upon by the media to comment on current urban ocean related events and he has been featured in The New York Times, Washington Post, USAToday, on WCBS News Radio and television stations CNBC, WCBS, and Fox News.. Dr. Blumberg received a doctorate in ocean physics from The Johns Hopkins University and did post-doctoral work with Princeton University in their Geophysical Fluid Dynamics Program.

Stan Bronson, Florida Earth Foundation

Stan Bronson is a seven generation Floridian, born in Orlando, with undergrad education done at Florida Southern College and grad work done at Florida Atlantic University and the University of Florida. Spending most of his career in the citrus industry, 14 years of which was COO of a large citrus operation, in 1999 he joined the extension faculty of the University of Florida, developing a natural resources education program for South Florida ecosystem restoration initiatives. That program has evolved into the Florida Earth Foundation, begun in January 2002. FEF is a public-private partnership of over 120 agencies, universities, industries and not-for-profits, whose mission is to "put people together through education, outreach and facilitation to ensure the environmental integrity of Florida and quality of life." Bronson now serves as Executive Director of Florida Earth, which administers the nation's only permanent program with the United Nations, the UNESCO-IHE/Florida Earth Partnership. Florida Earth also runs the US-Netherlands Connection (USNC) program, which brings teams of delegates from the US to the Netherlands to see Dutch expertise in water infrastructure and management, especially as it relates to sea-level rise adaptation and resilience. Coming from a ranching family who supplied the land for Walt Disney World in the 1960's, Stan's love of the land has always been an inspiration throughout his career.

Regina Brooks

Gary Cecchine, RAND Gulf States Policy Institute

Gary Cecchine is director of the RAND Gulf States Policy Institute and a senior natural scientist at the RAND Corporation. He leads and conducts technical and policy research in a range of areas, including coastal protection and risk assessment, energy and environmental policy, health policy, emergency preparedness and response, homeland security and national security, and science policy. As director, he develops and coordinates policy research in regional and strategic planning, energy and environmental policy, health, education, economics, and public safety. He recently led a study of the response to the Haiti earthquake, and he has conducted research on responses to terrorism and natural disasters, including Hurricane Katrina. His current activities include research to protect the U.S. Gulf Coast from disasters by planning economically and ecologically sound prevention strategies. Dr. Cecchine received a B.S. in marine science and biology at the University of Tampa, Florida, where he was a distinguished military graduate. After serving as a U.S. Army Medical Service Corps officer, he earned a Ph.D. in biology and public policy from the Georgia Institute of Technology.

Victoria Curto, Technical University Delft

Delft University of Technology – TUD, Master of Science, expected graduation September 2014

Hydraulic Engineering with an specialization in Coastal Engineering

University of California Los Angeles - UCLA

Bachelor of Science, June 2007, Chi Epsilon and Dean's Honor Student

Civil Engineering Major and Atmospheric & Oceanic Sciences Minor

WORK EXPERIENCE

Deltares, The Netherlands, Summer 2013

Intern

• Data analysis of cross-shore sediment profiles contributing to the understanding of sediment exchange mechanisms at the dry beach

• Successful validation of innovative digital sand sampling methodology to replace soil sieve analysis and to accomplish ample temporal and spatial scales

• Field work to monitor properties that drive beach morphology and dune accretion

Los Angeles County Department of Public Works, Alhambra, California, 2007-2012

Principal Civil Engineering Assistant

• Accomplished GIS-based hydrologic and hydraulic modeling in the phases of planning, design, and assessment performance of flood control systems including dams, stormwater networks, and debris basins

• Ensured successful compliance of environmental measures for flood control projects. Environmental project manager familiar with environmental regulations, permits, construction activities, mitigation, monitoring, and reporting including USACE, RWQCB, and California DFG

• Provided hydrologic/hydraulic support for litigation matters leading to settlements between the Los Angeles County and private property owners

UCLA, Los Angeles, California, 2005-2007

Research Assistant

• Linking hydrology and stream geochemistry in urban-wildland watersheds to evaluate the impacts of pollutant loads on downstream systems

• Research results lead to expanding on the fundamental role that hydrology and climate processes play in controlling biogeochemical processes at the catchment scale. Results published in Journal of Hydrology.

KPFF Consulting Engineers, Los Angeles, California, Summer 2006

Civil Engineer Intern

• Site grading plan, hydrology analysis, storm drain and sewer line design, connections to sewer main

ENGINEERING LICENSURE

• Registered Professional Engineer, Civil - State of California

Kathryn Fox

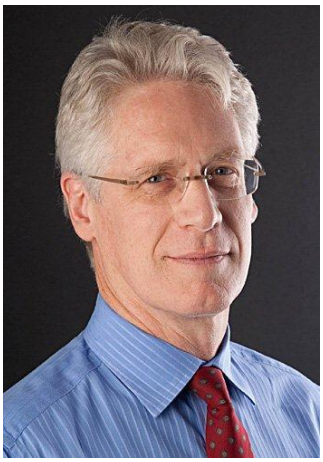
Dorota Z. Haman

Dr. Haman is professor and chair, Department of Agricultural and Biological Engineering, University of Florida, Gainesville, Florida. Dorota has distinguished herself as a leader in extension and research on irrigation technologies for humid regions. She led a statewide irrigation and water conservation program and was the extension program leader for water conservation in Florida. Her research has focused on water conservation and the implementation of water efficient technologies including micro-irrigation. Her extensive international experience has included teaching irrigation courses in Chile, Mexico, Columbia, Ecuador, and Egypt; serving as a consultant for the United Nations Food and Agricultural Organization (FAO), for which she developed and evaluated FAO irrigation courses for irrigation professionals in Africa; and serving as co-leader of research projects in India, investigating technical and social solutions to water resource management problems. She was twice elected to the Board of Directors of the U.S. Committee on Irrigation and Drainage, which is part of the International Commission on Irrigation and Drainage (ICID) and is currently serving on the Board of Trustees of the American Society for Agricultural and Biological Engineers (ASABE).

Jack Hampson, Atkins

Jack Hampson is a Vice President at Atkins, part of the team implementing Future Proofing Cities in the US. Future Proofing Cities is a holistic planning approach to sustainable growth in the face of climate change and global urbanization; built on research by Atkins and University College London in collaboration with UKaid, Rockefeller Foundation, and the World Bank. Mr. Hampson's focus areas are resilience planning and decision support for cities and coasts. He has an undergraduate degree in Geology and Geophysics from Princeton University; a Masters in Oceanography from the University of Rhode Island Graduate School of Oceanography; and 25 years' experience in engineering and water resources information systems. His career spans service as a marine geologist with the USGS in Menlo Park, CA, Woods Hole, MA, and Reston, VA; followed by experience in software development, information systems, and systems analysis for water resources and environmental science. His combined professional background in science, engineering, and technology led to his present role designing and implementing systems that help to meet water and climate challenges. His goals are good decisions and policies based on real world data; collaboration and coordination through widely-accessible platforms; and long-term guidance that tracks programs, policies and actions in a broader framework. His larger goal is to help find practical steps now that guide existing systems into realistic sustainable pathways that lead to resilient livable environments.

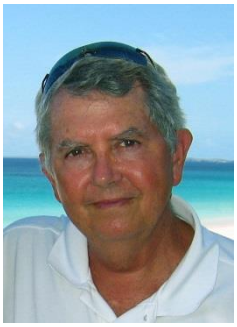
Kirk Hatfield, University of Florida



Dr. Kirk Hatfield is the Director of the Engineering School of Sustainable Infrastructure and Environment at the University of Florida, the Director of the Florida Water Resources Research Center, and a Professor in the Department of Civil and Coastal Engineering. Dr. Hatfield received his BS and MS degrees from the University of Iowa and his PhD degree from the University of Massachusetts in Amherst. Following graduation, he joined the University of Florida, Department of Civil Engineering in 1987. Dr. Hatfield's ongoing research activities are in the areas of aqueous environmental monitoring, contaminant fate and transport modeling in the subsurface, environmental remediation, and water resources systems analysis. He has active research collaborations with universities and institutes in Russia, Brazil, Canada, Mexico, England, and Germany. These

collaborations have produced several patents and several technical paper awards in 1994, 1998, 2006, and 2011 from ASEE and ASCE and from the editorial board of the most highly cited journal in his discipline, Environmental Science and Technology. In 2006, the Department of Defense awarded Dr. Hatfield and his colleagues the distinguished "Project of the Year Award" for their research to demonstrate and validate a new technology that provides direct measures of water and contaminant fluxes in subsurface aquifers.

Pierce Jones, University of Florida



Dr. Pierce Jones graduated from UF in 1980 with a PhD in Mechanical Engineering**.** He is a Professor at the University of Florida where he directs the *Program for Resource Efficient Communities*, an interdisciplinary group that promotes the adoption of "best design, construction and management practices" in master planned developments. The Program's most recent workshops target Low Impact Development, GHG reduction in land development and residential loan programs for energy efficiency retrofits. Finally, his program directly participates in land development and building projects that adopt and demonstrate "green" practices. Recent Presentation Abstract: Historically, residential development has been a primary driver of Florida's economy. Direct consequences of this growth have included steadily increasing demand for energy and water. The steady depletion of our natural water supply reserves; deteriorating water quality and rising, erratic energy prices are increasing the risks associated with Florida's conventional land development practices. This presentation compares resource efficiencies and costs associated with two distinct community designs for Restoration, a recently approved master planned development (DRI) located in south Volusia County. The study evaluates the impacts on energy and water resources for Restoration's two designs and provides practical guidance for adopting development options that reduce risks going forward.

Jennifer Mocarski

Jenn Mocarski has been a part of the Urban Coastal Sustainability Initiative at Northeastern University since February 2013. She works closely with faculty at the Marine Science Center to build an interdisciplinary approach to the study of climate change on coastal cities, and the implementation of effective solutions. Prior to her role at the Initiative, Jenn worked in administrative positions at Northeastern's library and History Department. During this time she volunteered with groups in the Boston area that focused on creative and affordable architectural solutions for non-profits, urban agriculture, and a peer reviewed publication on sustainability best practices. She also took a course at Harvard University's

Extension School on institutional sustainability, which inspired her to enroll in the evening MBA program at Northeastern. She will graduate from the D'Amore-McKim School of Business in spring 2015, with a concentration in sustainable, global business.

Christopher Silver, University of Florida

Christopher Silver, Ph.D., FAICP is professor and dean of the University of Florida's College of Design, Construction and Planning. Dr. Silver served for three years as urban development advisor to Indonesia under a U.S. Agency for International Development project. He also has held academic appointments at Virginia Commonwealth University. His international experience in Indonesia began in 1989 with a Fulbright Senior Lectureship at the University of Indonesia, and in 1992 and 2004 at the Institute of Technology Bandung. He has spent eighteen years researching urban development and decentralization in that country, as well as developing and implementing faculty and student exchange programs. He is author or co-author of five books, including *Planning the Megacity: Jakarta, Indonesia in the Twentieth Century* (Routledge, 2008) and *Planning and Decentralization: Contested Spaces for Action in the Global South*, with V. Beard and F, Miraftab (Taylor and Francis, 2008) as well as numerous articles, chapters, book reviews, paper presentations and speeches. He is currently completing a monograph tentatively entitled, *Four Centuries of Water Management in Jakarta: Toward Sustainability in a Megacity*. He has held major positions in several national professional organizations, previously as co-editor of the *Journal of the American Planning Association,* president of the Society for American City and Regional Planning, president of the Association of Collegiate Schools of Planning, and chair of the International Division of the American Planning Association. Currently, he is editor of the *Journal of Planning History*, chair of the Global Planning Education Association Network, and Secretary General of the International Planning History Society. He completed his masters and doctoral degrees from the University of North Carolina, Chapel Hill in history, as well as a MURP from Virginia Commonwealth University.

Julie Thomas, Scripps Institute of Oceanography

Julie Thomas has worked for over 30 years at Scripps Institution of Oceanography in La Jolla, CA. She has served as a Program Manager for the Coastal Data Information Program (CDIP) since 2001. With State and Federal funding, CDIP maintains a national network of wave monitoring buoys, publishing the wave observations and products. As Program Manager of CDIP, the priority is to maintain standards for collecting and disseminating high resolution wave data throughout the marine community. In 2008, Julie became Executive Director of the Southern California Coastal Ocean Observing System (SCCOOS). As Executive Director of SCCOOS, the priority is the development of the Ocean Observing Systems at regional, state and national levels, promoting inter-agency collaboration, data interoperability and data standards. In May 2012, Julie also accepted an appointment with the Ocean Observing Initiative as Director for the Cyberinfrastructure Operational and Maintenance.

Elizabeth van Dijl, Florida Earth Foundation

Welcome to the US-Netherlands Connection Project's Professional Team 2014!

Pre-trip Preparations

What to Bring to Wear

Weather is certainly unpredictable but this time in May is generally around 50 degrees Fahrenheit in the morning and warming up to low 60's in the afternoon. The wind blows 24/7 which can make it cold, especially if it rains. Remember we will be on the same latitude as Maine. Count on it raining during at least some days of the trip and when it rains it is a slow drizzle that will last for 24 hours or longer. That being said, bring layers that you can shed as the day warms. Also, bring a compact umbrella. Suggested dress by day:

1. Monday – business attire. We will be representing our organizations and a delegation to the Dutch government on that day, so coat and tie for men, business attire for the ladies.
2. Tuesday – Jeans are fine and shoes that you will not be afraid of getting muddy.
3. Wednesday – Same as Tuesday
4. Thursday –Same as Tuesday
5. Friday – Business casual without ties.

Other Things to Bring

1. European electrical sockets are different than in the US, so pick up a socket adapter, which is less than $10. Most things we use electronically like laptops, phone chargers, etc., are already dual voltage compatible, so no need to get a voltage converter unless you have something you want to bring that is not adapted to 220 volts. Ladies, the hotel has hair dryers which run off of 220 volts so do not bring yours.
2. It is very customary for delegations like ours to give a gift of appreciation to hosts at each location. It does not have to be anything of significant value, but if your organization has anything like pens, key chains, medallions, etc., you might want to bring to hand out (less than 10).
3. Call your phone carrier and switch to an international plan. When you land, turn roaming off. There will be some expensive lessons if you do not do this. Use Wi-Fi for data unless it is imperative you do otherwise.

Credit Cards vs. Cash

Major US credit cards work fine in the Netherlands in restaurants, hotels, shops and just about everywhere except for trains. European credit cards have an imbedded chip in them that US cards do not have and the train systems requires the chip. So, when you land and get out of customs, the first thing to do is trade dollars for euros to pay for trains. ATM's are everywhere and accept all US credit cards. There are physical banks located in at Schipol Airport so currency exchange is quite easy. The euro has been hovering around $1.31 over the past couple of months. Do not carry large amounts of cash. 100 euros will last for days.

Pre-program Options

Because we are not going to Amsterdam proper during the program, quite a few team members are flying out, May 10, and arriving in Amsterdam Saturday morning, May 12. Stan will rendezvous with everyone at Schipol Airport and do a tour of Amsterdam that day before everyone goes to Delft. If you choose to do this option, try to book your flight to get in before 10 AM. When you go out of the Customs Area at Schipol, go to the center of the great hall and you will find a Burger King, which will be the rendezvous

point. There are very good luggage lockers that we can use at Schipol, so we will place luggage in a locker, do the tour during the day and then come back to Schipol, pick up the luggage and proceed to Delft late afternoon. We have done this many times and it works well.

Another option is a trip some are planning to Keukenhof, the National Garden of the Netherlands, the next day, Sunday, May 11. Keukenhof is advertised as the most beautiful spot on Earth and we agree. If you want to do this with the group, you will travel from Delft to Leiden, about 25 minutes on the train, and then take City Bus 854 to Keukenhof, another 25 minutes. It is recommended that you purchase a ticket ahead of time at https://ticketing2.wheretocard.nl/keukenhof/ctrl/orderentry?language=nl. Sorry that this page is in Dutch only. Purchase the combi-ticket for 22 euros which includes bus transportation.

There is some interest for those having late flights out Saturday, May 18 to see Kinderdijk. Kinderdijk is a UNESCO World Heritage Site that features 19 working windmills, all built in the mid 1700's. One windmill is open to explore and tour. If you would like to do this option, please let Stan or Elizabeth know.

How to travel from Schiphol Airport to Delft

Schiphol Airport (near Amsterdam) is NL's main airport. You can take the train very easily from Schiphol Airport to Delft (Central station). The train station is right below Schiphol Airport. The airport has good signage about where to buy train tickets, which train to take, at what time, and from which platform. The cashier at the register will be able to give you all that information. If you take the 'sneltrein' (fast train), it takes about 45 minutes. Keep in mind, you may need to transfer at another train station. Travel to Delft Central Station. Most likely you will have to change trains in either Den Haag HS or Leiden. Upon arrival in Delft you turn left across the canal on leaving the station square. The hotel is a good 5 to 10 minute walk from Delft Central Station; with luggage it's better to take a taxi from the train station Delft.

Important Addresses & Phone numbers: Stan Bronson's cell phone is 561-281-5081. Put this number in your phone before you depart.

Bridges House Hotel
Oude Delft 74, 2611 CD Delft
P: + 31 (0) 15 21 24 036
Web: http://www.bridgeshouse.nl/en

Hotel Koophandel
Beestenmarkt 30, 2611 GC Delft
Phone: +31 (0)15 214 23 02
http://www.hoteldekoophandel.nl/en/

UNESCO-IHE (is situated more or less opposite the railway station)
Westvest 7, 2611 AX Delft
P: +31-15-21 51 76
Web: http://www.unesco-ihe.org/

The Netherlands Consular Information Sheet
For detailed information please visit the website: http://travel.state.gov

The Netherlands, Country Specific Information. This replaces the Country Specific Information for the Netherlands dated June 17, 2011, to update all sections.

COUNTRY DESCRIPTION: The Netherlands is a highly developed, stable democracy. Tourist facilities are available throughout the country. Read the Department of State's Background Notes on the Netherlands for additional information.

SMART TRAVELER ENROLLMENT PROGRAM (STEP) / EMBASSY LOCATION: If you are going to live in or visit the Netherlands, please take the time to tell our Consulate General in Amsterdam about your trip. If you enroll, we can keep you up to date with important safety and security announcements. It will also help your friends and family get in touch with you in an emergency. Here's the link to the Smart Traveler Enrollment Program.

Local embassy and consulate information is available below and at the Department of State's list of embassies and consulates.

Please note that all requests for consular assistance in the Netherlands must be directed to the Consulate General in Amsterdam. **There are no consular services available at the Embassy in The Hague.** Consulate General of the

United States, Amsterdam
Museumplein 19
1071 DJ Amsterdam
Telephone: (31) (20) 575-5309
Emergency after-hours telephone: (31) (70) 310-2209
Facsimile: (31) (20) 679-0321

Embassy of the United States, The Hague
Lange Voorhout 102
2514 EJ The Hague
Telephone: (31) (70) 310-2209
Facsimile: (31) (70) 361-4688

ENTRY / EXIT REQUIREMENTS FOR U.S. CITIZENS: The Netherlands is a party to the Schengen Agreement. As such, you may enter the Netherlands for up to 90 days for tourist or business purposes without a visa. If you are traveling for any other purpose, you may need to obtain a visa. Your passport should be valid for at least three months beyond the period of stay. The 90-day period begins when you enter any of the Schengen group of countries. For further details about travel into and within Schengen countries, please see our Schengen fact sheet. Anyone intending to stay longer than 90 days must obtain the appropriate visa from the Dutch Embassy or a Dutch consulate in the United States.

For further information, contact the Embassy of the Netherlands at 4200 Linnean Avenue NW, Washington, DC, 20008, one of the Dutch consulates in Chicago, Los Angeles, New York, or Miami, or one of the various honorary Dutch consulates throughout the United States. Additional information is available on the Dutch Board of Tourism and Conventions website. Visit the Embassy of the Netherlands' website for the most current visa information. Information on work, residency, and immigration requirements in the Netherlands can be found on the website of the Dutch Immigration and Naturalization Service.

The U.S. Department of State is unaware of any HIV/AIDS entry restrictions for visitors to or foreign residents of the Netherlands.

Information about dual nationality or the prevention of international child abduction can be found on our website. For further information about customs regulations, please read our Customs Information page.

THREATS TO SAFETY AND SECURITY: Since 2004, Dutch government security measures have been in place in response to concerns about terrorist activity in the Netherlands by international and domestic extremist groups. The Dutch Government has determined the current terrorist threat level to be "limited." According to the Dutch National Coordinator for Counterterrorism, this level, the second-lowest of four levels, means that “the chance of an attack against the Netherlands is small, but that it certainly cannot be entirely excluded.”

We encourage you to keep up with the latest news while in the Netherlands and to take steps to increase your security awareness. As with other countries in the Schengen area, the Netherlands’ open borders with its European neighbors allow for the possibility of terrorist groups entering/exiting the country with anonymity.

Demonstrations are commonplace in the Netherlands and may range in number from a few demonstrators to several thousand. Prior police notice is required for public demonstrations, and police oversight is routinely provided. Nonetheless, even demonstrations intended to be peaceful can turn confrontational and possibly escalate into violence. We urge you to avoid areas of demonstrations if possible, and to exercise caution if near one.

Stay up to date by:

- Bookmarking our **Bureau of Consular Affairs website**, which contains the current **Travel Warnings and Travel Alerts** as well as the **Worldwide Caution**.
- Follow us on Twitter and the Bureau of Consular Affairs page on Facebook as well.
- Download our free Smart Traveler iPhone App to have travel information at your fingertip

- Calling 1-888-407-4747 toll-free within the U.S. and Canada, or a regular toll line, 1-202-501-4444, from other countries.
- Take some time before travel to consider your personal security –Here are some useful tips for **traveling safely abroad**.

CRIME: While the rate of violent crime in the Netherlands is low, tourists are often targeted by thieves. Visitors frequently fall prey to pickpockets, bag snatchers, and other petty thieves who target automobiles and hotel rooms. You should use your room or hotel safe, and keep your baggage locked or secured when you're away.

While thieves may operate anywhere, the U.S. Consulate General in Amsterdam receives frequent reports of thefts from specific areas. Within Amsterdam, thieves and pickpockets are very active in and around train and tram stations, in the city center, and aboard public transportation. Theft is especially common on trains to and from Amsterdam's Schiphol Airport, where hand luggage and laptop computers are often targeted. Thieves often work in pairs; one distracts you, often by asking for directions, while the accomplice moves in on your momentarily unguarded property. The timing of these thefts usually coincides with train stops, enabling the thieves to escape. In addition, many U.S. citizens have reported the theft of purses and briefcases while eating in downtown restaurants, including hotel breakfast rooms. Never leave your personal items or baggage unattended when going to the restroom, buffet table, etc.

In 2007, several U.S. citizens visitors reported experiencing excessive drowsiness, confusion, dizziness, and nausea after drinking alcohol in public areas such as hotel bars and night clubs in several cities throughout the Netherlands. These effects may be the result of unknowingly ingesting drugs surreptitiously placed in drinks. These drugs do not have a distinctive color, smell, or flavor and come in powder, liquid, and pill forms. If you believe you have been drugged, seek assistance immediately. Try to keep the original beverage container, along with any remaining amount of the beverage, to assist the police with their investigation.

Confidence artists have victimized U.S. citizens around the world, including in the Netherlands. Typically, a U.S. citizen is notified via email of a winning lottery ticket, an inheritance, or other offer requiring his or her assistance and cooperation. The U.S. citizen is asked to forward advance payments for alleged "official expenses," "taxes," etc. and, often, to come to Amsterdam to conclude the operation. Another common scam involves an Internet friend or partner who is reported to have been detained by immigration authorities in the Netherlands en route to the U.S., and will not be released unless additional funds are paid to the "traveler." In every case, these reports have been determined to be confidence schemes. Several U.S. citizens have lost tens of thousands of dollars in such scams. Funds transferred in response to such offers can rarely be recovered. Information on fraud schemes can be found on the U.S. Consulate General's website, and the Department of State's International Financial Scams page. If you suspect you have been targeted by a scam based in the Netherlands, you may report it to Dutch law enforcement authorities by email atvoorlichting@klpd.politie.nl, or at the following address:

KLPD, Financial Crimes Unit
PO Box 3016
2700 KX Zoetermeer

The Netherlands
Attention: Project Apollo

The Dutch Embassy in Washington, DC has a prepared letter that can be used to inform the Dutch Police of fraud.

Don't buy counterfeit and pirated goods, even if they are widely available. Not only are the bootlegs illegal to bring back into the United States, if you purchase them you may also be breaking local law.

VICTIMS OF CRIME: If you or someone you know becomes the victim of a crime abroad, you should contact the local police and the nearest U.S. embassy or consulate. We can:

- Replace a stolen passport.
- For violent crimes such as assault or rape, help you find appropriate medical care,
- Put you in contact with the appropriate police authorities, and contact family members or friends.
- Although the local authorities are responsible for investigating and prosecuting the crime, consular officers can help you understand the local criminal justice process and can direct you to local attorneys.

The Criminal Injuries Compensation Fund (CICF) of the Netherlands provides financial compensation, under specific circumstances, for victims of crime and for those who have suffered injuries and consequent loss as a result of such incidents. The fund also provides for dependents or immediate family members of homicide victims. For more information, contact the Dutch Ministry of Justice at (31) (70) 414-2000.

The local equivalent to the "911" emergency line in the Netherlands is 112.

Please see our information on victims of crime, including possible victim compensation programs in the United States.

CRIMINAL PENALTIES: While you are traveling in The Netherlands, you are subject to its laws even if you are a U.S. citizen. Foreign laws and legal systems can be vastly different from our own. Under Dutch law, for example, you may be taken in for questioning if you are unable to present your passport to local authorities. It's very important to know what's legal and what's not in the country you are visiting.

Note that your U.S. passport won't help you avoid arrest or prosecution if you break local laws. If you are arrested in The Netherlands, however, you do have the right to request that the police, prison officials, or other authorities alert the Consulate General of your arrest, and to have communications from you forwarded to the Consulate General. This accommodation is based on the Vienna Convention on Consular Relations, bilateral agreements with certain countries, and customary international law.

While some countries will automatically notify the nearest U.S. embassy or consulate if a U.S. citizen is detained or arrested in a foreign country, that might not always be the case. To ensure that the United States is aware of your circumstances, request that the police and prison officials notify the nearest U.S. embassy or consulate as soon as you are arrested or detained overseas.

SPECIAL CIRCUMSTANCES: The Netherlands instituted a comprehensive indoor smoking ban in July 2008. The ban includes all cafes, pubs, clubs, theatres, coffee shops, restaurants, hotels, airports, shopping malls, amusement centers, etc. Smoking is only allowed in private homes, in the open air, and in designated smoking areas.

Dutch customs authorities stringently enforce regulations concerning importation into the Netherlands of items such as firearms and other controlled materials. Contact the Embassy of the Netherlands in Washington, D.C. or one of the Dutch consulates in Chicago, Miami, Los Angeles, or New York for specific information regarding customs requirements.

You must carry identification at all times in the Netherlands if you are age 14 or older. Accepted forms of identification for U.S. citizens include a U.S. passport or a Dutch residence card issued by the Ministry of Foreign Affairs. A copy of a U.S. passport is not sufficient under Dutch law.

Dutch authorities may require U.S. citizens who apply for or obtain Dutch nationality to renounce their U.S. citizenship. For further information, visit the Dutch immigration and naturalization authority website and the U.S. Consulate General website.

Accessibility: Dutch law guarantees equality and the right to access for people with disabilities. Information is available in Dutch on the Ministry of Public Health website.

MEDICAL FACILITIES AND HEALTH INFORMATION: Good medical facilities are widely available. Emergency medical response can be accessed by dialing 112. Pharmacies ("Apotheek") are widely available and can assist with emergency prescription needs. Some common medications are not available in the Netherlands without a prescription, and some prescription drugs cannot be sent to the country. Travelers are urged to carry an adequate supply of prescription drugs in their original container, in their carry-on luggage. Please carry a letter from your pharmacist or medical doctor with you, as some drugs are subject to confiscation by local custom agents. Those traveling with any pre-existing medical problems should bring a letter from the attending physician, describing the medical condition and any prescription medications, including the generic name of prescribed drugs.

Vaccinations are not required for travel to the Netherlands.

You can find good information on vaccinations and other health precautions, on the Centers for Disease Control and Prevention (CDC) website. For information about outbreaks of infectious diseases abroad, consult the World Health Organization (WHO) website, which also contains additional health information for travelers, including detailed country-specific health information.

MEDICAL INSURANCE: You can't assume your insurance will go with you when you travel. It's very important to find out BEFORE you leave. You need to ask your insurance company two questions:

- Does my policy apply when I'm out of the United States?
- Will it cover emergencies like a trip to a foreign hospital or an evacuation?

In many places, doctors and hospitals still expect payment in cash at the time of service. Your regular U.S. health insurance may not cover doctors' and hospital visits in other countries. If your policy doesn't go with you when you travel, it's a very good idea to take out another one for your trip. For more information, please see our medical insurance overseas page.

TRAFFIC SAFETY AND ROAD CONDITIONS: While in the Netherlands, you may encounter road conditions that differ significantly from those in the United States.

In the Netherlands, travel in, around, and between cities is possible via a highly developed national public transportation system, an extensive system of bike paths, and by automobile and motorcycle on a modern highway system. Rail is often a convenient alternative to driving, particularly in the areas around Amsterdam, The Hague, and Rotterdam, where road congestion is frequent. Rail network information is available online.

Intercity travel by road is relatively safe in comparison to some other European countries; nonetheless, more than 1,000 people die and another 10,000 are injured in traffic accidents in the Netherlands each year. More than two-thirds of the fatal accidents occur outside urban areas.

A valid driver's license issued by a Department of Motor Vehicles in the U.S. is valid for use in the Netherlands for up to 180 days while in tourist or visitor status. You must use seat belts and child seats. Driving is on the right side of the road, as in the United States. Speed limits are strictly enforced via radar. Traffic cameras are pervasive throughout the Netherlands and tickets for traveling even 2-5 km/h over the limit are common. The maximum speed limit on highways is 120 km/h, with a highway speed limit of 100 km/h posted in most urban areas. Secondary roads and some urban-area highways have a speed limit of 80 km/h. The speed limit in towns and cities is 50 km/h, with 30 km/h zones in residential areas. The Dutch Government has reduced speed limits on certain roads near cities in an effort to reduce air pollution. You should be aware that speed limit signs are electronic, and therefore speed limits may be changed remotely by authorities depending on traffic conditions. Drivers must yield the right-of-way to drivers and bicyclists coming from the right at intersections or traffic circles unless otherwise posted. The maximum allowable blood-alcohol content in the Netherlands is 0.05%. Use of cellular telephones while driving without the use of a hands-free device is prohibited, and is punishable by severe fines.

Lanes in the center of many urban two-way streets are reserved for buses, trams, and taxis. In cities, pedestrians should be mindful of trams, which often cross or share bicycle and pedestrian paths. Serious – and sometimes fatal – accidents involving pedestrians or bicyclists colliding with trams occur each year. Motorists should be especially mindful that bicyclists have the right-of-way; motorists must yield to bicyclists. Pedestrians should not walk along bicycle paths, which are often adjacent to the sidewalk and usually designated by red pavement.

Bicyclists and pedestrians should be particularly cautious during the winter months, when paths, roads, and especially bridges can be icy and extremely slippery.

Taxi service in the Netherlands is safe but expensive. Trams and buses are both convenient and economical, but are often frequented by pickpockets.

Please refer to our Road Safety page for more information. Also, we suggest that you visit the website of the Dutch Board of Tourism and Conventions for additional information.

AVIATION SAFETY OVERSIGHT: The U.S. Federal Aviation Administration (FAA) has assessed the government of the Netherlands' Civil Aviation Authority as being in compliance with International Civil Aviation Organization (ICAO) aviation safety standards for oversight of the Netherlands' air carrier operations. Further information may be found on the FAA's safety assessment page.

CHILDREN'S ISSUES: Please see our Office of Children's Issues web pages on intercountry adoption and international parental child abduction

A safe trip Abroad – Travel. State.Gov

US Department of State

When you travel abroad, the odds are you will have a safe and incident-free trip. Travelers can, however, become victims of crime and violence, or experience unexpected difficulties. No one is better able to tell you this than the U.S. consular officers who work in more than 250 U.S. embassies and consulates around the globe. Every day of the year, U.S. embassies and consulates receive calls from American citizens in distress.

Happily, most problems can be solved over the phone or with a visit to the Consular Section of the nearest U.S. embassy or consulate. There are other occasions, however, when U.S. consular officers are called upon to help U.S. citizens who are in foreign hospitals or prisons, or to assist the families of U.S. citizens who have passed away overseas.

We have prepared the following travel tips to help you avoid serious difficulties during your time abroad. We wish you a safe and wonderful journey!

Before You Go

What to Take

Safety begins when you pack. To help avoid becoming a target, do not dress in a way that could mark you as an affluent tourist. Expensive-looking jewelry, for instance, can draw the wrong attention.

Always try to travel light. You can move more quickly and will be more likely to have a free hand. You will also be less tired and less likely to set your luggage down, leaving it unattended.

Carry the minimum number of valuables, and plan places to conceal them. Your passport, cash and credit cards are most secure when locked in a hotel safe. When you have to carry them on your person, you may wish to put them each in a different place rather than all in one wallet or pouch. Avoid handbags, fanny packs and outside pockets that are easy targets for thieves. Inside pockets and a sturdy shoulder bag with the strap worn across your chest are somewhat safer. One of the safest places to carry valuables is in a pouch or money belt worn under your clothing.

If you wear glasses, pack an extra pair. Pack them and any medicines you need in your carry-on luggage.

To avoid problems when passing through customs, keep medicines in their original, labeled containers. Bring copies of your prescriptions and the generic names for the drugs. If a medication is unusual or contains narcotics, carry a letter from your doctor attesting to your need to take the drug. If you have any doubt about the legality of carrying a certain drug into a country, consult the embassy or consulate of that country before you travel.

Bring travelers' checks and one or two major credit cards instead of cash.

Pack an extra set of passport photos along with a photocopy of your passport's information page to make replacement of your passport easier in the event it is lost or stolen.

Put your name, address and telephone numbers inside and outside of each piece of luggage. Use covered luggage tags to avoid casual observation of your identity or nationality. If possible, lock your luggage.

What to Leave Behind

Don't bring anything you would hate to lose. Leave at home:

- Valuable or expensive-looking jewelry
- Irreplaceable family objects
- All unnecessary credit cards
- Your Social Security card, library card, and similar items you may routinely carry in your wallet.

Leave a copy of your itinerary with family or friends at home in case they need to contact you in an emergency.

Make two photocopies of your passport identification page, airline tickets, driver's license and the credit cards that you plan to bring with you. Leave one photocopy of this data with family or friends at home; pack the other in a place separate from where you carry the originals.

Leave a copy of the serial numbers of your travelers' checks with a friend or relative at home. Carry your copy with you in a separate place and, as you cash the checks, cross them off the list.

What to Learn About Before You Go

Local Laws and Customs

When you leave the United States, you are subject to the laws of the country you are visiting. Therefore, before you go, learn as much as you can about the local laws and customs of the places you plan to visit. Good resources are your library, your travel agent, and the embassies, consulates or tourist bureaus of the countries you will visit. In addition, keep track of what is being reported in the media about recent developments in those countries.

Things to Arrange Before You Go

Your Itinerary

As much as possible, plan to stay in larger hotels that have more elaborate security. Safety experts recommend booking a room from the second to seventh floors above ground level – high enough to deter easy entry from outside, but low enough for fire equipment to reach.

When there is a choice of airport or airline, ask your travel agent about comparative safety records.

Legal Documents

Have your affairs in order at home. If you leave a current will, insurance documents, and power of attorney with your family or a friend, you can feel secure about traveling and will be prepared for any emergency that may arise while you are away. If you have minor children, consider making guardianship arrangements for them.

Register your travel

It is a good idea to sign up for the Smart Traveler Enrollment Program --think of it as checking in-- so that you may be contacted if need be, whether because of a family emergency in the U.S., or because of a crisis in the area in which you are traveling. It is a free service provided by the State Department, and is easily accomplished online at https://travelregistration.state.gov. (In accordance with the Privacy Act, the Department of State may not release information on your welfare or whereabouts to inquirers without your express written authorization.)

Credit

Make a note of the credit limit on each credit card that you bring, and avoid charging over that limit while traveling. Americans have been arrested for innocently exceeding their credit limit. Ask your credit card company how to report the loss of your card from abroad. 1-800 numbers do not work from abroad, but your company should have a number that you can call while you are overseas.

Insurance

Find out if your personal property insurance covers you for loss or theft abroad. Also, check on whether your health insurance covers you abroad. Medicare and Medicaid do not provide payment for medical care outside the United States. Even if your health insurance will reimburse you for medical care that you pay for abroad, health insurance usually does not pay for medical evacuation from a remote area or from a country where medical facilities are inadequate. Consider purchasing a policy designed for travelers, and covering short-term health and emergency assistance, as well as medical evacuation in the event of an accident or serious illness.

Precautions to Take While Traveling

Safety on the Street

Use the same common sense traveling overseas that you would at home. Be especially cautious in (or avoid) areas where you may be more easily victimized. These include crowded subways, train stations, elevators, tourist sites, market places, festivals and crime-ridden neighborhoods.

- Don't use short cuts, narrow alleys or poorly lit streets.
- Try not to travel alone at night.
- Avoid public demonstrations and other civil disturbances.
- Keep a low profile and avoid loud conversations or arguments.
- Do not discuss travel plans or other personal matters with strangers.
- Avoid scam artists by being wary of strangers who approach you and offer to be your guide or sell you something at bargain prices.

- Beware of pickpockets. They often have an accomplice who will:
  - jostle you,
  - ask you for directions or the time,
  - point to something spilled on your clothing,
  - or distract you by creating a disturbance.
- Beware of groups of vagrant children who could create a distraction to pick your pocket.
- Wear the shoulder strap of your bag across your chest and walk with the bag away from the curb to avoid drive-by purse-snatchers.
- Try to seem purposeful when you move about. Even if you are lost, act as if you know where you are going. Try to ask for directions only from individuals in authority.
- Know how to use a pay telephone and have the proper change or token on hand.
- Learn a few phrases in the local language or have them handy in written form so that you can signal your need for police or medical help.
- Make a note of emergency telephone numbers you may need: police, fire, your hotel, and the nearest U.S. embassy or consulate.
- If you are confronted, don't fight back -- give up your valuables.

Safety in Your Hotel

- Keep your hotel door locked at all times. Meet visitors in the lobby.
- Do not leave money and other valuables in your hotel room while you are out. Use the hotel safe.
- If you are out late at night, let someone know when you expect to return.
- If you are alone, do not get on an elevator if there is a suspicious-looking person inside.
- Read the fire safety instructions in your hotel room. Know how to report a fire, and be sure you know where the nearest fire exits and alternate exits are located. (Count the doors between your room and the nearest exit; this could be a lifesaver if you have to crawl through a smoke-filled corridor.)

Safety on Public Transportation

If a country has a pattern of tourists being targeted by criminals on public transport, that information is mentioned in each country's Country Specific Information in the section about crime.

Taxis

Only take taxis clearly identified with official markings. Beware of unmarked cabs.

Trains

Well-organized, systematic robbery of passengers on trains along popular tourist routes is a problem. It is more common at night and especially on overnight trains.

If you see your way being blocked by a stranger and another person is very close to you from behind, move away. This can happen in the corridor of the train or on the platform or station.

Do not accept food or drink from strangers. Criminals have been known to drug food or drink offered to passengers. Criminals may also spray sleeping gas in train compartments. Where possible, lock your

compartment. If it cannot be locked securely, take turns sleeping in shifts with your traveling companions. If that is not possible, stay awake. If you must sleep unprotected, tie down your luggage and secure your valuables to the extent possible.

Do not be afraid to alert authorities if you feel threatened in any way. Extra police are often assigned to ride trains on routes where crime is a serious problem.

Buses

The same type of criminal activity found on trains can be found on public buses on popular tourist routes. For example, tourists have been drugged and robbed while sleeping on buses or in bus stations. In some countries, whole busloads of passengers have been held up and robbed by gangs of bandits.

Safety When You Drive

When you rent a car, choose a type that is commonly available locally. Where possible, ask that markings that identify it as a rental car be removed. Make certain it is in good repair. If available, choose a car with universal door locks and power windows, features that give the driver better control of access. An air conditioner, when available, is also a safety feature, allowing you to drive with windows closed. Thieves can and do snatch purses through open windows of moving cars.

- Keep car doors locked at all times. Wear seat belts.
- As much as possible, avoid driving at night.
- Don't leave valuables in the car. If you must carry things with you, keep them out of sight locked in the trunk, and then take them with you when you leave the car.
- Don't park your car on the street overnight. If the hotel or municipality does not have a parking garage or other secure area, select a well-lit area.
- Never pick up hitchhikers.
- Don't get out of the car if there are suspicious looking individuals nearby. Drive away.

Patterns of Crime Against Motorists

In many places frequented by tourists, including areas of southern Europe, victimization of motorists has been refined to an art. Where it is a problem, U.S. embassies are aware of it and consular officers try to work with local authorities to warn the public about the dangers. In some locations, these efforts at public awareness have paid off, reducing the frequency of incidents. You may also wish to ask your rental car agency for advice on avoiding robbery while visiting tourist destinations.

Carjackers and thieves operate at gas stations, parking lots, in city traffic and along the highway. Be suspicious of anyone who hails you or tries to get your attention when you are in or near your car.

Criminals use ingenious ploys. They may pose as good Samaritans, offering help for tires that they claim are flat or that they have made flat. Or they may flag down a motorist, ask for assistance, and then steal the rescuer's luggage or car. Usually they work in groups, one person carrying on the pretense while the others rob you.

Other criminals get your attention with abuse, either trying to drive you off the road, or causing an "accident" by rear-ending you.

In some urban areas, thieves don't waste time on ploys, they simply smash car windows at traffic lights, grab your valuables or your car and get away. In cities around the world, "defensive driving" has come to mean more than avoiding auto accidents; it means keeping an eye out for potentially criminal pedestrians, cyclists and scooter riders.

How to Handle Money Safely

- To avoid carrying large amounts of cash, change your travelers' checks only as you need currency. Countersign travelers' checks only in front of the person who will cash them.
- Do not flash large amounts of money when paying a bill. Make sure your credit card is returned to you after each transaction.
- Deal only with authorized agents when you exchange money, buy airline tickets or purchase souvenirs. Do not change money on the black market.

If your possessions are lost or stolen, report the loss immediately to the local police. Keep a copy of the police report for insurance claims and as an explanation of what happened.

After reporting missing items to the police, report the loss or theft of:

- Travelers' checks to the nearest agent of the issuing company
- Credit cards to the issuing company
- Airline tickets to the airline or travel agent
- Passport to the nearest U.S. embassy or consulate

How to Avoid Legal Difficulties

When you are in a foreign country, you are subject to its laws and are under its jurisdiction. You can be arrested overseas for actions that may be either legal or considered minor infractions in the United States. Familiarize yourself with legal expectations in the countries you will visit. The Country Specific Information pages include information on unusual patterns of arrests in particular countries, as appropriate.

Drug Violations

More than one-third of U.S. citizens incarcerated abroad are held on drug charges. Some countries do not distinguish between possession and trafficking, and many have mandatory sentences – even for possession of a small amount of marijuana or cocaine. A number of Americans have been arrested for possessing prescription drugs, particularly tranquilizers and amphetamines, that they purchased legally elsewhere. Other U.S. citizens have been arrested for purchasing prescription drugs abroad in quantities that local authorities suspected were for commercial use. If in doubt about foreign drug laws, ask local authorities or the nearest U.S. embassy or consulate.

Possession of Firearms

The places where U.S. citizens most often experience difficulties for illegal possession of firearms are nearby – Mexico, Canada and the Caribbean. Sentences for possession of firearms in Mexico can be up to 30 years. In general, firearms, even those legally registered in the U.S., cannot be brought into a country unless a permit is obtained in advance from the embassy or a consulate of that country and the firearm is registered with foreign authorities on arrival. (NOTE: There are also strict rules about bringing firearms or ammunition into the U.S; check with U.S. Customs before your trip.

Photography

In many countries you can be detained for photographing security-related institutions, such as police and military installations, government buildings, border areas and transportation facilities. If you are in doubt, ask permission before taking photographs.

Purchasing Antiques

Americans have been arrested for purchasing souvenirs that were, or looked like, antiques and that local customs authorities believed were national treasures. This is especially true in Turkey, Egypt and Mexico. Familiarize yourself with any local regulations of antiques. In countries with strict control of antiques, document your purchases as reproductions if that is the case, or if they are authentic, secure the necessary export permit (often from the national museum). It is a good idea to inquire about exporting these items before you purchase them.

The State Department is committed to assisting American citizens who become victims of crime while abroad. We help in two ways:

- Overseas: consular officers, agents, and staff work with crime victims and help them with the local police and medical systems.
- In the United States: our office of Overseas Citizens Services will stay in touch with family members in the United States, and help provide U.S.-based resources for the victim when possible.

If you are the victim of a crime overseas:

- Contact the nearest U.S. Embassy or Consulate:
  - Consular officers are available for emergency assistance 24 hours/day, 7 days/week.
  - Contact information for U.S. Embassies and Consulates overseas can be found at http://www.usembassy.gov/.
  - Embassy of the United States of America
    Lange Voorhout 102
    2514 EJ The Hague.
    T: +31 70 310-2209

The Consulate General is located at Museumplein 19, 1071 DJ AMSTERDAM. This is on the corner of the Museumplein, opposite of the Stedelijk Museum and across from the Van Gogh Museum. American Citizen Services
U.S. Consulate General
Museumplein 19
1071 DJ Amsterdam
The Netherlands
E-mail: USCitizenServicesAms@state.gov
Fax: (31)(0)20-575 5330

You can call our American Citizen Services Unit in the afternoon between 1:30 and 4:30, Monday through Friday. The morning hours are reserved for visitors with appointments and only emergency phone calls (see instructions below) can be answered.

The number to call is 31(0)20 575 5309.

  - To contact the Department of State in the U.S. call **1-888-407-4747 during business hours**, and **202-647-5225 after hours**.
- Contact the local police to report the incident and get immediate help. Request a copy of the police report.

Consular Assistance to American Crime Victims:
When an American is the victim of a crime overseas, he or she may suffer from physical, emotional or financial injuries. It can be more difficult because the victim may be in unfamiliar surroundings, and may not know the local language or customs. Consuls, consular agents, and local employees at overseas posts know local government agencies and resources in the country where they work.

We can help:

- Replace a stolen passport
- Contact family, friends, or employers
- Obtain appropriate medical care
- Address emergency needs that arise as a result of the crime
- Explain the local criminal justice process
- Obtain information about your case
- Connect you to local and U.S. resources to assist victims of crime
- Obtain information about local and U.S. victim compensation programs
- Provide a list of local lawyers who speak English

We cannot:

- Investigate crimes
- Provide legal advice or represent you in court
- Serve as official interpreters or translators
- Pay legal, medical, or other fees for you

Resources and Information for Crime Victims upon Return to the United States:
Some U.S. cities and communities offer programs help residents who are victims of overseas crime, including:

- Rape crisis counseling programs
- Shelter and counseling programs for battered women
- Support groups and bereavement counseling for members of murder victims
- Diagnostic and treatment programs for child abuse victims
- Assistance for victims of drunk driving crashes

All U.S. states have victim compensation programs, and many offer benefits to residents who are victims of violent crime overseas. Most programs require the victim to file a report at the time of the incident, and to provide a copy with the application. Programs include financial assistance to pay for:

- Medical costs
- Funeral expenses
- Lost income or loss of support

Information about each state's compensation program and how to apply for benefits is available from the National Association of Crime Victim Compensation Boards.

Contact Information for Victim Assistance Programs:

Sexual Assault:

- RAINN (Rape, Abuse and Incest National Network) – Toll-free 24/7 hotline for sexual assault counseling and referrals: 1-800-656-HOPE, http://www.rainn.org

- U.S. Department of Justice Violence Against Women Office – Information about local sexual assault victim assistance: http://www.ojp.usdoj.gov/vawo/help.htm

Domestic Violence:

- National Domestic Violence Hotline – Toll-free 24/7 hotline for crisis counseling and referrals: 1-800-799-SAFE
- U.S. Department of Justice Violence Against Women Office – Information about local domestic violence victim assistance: http://www.ojp.usdoj.gov/vawo/help.htm

Families and Friends of Murder Victims:

- POMC, Inc. (National Organization of Parents of Murdered Children) – Toll-free 24/7 hotline for crisis counseling and referrals: 1-888-818-POMC, http://www.pomc.org

Victims and Families of Drunk Driving Crashes:

- Mothers Against Drunk Driving (MADD) – Information about local resources for victims and family members: http://www.madd.org

General Victim Assistance:

- U.S. Department of Justice Office for Victims of Crime – Contact information for non-emergency services in communities throughout U.S.: http://ovc.ncjrs.org/findvictimservices/
- National Crime Victim Center – Information for crime victims on the impact of crime, safety planning, legal rights and civil legal remedies, and options for assistance and referrals to local programs. Call toll free (8:30 a.m. to 8:30 p.m. EST) 1-800-FYI-CALL or call TTY for hearing impaired (8:30 a.m. to 8:30 p.m. EST) 1-800-211-7996.http://www.ncvc.org
- National Organization for Victim Assistance (NOVA) – Toll-free 24/7 hotline for information and referral to victim assistance programs: 1-800-TRY-NOVA, http://www.try-nova.org

Overseas Resources:

- Victim Assistance On-line – Information about victim assistance programs in approximately 20 countries: http://www.vaonline.org

What We Will Be Doing

The team will do several things in the five days of our visit. As we learn about how water is managed, how the Dutch are facing climate change and sea level rise, and proceed with climate adaptation, and how they deal with 17 million people on 14,000 square miles (Florida is about 35,000 square miles), we will compare the challenges they are facing with those in the United States and look at ways in which they are meeting those challenges in planning for the future. At the same time we will observe the different mind-sets of the Dutch and see how they are the same or different from those of our own. By the end of the week we will be able to create a matrix of our observations, overlay them over what we know (as the Florida experience and see where they intersect). Then we should be able to envision ways that the US-Netherlands relationship could create possibilities under the umbrella of that formal relationship.

As we travel, we will all have 3X5 cards to write down ideas right when we see them pop in our heads. Please keep your cards with you during the entire trip and even a few days afterwards. At the end of each day we will collect the cards and categorize them. On Friday, we will prioritize them and create a vision for the components of the relationship. Questions to ponder throughout the entire week:

1. What do I see that reminds me of something I see in the United States?

2. How do the Dutch think when they are faced with the challenge this project represents?

3. Who do they consider stakeholders? How are they involved? Why is this different than our engagements in the United States and what benefits complications might it bring?

4. In what categories of endeavor does this project or event fall?

5. What are the institutions that had a hand in this and what institutions would we engage in the United States to do something like this? Can the US federal system be adapted to allow robust implementation?

6. What types of outreach are they doing for the challenges they are facing?

7. What can we create that will have the possibility of true impact on both the United States and the Netherlands in one year or less?

Questions for the Formal Relationship and Points to Consider

1. How do we have both sides agreed on the fundamental, overarching, most desirable outcome(s) for this meeting?

2. If you were to pursue a state-nation relationship, what would be the nature of that relationship? Co-development? Co-marketing? How would that look like for a relationship between two nations?

3. What might the go-to-market model look like?

4. What might the business model look? Co-equal partners?

5. How will solutions be monetized?

6. Would this be a "research" relationship only?

7. What is the most efficient process to identify candidate projects and prioritize projects as to value, importance, etc., and whose exploration/solution represent areas of certain (or very likely) combined (USA + NL) high poles in the tent?

8. How would candidate projects, proof of concepts, experiments, trials, etc. be funded?

9. If the goal is to develop a commercial-grade solutions, who would lead on that? There may very well be multiple answers to this question.

10. How will intellectual property creation/ownership be handled?

11. Who would hold the contract for a formal relationship? I.e., some legal entity has to be the contract source for T&Cs, etc.

12. What is the most logical way to categorize or segment the problem categories? Identifying these categories up front will later help us organize subgroups or workgroups that focus on particular categories or problem areas.

13. Agree on framework to further categorize projects / pursuits as to level of difficulty, technical uncertainty, cost of development /commercialization, time-to-pilot implementation, time-to-commercialization, etc.

14. Organization issues need to be considered and dealt with early on. We have many stakeholders from many organizations on the team and you will be meeting with many people and organizations while in the Netherlands. We will be well served if we begin thinking about a core leadership team (2 or 3 people) on both sides that form the "board" or core leadership team for the combined entity. This team will drive the development and implementation of the going-forward plan.

Topics for consideration:

1. What is the vulnerability of surface-water based drinking-water systems to SLR and salinity impacts

2. What is the vulnerability of brackish ecosystems to SLT and salinity impacts; how to manage? What are the impacts?

3. Which could be soft (non structural) defenses against SLR and their environmental impacts and (possible) benefits.

4. Building with Nature as a climate adaptation tool: where relevant in US, and areas for cooperation between NL and US.

5. How has Deltares managed to coordinate across the various Dutch Governmental agencies? How does it effectively deploy resources for decision making?

6. What are major political, operational, financial and bureaucratic obstacles that the developers of Deltares had to overcome in order to achieve success in working with the Dutch government? In deploying resources for decision making?

7. Can we explore ways of determining which elements of the Deltares "model" would provide value-added to the ways in which the U.S. Government operates its scientific and operational resources for adaptation?

8. Can we explore mechanisms that will create a more long-term and sustainable working relationship and collaborative environment between appropriate U.S. research and operational elements and Deltares?

Delft (Wikipedia)

Province: South Holland

Area (2006)
Total 9.30 sq mi
Land 8.96 sq mi
Water 0.34 sq mi

Population (1 January 2008)
Total 96,168
Density 10,800/sq mi

Delft is a city and municipality in the province of South Holland (Zuid-Holland), the Netherlands. It is located between Rotterdam and The Hague. Delft is primarily known for its typically Dutch town centre (with canals); also for the painter Vermeer, Delft Blue pottery (Delftware), the Delft University of Technology, and its association with the Dutch royal family, the House of Orange-Nassau.

From a rural village in the early Middle Ages Delft developed to a city, that in the 13th century (1246) received its charter. The town's association with the House of Orange started when William of Orange (Willem van Oranje), nicknamed William the Silent (Willem de Zwijger), took up residence in 1572 At the time he was the leader of growing national Dutch resistance against Spanish occupation of the country, which struggle is known as the Eighty Years' War. By then Delft was one of the leading cities of Holland and it was equipped with the necessary city walls to serve as a headquarters.

After the Act of Abjuration was proclaimed in 1581 Delft became the *de facto* capital of the newly independent Netherlands, as the seat of the Prince of Orange. When William was shot dead in 1584, by Balthazar Gerards in the hall of the Prinsenhof, the family's traditional burial place in Breda was still in the hands of the Spanish. Therefore, he was buried in the Delft Nieuwe Kerk (New Church), starting a tradition for the House of Orange that has continued to the present day.

Delft Explosion
The Delft Explosion, also known in history as the Delft Thunderclap, occurred on 12 October 1654 when a gunpowder store exploded, destroying much of the city. Over a hundred people were killed and thousands wounded. About 30 tonnes of gunpowder were stored in barrels in a magazine in a former Clarissen convent in the Doelenkwartier district. Cornelis Soetens, the keeper of the magazine, opened the store to check a sample of the powder and a huge explosion followed. Luckily, many citizens were away, visiting a market in Schiedam or a fair in The Hague. Artist Carel Fabritius was wounded in the explosion and died of his injuries. Later on, Egbert van der Poel painted several pictures of Delft showing the devastation. The Delft Explosion is the principal reason why Delft University of Technology maintains explosion science as a key topic within its research portfolio and graduate skill-set.

Sights
The city center retains a large number of monumental buildings, whereas in many streets there are canals of which the borders are connected by typical bridges, altogether making this city a notable tourist destination.[2]

Historical buildings include:

- Oude Kerk (Old Church). Buried here: Piet Hein, Johannes Vermeer, Anthony van Leeuwenhoek.
- Nieuwe Kerk (New Church), constructed between 1381 and 1496. It contains the Dutch royal family's burial vault, which between funerals is sealed with a 5000 kg cover stone.
- The Prinsenhof (Princes' Court), now a museum.
- City Hall on the Markt.
- The Oostpoort (Eastern gate), built around 1400. This is the only remaining gate of the old city walls.
- The Gemeenlandshuis Delfland, or Huyterhuis, built in 1505, which has housed the Delfland regional water authority since 1645.
- The Koninklijk Nederlands Legermuseum, the national museum of the Royal Dutch Army housed in the Armamentarium.
- Waag (Delft)

Culture
Delft is well known for the Delft pottery ceramic products which were styled on the imported Chinese porcelain of the 17th century. The city had an early start in this area since it was a home port of the Dutch East India Company. The painter Johannes Vermeer (1632–1675) was born in Delft. Vermeer used Delft streets and home interiors as the subject or background of his paintings.

Several other famous painters lived and worked in Delft at that time, such as Pieter de Hoogh, Carel Fabritius, Nicolaes Maes, Gerard Houckgeest and Hendrick Cornelisz. van Vliet. They all were members of the Delft School. The Delft School is known for its images of domestic life, views of households, church interiors, courtyards, squares and the streets of Delft. The painters also produced pictures showing historic events, flower paintings, portraits for patrons and the court, and decorative pieces of art.

Education
Delft University of Technology (TU Delft) is one of three universities of technology in the Netherlands. It was founded as an academy for civil engineering in 1842 by King William II. Today well over 16,000 students are enrolled.

The UNESCO-IHE Institute for Water Education, providing postgraduate education for people from developing countries, draws on the strong tradition in water management and hydraulic engineering of the Delft University.

Economy
In the local economic field essential elements are:

- education; (a.o. TU Delft Delft University of Technology) (As of 2007 14.299 students, 2.712 scientists and 1.859 researchers),
- scientific research; (a.o. "TNO" (Netherlands Organisation for Applied Scientific Research), Stichting GeoDelft, Nederlands Normalisatie-Instituut
- tourism; (about one million registered visitors a year),
- industry; (DSM Gist Services BV, (Delftware) earthenware production by De Koninklijke Porceleyne Fles, Exact Software Nederland BV,
- retail; (Ikea (Inter IKEA Systems B.V., owner and worldwide franchisor of the IKEA Concept, is based in Delft), Makro, Eneco Engergy NV).

The Hague (Wikipedia)

Province: South Holland
Area:
City and municipality 37.92 sq mi
Land 31.92 sq mi
Water 6.00 sq mi

City and municipality 500,000
Density 15, 270/sq mi
Urban 1,022,256
Metro 1,406,000
Randstad 6,659,300

The Hague (Dutch: ***Den Haag***), officially ***'s-Gravenhage*** is the capital city of the province of South Holland in the Netherlands. With a population of 500,000 inhabitants (as of 1 September 2011),[1][2] it is the third largest city of the Netherlands, after Amsterdam and Rotterdam. Located in the west of the Netherlands, The Hague is in the centre of the Haaglanden conurbation and lies at the southwest corner of the larger Randstad conurbation.

The Hague is the seat of the Dutch government and parliament, the Supreme Court, and the Council of State, but the city is not the capital of the Netherlands which constitutionally is Amsterdam. Queen Beatrix of the Netherlands lives at Huis ten Bosch and works at Noordeinde Palace in The Hague. All foreign embassies in the Netherlands and 150 international organisations are located in the city, including the International Court of Justice and the International Criminal Court, which makes The Hague one of the major cities hosting the United Nations, along with New York, Vienna, Geneva and Nairobi.

The Hague originated around 1230, when Floris IV, Count of Holland purchased land alongside a pond (now the Hofvijver) in order to build a hunting residence. In 1248 William II, Count of Holland and *Rex Romanorum*, decided to extend the residence to a palace. He died in 1256 before this palace was completed, but parts of it were finished by his son Floris V, of which the Ridderzaal (Knights' Hall), still extant, is the most prominent. It is still used for political events, such as the annual speech from the

throne by the monarch. From the 13th century on the counts of Holland used The Hague as their administrative centre and residence when in Holland.

Name and status

The Hague is first mentioned as 'Die Hage' in a document dating from 1242. In the fifteenth century the more formal 'des Graven hage' came into use, literally "the count's wood", with connotations like "the count's hedge, private enclosure or hunting grounds". 's Gravenshage was officially used for the city from the 17th century on. Nowadays this name is only used in official documents. The city itself uses "Den Haag" in all its other communications.

When the Dukes of Burgundy gained control over the counties of Holland and Zeeland at the beginning of the 15th century, they appointed a stadtholder to rule in their stead with the States of Holland as an advisory council. Their seat was located in The Hague. At the beginning of the Eighty Years' War, the absence of city walls proved disastrous, as it allowed Spanish troops easily to occupy the town. In 1575 the States of Holland even considered demolishing the city, but this proposal was abandoned, after mediation by William of Orange. From 1588 The Hague also became the location of the government of the Dutch Republic. In order for the administration to maintain control over city matters, The Hague never received official city status (although it did have many of the privileges normally granted only to cities). However, since the days of King Louis Napoleon (1806) The Hague has been allowed to call itself a city.

After the Napoleonic Wars, modern-day Belgium and the Netherlands were combined in the United Kingdom of the Netherlands to form a buffer against France. As a compromise, Brussels and The Hague alternated as capital every two years, with the government remaining in The Hague. After the separation of Belgium in 1830, Amsterdam remained the capital of the Netherlands, while the government was situated in The Hague. Since early times, probably as far back as the 16th century, the stork has been the symbol of The Hague.

Modern city

Because of its history, the historical inner city of The Hague differs in various respects from the nearby smaller cities of Leiden and Delft. It does not have a cramped inner city, bordered by canals and walls. Instead it has some small streets in the town centre that may be dated from the late Middle Ages, and several spacious streets boasting rich 18th century houses built for diplomats and affluent Dutch families. It has a large church dating from the 15th century, an impressive City Hall (built as such) from the 16th century, several large 17th-century palaces, a 17th-century Protestant church built in what was then a modern style, and many important 18th-century buildings. When the government started to play a more prominent role in Dutch society after 1850, The Hague quickly expanded. Many streets were specifically built for the large number of civil servants employed in the country's government and for the Dutchmen who were retiring from the administration and exploitation of the Netherlands East Indies. The growing city annexed the rural municipality of Loosduinen partly in 1903 and completely in 1923.

Parts of the city sustained heavy damage during World War II. The Atlantic Wall was built through part of the city, causing a large quarter to be torn down by the Nazi occupants. On March 3, 1945, the Royal Air Force mistakenly bombed the Bezuidenhout quarter. The target was an installation of V-2 rockets in a nearby park. Because of navigational errors, the bombs fell on a heavily populated and historic part of the city. 511 people died and the scars in the city may still be seen today.

After the war The Hague was at one point the largest building site in Europe. The city expanded massively to the southwest. The destroyed areas were also quickly rebuilt. The population peaked at 600,000 inhabitants around 1965. In the 1970s and 1980s many, mostly white, middle class families moved to neighbouring towns like Voorburg, Leidschendam, Rijswijk and, most of all, Zoetermeer. This led to the traditional pattern of an impoverished inner city and more prosperous suburbs. Attempts to include parts of these municipalities in the city of The Hague were highly controversial. In the 1990s, with the consent of Dutch Parliament, The Hague annexed fairly large areas from neighbouring towns as well as from not even bordering ones, on which complete new residential areas were built and are still being built.

Cityscape

City life concentrates around the Hofvijver and the Binnenhof, where the Parliament is located. The city has a limited student culture due to its lack of an actual university[1], although the Royal Conservatory of The Hague is located there, as well as The Hague University, a vocational university and a branch of The Open University of the Netherlands. The city has many civil servants and diplomats. In fact, the number and variety of foreign residents (especially the expatriates) makes the city quite culturally diverse, with many foreign pubs, shops and cultural events.

The Hague is the largest Dutch city on the North Sea and includes two distinct beach resorts. The main beach resort Scheveningen, in the northwestern part of the city, is a popular destination for tourists as well as for inhabitants. With 10 million visitors a year, it is the most popular beach town in the Benelux. Kijkduin, in the southwest, is The Hague's other beach resort. It is significantly smaller and attracts mainly local residents.

The former Dutch colony of Netherlands East Indies ("Nederlands-Indië", now Indonesia) has left its mark on The Hague. Since the 19th century high level civil servants from the Dutch East Indies often spent long term leave and vacation in The Hague. Many streets are named after places in the Netherlands East Indies (as well as other former Dutch colonies such as Suriname) and there is a sizable "Indo" (i.e. mixed Dutch-Indonesian) community. Since the loss of these Dutch possessions in December 1949, "Indo people" also known as "Indische people" often refer to The Hague as "the Widow of the Indies".

The older parts of the town have many characteristically wide and long streets. Houses are generally low-rise (often not more than three floors). A large part of the southwestern city was planned by the progressive Dutch architect H.P. Berlage about 1910. This 'Plan Berlage' decided the spacious and homely streets for several decades. In World War II a large part of western The Hague was destroyed by the Germans. Afterwards, modernist architect W.M. Dudok planned its renewal, putting apartment blocks for the middle class in open, park-like settings.

The layout of the city is more spacious than other Dutch cities, and because of the incorporation of large and old nobility estates, the creation of various parks and the use of green zones around natural streams, it is a much more green city than any other in the Netherlands. That is, excepting some mediaeval close-knitted streets in the centre. There are only a few canals in The Hague, as most of these were drained in the late 19th century.

Some of the most prosperous and some of the poorest neighbourhoods of the Netherlands can be found in The Hague. The wealthier areas (Statenkwartier, Belgisch Park, Marlot, Benoordenhout and Archipelbuurt) are generally located in the northwest part of the city; however, the Vogelwijk and

several very recently built quarters like Vroondaal are in the southwest, not far from the sea. Poorer areas like Transvaal, Moerwijk, and the Schilderswijk can be found in the southeastern areas, or near the coast in Scheveningen (Duindorp). This division is reflected in the local accent: The more affluent citizens are usually called "Hagenaars" and speak so-called "bekakt Haags" ("Bekakt" is Dutch for "posh" or "stuck-up"). This contrasts with the "Hagenezen", who speak "plat Haags" ("plat" meaning "common" or "vulgar"). The tallest building is the 142-metre-tall Hoftoren.

Geography
The Hague has eight official districts (*stadsdelen*). They are divided into smaller parts (*wijken*).

See Districts of The Hague for a detailed breakdown.

- Escamp
- Haagse Hout
- Laak
- Leidschenveen-Ypenburg
- Loosduinen
- The Hague Center
- Scheveningen
- Segbroek

Demographics
Origin of citizens of The Hague in 2011:
Population of The Hague on 1 September 2011 500,000 inhabitants and are with that the third city of the Netherlands. The proportion of immigrants in The Hague 49% and ethnic Dutch 51%. On 1 January 2011 The Hague 241,000 immigrants counted: 73,000 of Western origin and 168,000 with Other non-western.

International relations
The city contributes substantially to international politics: The Hague is home to over 150 international organizations. These include the International Court of Justice (ICJ), the International Criminal Court (ICC), the International Criminal Tribunal for the former Yugoslavia (ICTY), and the Appeals Chamber of the International Criminal Tribunal for Rwanda (ICTR).

The foundation of The Hague as an "international city of peace and justice" was laid in 1899, when the world's first Peace Conference took place in The Hague on Tobias Asser's initiative, followed by a second in 1907. A direct result of these meetings was the establishment of the world's first organization for the settlement of international disputes: the Permanent Court of Arbitration (PCA). Shortly thereafter the Scottish-American millionaire Andrew Carnegie made the necessary funds available to build the Peace Palace ("Vredespaleis") to house the PCA.

After the establishment of the League of Nations, The Hague became the seat of the Permanent Court of International Justice, which was replaced by the UN's International Court of Justice after the Second World War. The establishment of the Iran-US Claims Tribunal (1981), the International Criminal Tribunal for the former Yugoslavia (1993) and the International Criminal Court (2002) in the city further consolidated the role of The Hague as a center for international legal arbitration. Most recently, on 1 March 2009, a U.N. tribunal to investigate and prosecute suspects in the 2005 assassination of Lebanese

Prime Minister Rafik Hariri opened in the former headquarters of the Netherlands General Intelligence Agency in Leidschendam, a town within the greater The Hague area.

The Hague is the fourth major center for the UN, after New York, Geneva and Vienna. In line with the city's history as an important convention center and the current presence of institutions such as the ICJ, The Hague's city council employs a city branding strategy that aims to establish The Hague as the Legal Capital of the World and the International City of Peace and Justice.

Major international organizations based in The Hague include:

- Eurojust, European Union body composed of national prosecutors
- European Police Office, (Europol)
- Hague Academy of International Law, center for high-level education in both public and private international law
- Hague Conference on Private International Law, (HCCH), the oldest and preeminent private international law harmonization institution
- International Court of Justice, located in the Peace Palace
- International Criminal Court, (ICC)
- International Criminal Tribunal for the Former Yugoslavia, (ICTY)
- International Criminal Tribunal for Rwanda (ICTR, appeals court only). The tribunal itself is in Arusha, Tanzania.
- Iran-United States Claims Tribunal
- Unrepresented Nations and Peoples Organization

- NATO Consultation, Command and Control Agency, (NC3A)
- Organisation for the Prohibition of Chemical Weapons, (OPCW)
- Permanent Court of Arbitration, the oldest institution for international dispute resolution.
- The European Library

Many academic institutions in the fields of international relations, international law and international development are based in The Hague. The Hague Academic Coalition (HAC) is a consortium of those institutions.

Its member institutions are:

- Carnegie Foundation
- Hague Institute for the Internationalisation of Law (HiiL)
- International Institute of Social Studies of Erasmus University Rotterdam (ISS)
- Leiden University College The Hague
- Netherlands Institute of International Relations 'Clingendael'
- The Hague Academy of International Law
- The Hague University of Applied Sciences (Haagse Hogeschool)
- T.M.C. Asser Instituut

In 1948 The Hague Congress was held with 750 delegates from 26 European countries, providing them with the opportunity to discuss ideas about the development of the European Union.

Business
Professional life in The Hague is dominated by the large number of civil servants and diplomats who work in the city. Government ministries and public institutions are almost all located in The Hague. It is also home to several large international businesses, including:

- AEGON, one of the world's leading insurance companies
- APM Terminals, the world's second largest container terminal operator
- KPN (Koninklijke PTT Nederland), the Dutch national telephone company (fixed and mobile divisions)
- ING Investment Management, an asset management company that is part of the ING Group
- Nationale Nederlanden, an insurance company that is part of the ING Group (shared HQ with Rotterdam)
- Royal Dutch Shell, the world's second largest international energy company
- Schlumberger, the world's largest oilservice company maintains a principal office there (along with Houston and Paris)
- Siemens A.G., Europe's largest engineering company has its Dutch headquarters there
- T-Mobile, a mobile network operator, part of Deutsche Telekom.
- PostNL a mail, parcel and e-commerce corporation with operations in the Netherlands, Germany, Italy, and the United Kingdom.

There has never been any large-scale industrial activity in The Hague, with the possible exception of the fishing harbour in Scheveningen. Many of the city's logistical and minor-industrial services are located in the Binckhorst (Laak district), which contains many large warehouses.

The Hague has its share of museums and cultural institutions:

- Madurodam is a miniature city, containing hundreds of scale-models of Dutch landmarks in a typically Dutch miniature landscape.
- The Mauritshuis exhibits many paintings by Dutch masters, such as Johannes Vermeer, Rembrandt van Rijn and Paulus Potter.
- The Escher Museum is located in the former Royal Palace on the Lange Voorhout.
- The Haags Historisch museum showcases the history of the city from the Middle Ages to the present day.
- The Museum Bredius houses part of the collection of 19th century art historian Abraham Bredius, containing antique furniture, silverware and porcelain.
- Museum Gevangenpoort (lit. the "Prison Gate") is a former prison housed in a 15th century gatehouse, with genuine mediaeval dungeons and torture chambers.
- The Gemeentemuseum (Municipal museum) is home to the world's largest collection of works by the Dutch painter Piet Mondriaan as well as other modern art.
- The Museon is an interactive and historical science museum.
- The Omniversum is Europe's first 360° IMAX-cinema.
- Panorama Mesdag houses a cylindrical 360° "panoramic" painting, 14 meters high by 120 meters long, depicting the sea-front at Scheveningen in the late 19th century, made by Hendrik Willem Mesdag. It is presented in such a way that it is almost as if one is looking at a real scene rather than a painting.
- The Museum voor Communicatie (formerly the "PTT Museum") is the national postal museum and houses interactive exhibits as well as one of the country's best collections of stamps.
- The Louis Couperus Museum is devoted to the life and works of Louis Couperus (1863–1923).

- The museum Beelden aan Zee in Scheveningen has a large collection of sculptures, mainly from the 20th century artists.
- The Koninklijke Schouwburg ("Royal Theatre"), located on the Korte Voorhout, is the home of the "Nationaal Toneel" ("National theatre-group").
- The Lucent Danstheater is home to the internationally celebrated Nederlands Dans Theatre, a modern dance company. The building was designed by the Dutch architect Rem Koolhaas in 1988. It shares a lobby with the Anton Philipszaal, home of the Residentie Orkest, the city's most important symphony orchestra.
- New European Ensemble is an ensemble for contemporary music consisting on international musicians. The ensemble has it's main base in the city.
- Paard van Troje is located in The Hague and is one of the 10 biggest music venues in the Netherlands focused on popular music.
- Muziekcafé de Paap is located in The Hague and famous for its live music. Some of the biggest Dutch artists are discovered here.

Other tourist attractions and landmarks in The Hague include:

- The historic Binnenhof ("Inner Court") and Medieval Ridderzaal ("Knights' Hall"), which now contains the Houses of Parliament and government offices. A good view can be obtained from the leafy Lange Vijverberg on the other side of the adjacent lake called the "Hofvijver" (lit. "Court Pond").
- The Lange Voorhout is a wide avenue containing many splendid houses (now home to several embassies) as well as The Hague's oldest and narrowest house and the famous "Hotel des Indes", the city's most luxurious hotel.
- "De Passage" (pronounced as in French) was the Netherlands' first covered shopping mall. Dating from the late 19th century, it contains many expensive and speciality shops.
- The "Paleis Noordeinde" has been Queen Beatrix' official work-palace since 1984. It is closed to the public, but the Palace Gardens ("Paleistuin") are accessible to the public.
- The Clingendael Park is an old landed estate with a Japanese Garden. Nearby one can also find the home of the Clingendael Institute of International Relations.
- Queen Beatrix' residential Palace, "Paleis Huis ten Bosch", can be found a little outside the city centre in the "Haagse Bosch" forest.

The Hague does not have the customary metropolitan reputation for a bustling night life, with some festivity exceptions in the course of the year. This is partly explained by the city's lack of a university and hence student life. Night life centers around the three main squares in the city center: the *Plein* (literally "Square"), the *Grote Markt* (literally "Great Market") and the *Buitenhof* (literally the "Outer Court", which lies just outside the Binnenhof). The Plein is taken by several large sidewalk cafés where often politicians may be spotted. The Grote Markt is completely strewn with chairs and tables, summer or winter. The Buitenhof contains the popular Pathé Buitenhof cinema and a handful of bars and restaurants in the immediate vicinity. A similar pattern of night life centers on the cinema in Scheveningen, although, especially in summer, night life concentrates around the sea-front boulevard with its bars, restaurants and gambling halls.

Transportation

The Hague shares an airport with Rotterdam. It can be reached from Central Station by RandstadRail Line E, with an Airport Shuttle to and from Meijersplein Station. However, with several direct trains per

hour from the railway stations Hollands Spoor and Centraal, Amsterdam Airport Schiphol is more frequently used by people travelling to and from The Hague by air.

There are two main train stations in The Hague: Den Haag Hollands Spoor (HS) and Den Haag Centraal Station (CS), only 1.5 km distant from each other. Because these two stations were built and exploited by two different railway companies in the 19th century, east-west lines terminate at Centraal Station, whereas north-south lines run through Hollands Spoor. The international Benelux trains to Brussels call only at Hollands Spoor. Centraal Station does, however, now offer good connections with the rest of the country, with direct services to most major cities, for instance Amsterdam, Rotterdam and Utrecht.

Public transport in The Hague consists of a tramway network and a sizeable number of bus routes, operated by HTM Personenvervoer. Plans for a subway were shelved in the early 1970s. However, in 2004 a tunnel was built under the city centre with two underground tram stations ("Spui" and "Grote Markt"); it is shared by tram routes 2, 3, 4 and 6.

A regional light rail system called RandstadRail connects The Hague to nearby cities, Zoetermeer and Rotterdam. The system suffered from startup problems and derailings in 2006, but is fully operational now.

Major motorways connecting to The Hague include the A12, running to Utrecht and the German border. The A12 runs directly into the heart of the city in a cutting. Built in the 1970s, this section of motorway (the "Utrechtsebaan") is now heavily overburdened. Plans were made in the late 1990s for a second artery road into the city (the "Trekvliettracé" or previously called "Rotterdamsebaan") but have continually been put on hold. Other connecting motorways are the A4, which connects the city with Amsterdam, and the A13, which runs to Rotterdam and connects to motorways towards the Belgian border. There is also the A44 that connects the city to Leiden, Haarlem and Amsterdam.

Amsterdam (Wikipedia)

Province: North Holland

Area	
Municipality/city	85 sq mi
Land	64 sq mi
Water	20 sq mi
Metro	701 sq mi

Amsterdam is the largest city and the capital of the Netherlands. The city's status as the capital of the nation is governed by the constitution. Amsterdam has a population of 783,364 within city limits, an urban population of 1,209,419 and a metropolitan population of 2,158,592. The city is located in the province of North Holland in the west of the country. It comprises the northern part of the Randstad, one of the larger conurbations in Europe, with a population of approximately 7 million.

Amsterdam's name is derived from *Amstelredamme*, indicative of the city's origin: a dam in the river Amstel. Settled as a small fishing village in the late 12th century, Amsterdam became one of the most important ports in the world during the Dutch Golden Age, a result of its innovative developments in trade. During that time, the city was the leading center for finance and diamonds. In the 19th and 20th centuries, the city expanded, and many new neighborhoods and suburbs were formed. The 17th-century canals of Amsterdam (in Dutch: 'Grachtengordel'), located in the heart of Amsterdam, were added to the UNESCO World Heritage List in July 2010.

As Netherlands' commercial capital and one of the top financial centres in Europe, Amsterdam is considered an alpha world city by the Globalization and World Cities (GaWC) study group. The city is also cultural capital of the Netherlands. Many large Dutch institutions have their headquarters there, and 7 of the world's top 500 companies, including Philips and ING, are based in the city. In 2010, Amsterdam was ranked 13th globally on quality of living by Mercer, and previously ranked 3rd in innovation by 2thinknow in the Innovation Cities Index 2009.

The Amsterdam Stock Exchange, the oldest stock exchange in the world, is located in the city center. Amsterdam's main attractions, including its historic canals, the Rijksmuseum, the Van Gogh Museum, Stedelijk Museum, Hermitage Amsterdam, Anne Frank House, Amsterdam Museum, its red-light district, and its many cannabis coffee shops draw more than 3.66 million international visitors annually.

History

The earliest recorded use of the name "Amsterdam" is from a certificate dated 27 October 1275, when the inhabitants, who had built a bridge with a dam across the Amstel, were exempted from paying a bridge toll by Count Floris V. The certificate describes the inhabitants as *homines manentes apud Amestelledamme* (people living near *Amestelledamme*). By 1327, the name had developed into *Aemsterdam*. Amsterdam's founding is relatively recent compared with much older Dutch cities such as Nijmegen, Rotterdam, and Utrecht. In October 2008, historical geographer Chris de Bont suggested that the land around Amsterdam was being reclaimed as early as the late 10th century. This does not

necessarily mean that there was already a settlement then since reclamation of land may not have been for farming—it may have been for peat, used as fuel.

Amsterdam was granted city rights in either 1300 or 1306. From the 14th century on, Amsterdam flourished, largely because of trade with the Hanseatic League. In 1345, an alleged Eucharistic miracle in the Kalverstraat rendered the city an important place of pilgrimage until the adoption of the Protestant faith. The *Stille Omgang*—a silent procession in civil attire—is today a remnant of the rich pilgrimage history.

In the 16th century, the Dutch rebelled against Philip II of Spain and his successors. The main reasons for the uprising were the imposition of new taxes, the tenth penny, and the religious persecution of Protestants by the Spanish Inquisition. The revolt escalated into the Eighty Years' War, which ultimately led to Dutch independence. Strongly pushed by Dutch Revolt leader William the Silent, the Dutch Republic became known for its relative religious tolerance. Jews from the Iberian Peninsula, Huguenots from France, prosperous merchants and printers from Flanders, and economic and religious refugees from the Spanish-controlled parts of the Low Countries found safety in Amsterdam. The influx of Flemish printers and the city's intellectual tolerance made Amsterdam a centre for the European free press

The 17th century is considered Amsterdam's *Golden Age*, during which it became the wealthiest city in the world. Ships sailed from Amsterdam to the Baltic Sea, North America, and Africa, as well as present-day Indonesia, India, Sri Lanka, and Brazil, forming the basis of a worldwide trading network. Amsterdam's merchants had the largest share in both the Dutch East India Company and the Dutch West India Company. These companies acquired overseas possessions that later became Dutch colonies. Amsterdam was Europe's most important point for the shipment of goods and was the leading Financial Centre of the world. In 1602, the Amsterdam office of the Dutch East India Company became the world's first stock exchange by trading in its own shares.

Amsterdam lost over 10% of its population to plague in 1623–1625, and again in 1635–1636, 1655, and 1664. Nevertheless, the population of Amsterdam rose in the 17th century (largely through immigration) from 50,000 to 200,000.

Amsterdam's prosperity declined during the 18th and early 19th centuries. The wars of the Dutch Republic with England and France took their toll on Amsterdam. During the Napoleonic Wars, Amsterdam's significance reached its lowest point, with Holland being absorbed into the French Empire. However, the later establishment of the United Kingdom of the Netherlands in 1815 marked a turning point.

The end of the 19th century is sometimes called Amsterdam's second Golden Age. New museums, a train station, and the Concertgebouw were built; in this same time, the Industrial Revolution reached the city. The Amsterdam-Rhine Canal was dug to give Amsterdam a direct connection to the Rhine, and the North Sea Canal was dug to give the port a shorter connection to the North Sea. Both projects dramatically improved commerce with the rest of Europe and the world. In 1906, Joseph Conrad gave a brief description of Amsterdam as seen from the seaside, in *The Mirror of the Sea*. Shortly before the First World War, the city began expanding, and new suburbs were built. Even though the Netherlands remained neutral in this war, Amsterdam suffered a food shortage, and heating fuel became scarce. The shortages sparked riots in which several people were killed. These riots are known as the *Aardappeloproer* (Potato rebellion). People started looting stores and warehouses in order to get supplies, mainly food

Germany invaded the Netherlands on 10 May 1940 and took control of the country. Some Amsterdam citizens sheltered Jews, thereby exposing themselves and their families to the high risk of being imprisoned or sent to concentration camps. More than 100,000 Dutch Jews were deported to Nazi concentration camps. Perhaps the most famous deportee was the young Jewish girl Anne Frank, who died in the Bergen-Belsen concentration camp. At the end of the Second World War, communication with the rest of the country broke down, and food and fuel became scarce. Many citizens traveled to the countryside to forage. Dogs, cats, raw sugar beets, and Tulip bulbs—cooked to a pulp—were consumed to stay alive. Most of the trees in Amsterdam were cut down for fuel, and all the wood was taken from the apartments of deported Jews.

From left to right and top to bottom: Rijksmuseum Amsterdam, statue in the Vondelpark, Keizersgracht, Zuiderkerk, Royal Palace Amsterdam, ING house.

Many new suburbs, such as Osdorp, Slotervaart, *Slotermeer*, and *Geuzenveld*, were built in the years after the Second World War. These suburbs contained many public parks and wide, open spaces, and the new buildings provided improved housing conditions with larger and brighter rooms, gardens, and balconies. Because of the war and other incidents of the 20th century, almost the entire city centre had fallen into disrepair. As society was changing, politicians and other influential figures made plans to redesign large parts of it. There was an increasing demand for office buildings and new roads as the automobile became available to most common people. A metro started operating in 1977 between the new suburb of Bijlmer and the centre of Amsterdam. Further plans were to build a new highway above the metro to connect the Central Station and city centre with other parts of the city.

The incorporated large-scale demolitions began in Amsterdam's formerly Jewish neighbourhood. Smaller streets, such as the *Jodenbreestraat*, were widened and saw almost all of their houses demolished. During the destruction's peak, the *Nieuwmarktrellen* (Nieuwmarkt riots) broke out, where people expressed their fury about the demolition caused by the restructuring of the city.

As a result, the demolition was stopped, and the highway was never built, with only the metro being finished. Only a few streets remained widened. The new city hall was built on the almost completely demolished *Waterlooplein*. Meanwhile, large private organisations, such as *Stadsherstel Amsterdam*,

were founded with the aim of restoring the entire city centre. Although the success of this struggle is visible today, efforts for further restoration are still ongoing. The entire city centre has reattained its former splendor and, as a whole, is now a protected area. Many of its buildings have become monuments, and in July 2010 the *Grachtengordel* (Herengracht, Keizersgracht, and Prinsengracht) was added to the UNESCO World Heritage List.

Geography

Amsterdam is part of the province of North-Holland and is located in the west of the Netherlands next to the provinces of Utrecht and Flevoland. The river Amstel terminates in the city centre and connects to a large number of canals that eventually terminate in the IJ. Amsterdam is situated 2 metres above sea level. The surrounding land is flat as it is formed of large polders. To the southwest of the city lies a man-made forest called *het Amsterdamse Bos*. Amsterdam is connected to the North Sea through the long North Sea Canal. Amsterdam is intensely urbanized, as is the Amsterdam metropolitan area surrounding the city. Comprising 219.4 square kilometres of land, the city proper has 4,457 inhabitants per km^2 and 2,275 houses per km^2. Parks and nature reserves make up 12% of Amsterdam's land area.

Climate

Amsterdam has an oceanic climate (Köppen climate classification *Cfb*), strongly influenced by its proximity to the North Sea to the west, with prevailing westerly winds. Winters are mild. Amsterdam, as well as most of the North-Holland province, lies in USDA Hardiness zone 8b, the northernmost such occurrence in continental Europe. Frosts mainly occur during spells of easterly or northeasterly winds from the inner European continent. Even then, because Amsterdam is surrounded on three sides by large bodies of water, as well as having a significant heat-island effect, nights rarely fall below −5 °C (23 °F), while it could easily be −12 °C (10 °F) in Hilversum, 25 kilometres southeast. Summers are moderately warm but rarely hot. The average daily high in August is 22.1 °C (71.8 °F), and 30 °C (86 °F) or higher is only measured on average on 2.5 days, placing Amsterdam in AHS Heat Zone 2. The record extremes range from −24 °C (−11 °F) to 36.8 °C (98.2 °F). Days with measurable precipitation are common, on average 187 days per year. Amsterdam's average annual precipitation is 915 millimetres (36.0 in). A large part of this precipitation falls as light rain or brief showers. Cloudy and damp days are common during the cooler months of October through March.

Cityscape and architecture

Amsterdam fans out south from the Amsterdam Centraal railway station. The Damrak is the main street and leads into the street Rokin. The oldest area of the town is known as *de Wallen* (the quays). It lies to the east of Damrak and contains the city's famous red light district. To the south of de Wallen is the old Jewish quarter of Waterlooplein. The 17th century canals of Amsterdam, known as the *Grachtengordel*, embraces the heart of the city where homes have interesting gables. Beyond the Grachtengordel are the former working class areas of Jordaan and de Pijp. The Museumplein with the city's major museums, the Vondelpark, a 19th century park named after the Dutch writer Joost van den Vondel, and the Plantage neighbourhood, with the zoo, are also located outside the Grachtengordel.

Several parts of the city and the surrounding urban area are polders. This can be recognised by the suffix *-meer* which means *lake*, as in Aalsmeer, Bijlmermeer, Haarlemmermeer, and Watergraafsmeer.

The Amsterdam canal system is the result of conscious city planning. In the early 17th century, when immigration was at a peak, a comprehensive plan was developed that was based on four concentric half-circles of canals with their ends emerging at the IJ bay. Known as the *Grachtengordel*, three of the canals were mostly for residential development: the *Herengracht* (where "Heren" refers to *Heren*

Regeerders van de stad Amsterdam (ruling lords of Amsterdam), and *gracht* means canal, so the name can be roughly translated as "Canal of the lords"), *Keizersgracht* (Emperor's Canal), and *Prinsengracht* (Prince's Canal). The fourth and outermost canal is the *Singelgracht*, which is often not mentioned on maps, because it is a collective name for all canals in the outer ring. The Singelgracht should not be confused with the oldest and most inner canal *Singel*. The canals served for defence, water management and transport. The defences took the form of a moat and earthen dikes, with gates at transit points, but otherwise no masonry superstructures.[41] The original plans have been lost, so historians, such as Ed Taverne, need to speculate on the original intentions: it is thought that the considerations of the layout were purely practical and defensive rather than ornamental.

Construction started in 1613 and preceded from west to east, across the breadth of the layout, like a gigantic windshield wiper as the historian Geert Mak calls it – and *not* from the centre outwards, as a popular myth has it. The canal construction in the southern sector was completed by 1656. Subsequently, the construction of residential buildings proceeded slowly. The eastern part of the concentric canal plan, covering the area between the Amstel river and the IJ bay, has never been implemented. In the following centuries, the land was used for parks, senior citizens' homes, theatres, other public facilities, and waterways without much planning. Over the years, several canals have been filled in, becoming streets or squares, such as the Nieuwezijds Voorburgwal and the Spui

Expansion
After the development of Amsterdam's canals in the 17th century, the city did not grow beyond its borders for two centuries. During the 19th century, Samuel Sarphati devised a plan based on the grandeur of Paris and London at that time. The plan envisaged the construction of new houses, public buildings and streets just outside the *grachtengordel*. The main aim of the plan, however, was to improve public health. Although the plan did not expand the city, it did produce some of the largest public buildings to date, like the *Paleis voor Volksvlijt*.

Following Sarphati, *Van Niftrik* and *Kalff* designed an entire ring of 19th century neighbourhoods surrounding the city's centre, with the city preserving the ownership of all land outside the 17th century limit, thus firmly controlling development. Most of these neighbourhoods became home to the working class.
In response to overcrowding, two plans were designed at the beginning of the 20th century which were very different from anything Amsterdam had ever seen before: *Plan Zuid*, designed by the architect Berlage, and *West*. These plans involved the development of new neighbourhoods consisting of *housing blocks* for all social classes.

After the Second World War, large new neighbourhoods were built in the western, southeastern, and northern parts of the city. These new neighbourhoods were built to relieve the city's shortage of living space and give people affordable houses with modern conveniences. The neighbourhoods consisted mainly of large housing blocks situated among green spaces, connected to wide roads, making the neighbourhoods easily accessible by motor car. The western suburbs which were built in that period are collectively called the *Westelijke Tuinsteden*. The area to the southeast of the city built during the same period is known as the *Bijlmer.*

Architecture

Amsterdam has a rich architectural history. The oldest building in Amsterdam is the Oude Kerk (Old Church), at the heart of the Wallen, consecrated in 1306. The oldest wooden building is *het Houten Huys* at the Begijnhof. It was constructed around 1425 and is one of only two existing wooden buildings. It is also one of the few examples of Gothic architecture in Amsterdam.

In the 16th century, wooden buildings were razed and replaced with brick ones. During this period, many buildings were constructed in the architectural style of the Renaissance. Buildings of this period are very recognisable with their stepped gable façades, which is the common Dutch Renaissance style. Amsterdam quickly developed its own Renaissance architecture. These buildings were built according to the principles of the architect Hendrick de Keyser. One of the most striking buildings designed by Hendrick de Keyer is the Westerkerk. In the 17th century baroque architecture became very popular, as it was elsewhere in Europe. This roughly coincided with Amsterdam's Golden Age. The leading architects of this style in Amsterdam were Jacob van Campen, Philip Vingboons and Daniel Stalpaert.

Philip Vingboons designed splendid merchants' houses throughout the city. A famous building in baroque style in Amsterdam is the Royal Palace on Dam Square. Throughout the 18th century, Amsterdam was heavily influenced by French culture. This is reflected in the architecture of that period. Around 1815, architects broke with the baroque style and started building in different neo-styles. Most Gothic style buildings date from that era and are therefore said to be built in a neo-gothic style. At the end of the 19th century, the Jugendstil or Art Nouveau style became popular and many new buildings were constructed in this architectural style. Since Amsterdam expanded rapidly during this period, new buildings adjacent to the city centre were also built in this style. The houses in the vicinity of the Museum Square in Amsterdam Oud-Zuid are an example of Jugendstil. The last style that was popular in Amsterdam before the modern era was Art Deco. Amsterdam had its own version of the style, which was called the Amsterdamse School. Whole districts were built this style, such as the *Rivierenbuurt*. A notable feature of the façades of buildings designed in Amsterdamse School is that they are highly decorated and ornate, with oddly shaped windows and doors.

The old city centre is the focal point of all the architectural styles before the end of the 19th century. Jugendstil and Georgian are mostly found outside the city's centre in the neighbourhoods built in the early 20th century, although there are also some striking examples of these styles in the city centre. Most historic buildings in the city centre and nearby are houses, such as the famous merchants' houses lining the canals.

Government

The administration of the municipality of Amsterdam is divided into 15 boroughs or *stadsdelen*; the central one, Centrum, being circled by Westerpark, Bos en Lommer, De Baarsjes, Oud-West, Oud-Zuid, Oost/Watergraafsmeer, Zeeburg and Amsterdam-Noord, with the six outer boroughs (Westpoort, Geuzenveld-Slotermeer, Osdorp, Slotervaart, Zuideramstel, and Zuidoost) creating a further encirclement. On 1 May 2010, the number of boroughs was reduced to eight (Centrum, Noord, Oost, Zuid, West, Nieuw-West, Zuidoost, and Westpoort).

City government
As with all Dutch municipalities, Amsterdam is governed by a mayor, aldermen, and the municipal council. However, unlike most other Dutch municipalities, Amsterdam is subdivided into seven "stadsdelen" (boroughs), a system that was implemented in the 1980s to improve local governance. The stadsdelen are responsible for many activities that had previously been run by the central city. The city had initially been divided into 15 stadsdelen. 14 of those had their own council, chosen by a popular election. The 15th, Westpoort, covers the harbour of Amsterdam, had very few residents, and was governed by the central municipal council. Local decisions are made at borough level, and only affairs pertaining to the whole city, such as major infrastructure projects, are handled by the central city council.

National government
Amsterdam is the capital of the Netherlands in a technical legal sense. The present version of the Dutch constitution mentions "Amsterdam" and "capital" only in one place, chapter 2, article 32: The king's confirmation by oath and his coronation take place in "the capital Amsterdam" ("*de hoofdstad Amsterdam*"). Previous versions of the constitution spoke of "the city of Amsterdam" ("*de stad Amsterdam*"), without mention of capital. In any case, the seat of the government, parliament and supreme court of the Netherlands is (and always has been, with the exception of a brief period between 1808 and 1810) located at The Hague. Foreign embassies are also in The Hague. The capital of North Holland is Haarlem.

Economy
Amsterdam is the financial and business capital of the Netherlands. Amsterdam is currently one of the best European cities in which to locate an International Business. It is ranked fifth in this category and is only surpassed by London, Paris, Frankfurt and Barcelona. Many large corporations and banks have their headquarters in Amsterdam, including Royal Bank of Scotland, Akzo Nobel, Heineken International, ING Group, Ahold, TomTom, *Delta Lloyd Group* and Philips. KPMG International's global headquarters is located in nearby Amstelveen, where many non-Dutch companies have settled as well, because surrounding communities allow full land ownership, contrary to Amsterdam's land-lease system.

Though many small offices are still located on the old canals, companies are increasingly relocating outside the city centre. The Zuidas (English: South Axis) has become the new financial and legal hub. The five largest law firms of the Netherlands, a number of Dutch subsidiaries of large consulting firms like Boston Consulting Group and Accenture, and the World Trade Center Amsterdam are also located in Zuidas.
There are three other smaller financial districts in Amsterdam. The first is the area surrounding Amsterdam Sloterdijk railway station, where several newspapers like De Telegraaf have their offices. Also, the municipal public transport company (*Gemeentelijk Vervoersbedrijf*) and the Dutch tax offices (*Belastingdienst*) are located there. The second Financial District is the area surrounding Amsterdam Arena. The third is the area surrounding Amsterdam Amstel railway station. The tallest building in Amsterdam, the Rembrandt Tower, is situated there, as is the headquarters of Philips.
The Amsterdam Stock Exchange (AEX), nowadays part of Euronext, is the world's oldest stock exchange and is one of Europe's largest bourses. It is situated near Dam Square in the city's centre.

Tourism
Amsterdam is one of the most popular tourist destinations in Europe, receiving more than 4.63 million international visitors annually, this is excluding the 16 million day trippers visiting the city every year.

The number of visitors has been growing steadily over the past decade. This can be attributed to an increasing number of European visitors. Two thirds of the hotels are located in the city's centre. Hotels with 4 or 5 stars contribute 42% of the total beds available and 41% of the overnight stays in Amsterdam. The room occupation rate was 78% in 2006, up from 70% in 2005. The majority of tourists (74%) originate from Europe. The largest group of non-European visitors come from the United States, accounting for 14% of the total. Certain years have a theme in Amsterdam to attract extra tourists. For example, the year 2006 was designated "Rembrandt 400", to celebrate the 400th birthday of Rembrandt van Rijn. Some hotels offer special arrangements or activities during these years. The average number of guests per year staying at the four campsites around the city range from 12,000 to 65,000.

Demographics

Amsterdam has a population of 783,364 inhabitants. On 1 January 2011, the ethnic makeup of Amsterdam was 49.7% Dutch and 50.3% foreigners. In the 16th and 17th century non-Dutch immigrants to Amsterdam were mostly Huguenots, Flemings, Sephardi Jews and Westphalians. Huguenots came after the Edict of Fontainebleau in 1685, while the Flemish Protestants came during the Eighty Years' War. The Westphalians came to Amsterdam mostly for economic reasons – their influx continued through the 18th and 19th centuries. Before the Second World War, 10% of the city population was Jewish.

The first mass immigration in the 20th century were by people from Indonesia, who came to Amsterdam after the independence of the Dutch East Indies in the 1940s and 1950s. In the 1960s guest workers from Turkey, Morocco, Italy and Spain emigrated to Amsterdam. After the independence of Suriname in 1975, a large wave of Surinamese settled in Amsterdam, mostly in the Bijlmer area. Other immigrants, including refugees asylum seekers and illegal immigrants, came from Europe, America, Asia, and Africa. In the 1970s and 1980s, many 'old' Amsterdammers moved to 'new' cities like Almere and Purmerend, prompted by the third planological bill of the Dutch government. This bill promoted suburbanisation and arranged for new developments in so called "groeikernen", literally "cores of growth". Young professionals and artists moved into neighbourhoods de Pijp and the Jordaan abandoned by these Amsterdammers. The non-Western immigrants settled mostly in the social housing projects in Amsterdam-West and the Bijlmer. Today, people of non-Western origin make up approximately one-third of the population of Amsterdam, and more than 50% of children.
The largest religious group are Christians, who are divided between Roman Catholics and Protestants. The next largest religion is Islam, most of whose followers are Sunni.

Transport

In the city centre, driving a car is discouraged. Parking fees are expensive, and many streets are closed to cars or are one-way. The local government sponsors carsharing and carpooling initiatives such as *Autodelen* and *Meerijden.nu*.

Public transport in Amsterdam mainly consists of (night) bus and tram lines operated by Gemeentelijk Vervoerbedrijf. Regional buses, and some suburban buses, are operated by Connexxion and Arriva. Currently, there are 16 different tram lines, and four metro lines, with a fifth line, the North/South line, under construction. Three free ferries carry pedestrians and cyclists across the IJ to Amsterdam-Noord, and two fare-charging ferries run east and west along the harbour. There are also water taxis, a water

bus, a boat sharing operation, electric rental boats (Boaty) and canal cruises, that transport people along Amsterdam's waterways.

The A10 ringroad surrounding the city connects Amsterdam with the Dutch national network of freeways. Interchanges on the A10 allow cars to enter the city by transferring to one of the 18 *city roads*, numbered S101 through to S118. These city roads are regional roads without grade separation, and sometimes without a central reservation. Most are accessible by cyclists. The S100 *Centrumring* is a smaller ringroad circumnavigating the city's center.
Amsterdam was intended in 1932 to be the hub, a kind of Kilometre Zero, of the highway system of the Netherlands,[91] with freeways numbered one through eight planned to originate from the city.[91] The outbreak of the Second World War and shifting priorities led to the current situation, where only roads A1, A2, and A4 originate from Amsterdam according to the original plan. The A3 road to Rotterdam was cancelled in 1970 in order to conserve the Groene Hart. Road A8, leading north to Zaandam and the A10 Ringroad were opened between 1968 and 1974. Besides the A1, A2, A4 and A8, several freeways, such as the A7 and A6, carry traffic mainly bound for Amsterdam.

Amsterdam is served by ten stations of the Nederlandse Spoorwegen (Dutch Railways). Five are intercity stops: Sloterdijk, Zuid, Amstel, Bijlmer ArenA and Amsterdam Centraal. The stations for local services are: Lelylaan, RAI, Holendrecht, Muiderpoort and Science Park. Amsterdam Centraal is also an international train station. From the station there are regular services to destinations such as Austria, Belarus, Belgium, the Czech Republic, Denmark, France, Germany, Hungary, Poland, Russia and Switzerland. Among these trains are international trains of the Nederlandse Spoorwegen and the Thalys(Amsterdam-Brussels-Paris-Cologne), CityNightLine, and InterCityExpress
Eurolines has coaches from Amsterdam Amstel railway station to destinations all over Europe.

Amsterdam Airport Schiphol is less than 20 minutes by train from Amsterdam Central Station. It is the biggest airport in the Netherlands, the fifth largest in Europe, and the twelfth largest in the world in terms of passengers. It handles about 46 million passengers per year and is the home base of four airlines, KLM, transavia.com, Martinair and Arkefly. Schiphol was, in 2010, the fourth busiest airport in the world measured by international passengers.

Amsterdam is one of the most bicycle-friendly large cities in the world and is a centre of bicycle culture with good facilities for cyclists such as bike paths and bike racks, and several guarded bike storage garages (Fietsenstalling) which can be used for a nominal fee. In 2006, there were about 465,000 bicycles in Amsterdam. Theft is widespread – in 2005, about 54,000 bicycles were stolen in Amsterdam. Bicycles are used by all socio-economic groups because of their convenience, Amsterdam's small size, the 400 km of bike paths, the flat terrain, and the arguable inconvenience of driving an automobile.

Rotterdam (Wikipedia)

Province: South Holland
Area:

Municipality / City	123 sq mi
Land	80 sq mi
Water	44 sq mi

Population (1 November 2011)

Municipality / City	616,003
Density	7,400/sq mi
Metro	1,211,523

Rotterdam is the second-largest city in the Netherlands and one of the largest ports in the world. Starting as a dam constructed in 1270 on the Rotte River, Rotterdam has grown into a major international commercial centre. Its strategic location at the Rhine-Meuse-Scheldt delta on the North Sea and at the heart of a massive rail, road, air and inland waterway distribution system extending throughout Europe is the reason that Rotterdam is often called the "Gateway to Europe".

Located in the Province of South Holland, Rotterdam is found in the west of the Netherlands and at the south end of the Randstad. The population of the city proper was 616,003 in November 2011. The population of the greater Rotterdam area, called "Rotterdam-Rijnmond" or just "Rijnmond", is around 1.3 million people. Rotterdam is one of Europe's most vibrant, multicultural cities. The city is known for its university (Erasmus), its cutting-edge architecture, its lively cultural life, its striking riverside setting, its maritime heritage and the Rotterdam Blitz.

The largest port in Europe and still one of the busiest ports in the world, the port of Rotterdam was the world's busiest port from 1962 to 2004, at which point it was surpassed by Shanghai. Rotterdam's commercial and strategic importance is based on its location near the mouth of the Nieuwe Maas (New Meuse), one of the channels in the delta formed by the Rhine and Meuse on the North Sea. These rivers lead directly into the centre of Europe, including the industrial Ruhr region. Rotterdam is currently bidding to host the 2018 Summer Youth Olympics.

History
Settlement at the lower end of the fen stream *Rotte* (or *Rotta*, as it was then known, from *rot*, 'muddy' and *a*, 'water', thus 'muddy water') dates from at least 900 CE. Around *1150*, large floods in the area ended development, leading to the construction of protective dikes and dams, including *Schielands Hoge Zeedijk* ('Schieland's High Sea Dike') along the northern banks of the present-day Nieuwe Maas. A dam on the Rotte or 'Rotterdam' was built in the 1260s and was located at the present-day *Hoogstraat* ('High Street').

On 7 July 1340, Count Willem IV of Holland granted city rights to Rotterdam, which then had approximately 2000 inhabitants. Around 1350 a shipping canal, the *Rotterdamse Schie* was completed, which provided Rotterdam access to the larger towns in the north, allowing it to become a local transshipment centre between Holland, England and Germany, and to urbanize.
The port of Rotterdam grew slowly but steadily into a port of importance, becoming the seat of one of the six 'chambers' of the *Vereenigde Oostindische Compagnie* (VOC), the Dutch East India Company.

The greatest spurt of growth, both in port activity and population, followed the completion of the *Nieuwe Waterweg* in 1872. The city and harbor started to expand on the south bank of the river. The *Witte Huis* or *White House* skyscraper,[4] inspired by American office buildings and built in 1898 in the French Chateau-style, is evidence of Rotterdam's rapid growth and success. When completed, it was the tallest office building in Europe, with a height of 45 m (147.64 ft).

During World War II, the German army invaded the Netherlands on 10 May 1940. Adolf Hitler had hoped to conquer the country in just one day, but his forces met unexpectedly fierce resistance. The Dutch army was finally forced to capitulate on 14 May 1940, following Hitler's bombing Rotterdam and threatening to bomb other Dutch cities. The heart of Rotterdam was almost completely destroyed by the Luftwaffe; 900 civilians were killed and 80,000 made homeless. The City Hall survived the bombing. Ossip Zadkine later strikingly captured the event with his statue *De Verwoeste Stad* ('The Destroyed City'). The statue stands near the *Leuvehaven*, not far from the Erasmusbrug in the centre of the city, on the north shore of the river *Nieuwe Maas*.

Rotterdam was gradually rebuilt from the 1950s through the 1970s. It remained quite windy and open until the city councils from the 1980s on began developing an active architectural policy. Daring and new styles of apartments, office buildings and recreation facilities resulted in a more 'livable' city centre with a new skyline. In the 1990s, the *Kop van Zuid* was built on the south bank of the river as a new business centre.

Rotterdam Blitz

The **Rotterdam Blitz** refers to the aerial bombardment of Rotterdam by the German Air Force on 14 May 1940, during the German invasion of the Netherlands in World War II. The objective was to support the German troops fighting in the city, break Dutch resistance and force the Dutch to surrender. Even though negotiations were successful, failing communications on the German side caused the unnecessary bombardment of much of the city centre.

Prelude

The Netherlands was strategically lodged between Great Britain and Germany, making it an ideal prospective German air and naval "base" during Operation Sea Lion, the planned invasion of the British Isles that was to follow the forthcoming aerial Battle of Britain. It had firmly opted for neutrality throughout the First World War and had planned to do the same for the Second World War. It most notably refused to accept armaments from France, making the case that they wanted no association with either side. While armament production was slightly increased after the invasion of Denmark in April 1940, the Netherlands possessed 35 modern wheeled AFVs, no tracked AFVs, 135 aircraft and 280,000 soldiers, while Germany had 159 tanks, 1,200 modern aircraft and around 150,000 soldiers at their disposal [for the Dutch theatre only].[1]

With a significant military advantage, Germany prepared to use their 'Blitzkrieg' tactics, by first taking control of key military and strategic targets, such as airfields, bridges and roads and then using these to take over control of the remainder of the country. An invasion of the Netherlands was first made reference to on 9 October 1939, when Hitler ordered that "Preparations should be made for offensive action on the northern flank of the Western Front crossing the area of Luxembourg, Belgium and the Netherlands. This attack must be carried out as soon and as forcefully as possible."[2] Preparation was started when Hitler ordered German army officers to capture Dutch army uniforms and use them to gain insider information on Dutch defence tactics.[3]

Germany finally attacked the Netherlands in the early hours of 10 May 1940. The attack started with the Luftwaffe crossing through Dutch airspace, giving the impression that Britain was the ultimate target. Instead, the aircraft turned around over the North Sea and returned to attack from the west, dropping paratroopers at Valkenburg and Ockenburg airfields, near the Dutch seat of government and the Royal Palace in The Hague, starting the Battle for the Hague. While Germany had planned to take over swiftly using this tactic, the Dutch halted the advance at the core region of Fortress Holland, slowing down the German invasion.

Battle for Rotterdam
The situation in Rotterdam on the morning of 13 May 1940 was a stalemate as it had been over the past three days. Dutch garrison forces under Colonel Scharroo held the north bank of the Nieuwe Maas river, which runs through the city and prevented the Germans from crossing; German forces included airlanding and airborne forces of General Student and newly-arrived ground forces under General Schmidt, based on the 9th *Panzer* Division and the *Leibstandarte Adolf Hitler*, a motorized SS regiment.

A Dutch counterattack led by a Dutch marine company had failed to recapture the Willemsbrug traffic bridge, the key crossing. Several efforts by the Dutch Army Aviation Brigade to destroy the bridge also failed.

On the Morning of 14 May, Hitler issued his "Weisung" Nr. 11. Concerning the Dutch theatre of operations he says the following:
"The resistance capability of the Dutch army has proved to be stronger than expected. Political as well as military reasons demand that this resistance is broken as soon as possible. It is the task of the army to capture the Fortress Holland by committing enough forces from the south, combined with an attack on the east front. In addition to that the air force must, while weakening the forces that up till now have supported the 6th Army, facilitate the rapid fall of the Fortress Holland."

Gen. Schmidt had planned a combined assault the next day, 14 May, using tanks of the 9th *Panzer* supported by flame throwers, SS troops and combat engineers. The airlanding troops were to make an amphibious crossing of the river upstream and then a flank attack through the Kralingen district. The attack was to be preceded by artillery bombardment, while Gen. Schmidt had requested the support of the *Luftwaffe* in the form of a *Gruppe* (about 25 aircraft) of Ju-87 Stuka dive-bombers, specifically for a precision raid.
Schmidt's request for air support reached Berlin, staff of Luftflotte 2. Instead of precision bombers, Schmidt got carpet bombing by Heinkel He 111 bombers besides a Gruppe of Stuka's focussing on some strategic targets

The bombing
Schmidt used the threat of destruction of the city to attempt to force Colonel Scharroo to surrender the city. Rotterdam, the largest industrial target in the Netherlands and of major strategic importance to the Germans, was to be bombed. Scharroo refused and stretched out negotiations. The start of the air raid had been set for 13:20 [Dutch time, MET – 1 hr 40].
Schmidt postponed a second ultimatum to 16:20. However, just as the Dutch negotiator was crossing the Willemsbrug to relay this information, the drone of bombers was heard: a total of 90 bombers from *Kampfgeschwader 54* (54th Bomber Regiment) were sent over the city.

Student radioed to postpone the planned attack. When the message reached KG 54's command post, the Kommodore, Oberst Walter Lackner, was already approaching Rotterdam and his aircraft had

reeled-in their long-range aerials. Haze and smoke obscured the target, to ensure that Dutch defences were hit Lackner brought his formation down to 2,300 ft (700m). German forces in the city fired flares to warn the bombers off — after 3 planes of the southern formation had already unloaded, the remaining 24 from the southern bomber formation aborted their attack. The larger formation came from the north-east, out of position to spot red flares launched from the south side of the city, and proceeded with their attack. 54 He 111s dropped low to release 97 tonnes (213,848 lbs) of bombs, mostly in the heart of the city

Why the formation had not received the abort order sooner remains controversial. *Oberst* Lackner of the largest formation claimed that his crews were unable to spot red flares due to bad visibility caused by humidity and dense smoke of burning constructions and subsequently needed to decrease altitude to a mere 2,000 feet. But the red flare, which Lackner failed to see, might have also been used by the Germans to show their location in the city to avoid friendly fire. An official German form designated red as the colour for that purpose.

In total, 1,150 x 50 kg (110 lb) and 158 x 250 kg (550 lb) bombs were dropped, mainly in the residential areas of Kralingen and the medieval city centre. Most of these hit and ignited buildings, resulting in uncontrollable fires that worsened the following days when the wind grew fiercer and the fires emerged into a firestorm. Hooton states that bombs ignited vegetable oil tanks on the dockside, which caused fires that spread into the city centre, causing massive devastation. Although exact numbers are not known, nearly 1,000 people were killed and 85,000 made homeless. Around 2.6 square kilometres (1.0 sq mi) of the city was almost levelled. 24,978 homes, 24 churches, 2,320 stores, 775 warehouses and 62 schools were destroyed. Schmidt sent a conciliatory message to the Dutch commander General Winkelman, who surrendered shortly afterwards, at Rijsoord, a village southeast of Rotterdam. The school where the Dutch signed their surrender was later turned into a small museum.

The Dutch military had no effective means of stopping the bombers (the Dutch Air Force had practically ceased to exist and its anti-aircraft guns had been moved to The Hague), so when another similar ultimatum was given in which the Germans threatened to bomb the city of Utrecht, the Dutch government decided to capitulate rather than risk the destruction of another city. Western news agencies grossly exaggerated the event for propaganda purposes, portraying Rotterdam as a city mercilessly destroyed by terror bombing without regard to civilian life, with 30,000 dead lying under the ruins. The number of casualties 'lying under the ruins' was relatively small, because thousands of civilians had fled to safer parts of Rotterdam, or to other cities, during the previous four days of bombing and warfare. German weekly *Die Mühle* (The windmill) stated that the Dutch government was to blame for turning Rotterdam into a fortress, despite multiple summons to evacuate. It also claimed that the old city was ignited by Dutch bombs and incendiary devices.

The United Kingdom had had a policy of only bombing military targets and infrastructure such as ports and railways which were of military importance. While it was acknowledged that bombing of Germany would cause civilian casualties, the British government renounced the deliberate bombing of civilian property, outside combat zones (which after the fall of Poland, meant German areas east of the Rhine) as a military tactic. This policy was abandoned on 15 May 1940, one day after the Rotterdam Blitz, when the RAF was directed to attack targets in the Ruhr, including oil plants and other civilian industrial targets which aided the German war effort, such as blast furnaces that at night were self-illuminating. The first RAF raid on the interior of Germany took place on the night of 15/16 May 1940.

The destroyed city, sculpture in Rotterdam by Ossip Zadkin

Air raids 1940-1945

After the Luftwaffe bombardment of 14 May the city endured several air raids and shootings by allied air force during the German occupation of the Netherlands. 128 known air raids on Rotterdam and its surroundings were carried out by the RAF and the United States Army Air Force (USAAF). Around half of these attacks were directed at targets within the city limits of Rotterdam. The rest was mainly aimed at targets near Pernis (petrochemical industries and fuel storage tanks), at the shipyards in Schiedam and the area of the Nieuwe Waterweg. During these air raids 884 people died and 631 people were wounded.

Geography

'Rotterdam' is divided into a northern and a southern part by the river Nieuwe Maas, connected by (from west to east): the Beneluxtunnel; the Maastunnel; the *Erasmusbrug* ('Erasmus Bridge'); a subway tunnel; the *Willemsspoortunnel* ('Willems railway tunnel'); the *Willemsbrug* ('Willems Bridge'); the *Koninginnebrug* ('Queen's Bridge'); and the *Van Brienenoordbrug* ('Van Brienenoord Bridge'). The former railway lift bridge *De Hef* ('the Lift') is preserved as a monument in lifted position between the *Noordereiland* ('North Island') and the south of Rotterdam.

The city centre is located on the northern bank of the Nieuwe Maas, although recent urban development has extended the center to parts of southern Rotterdam known as *De Kop van Zuid* ('the Head of South', i.e. the northern part of southern Rotterdam). From its inland core, Rotterdam reaches the North Sea by a swathe of predominantly harbour area.

Built mostly behind dikes, large parts of the Rotterdam are below sea level. For instance, the Prins Alexander Polder in the northeast of Rotterdam extends 6 metres below sea level, or rather below Normal Amsterdams Peil (NAP) or 'Amsterdam Ordnance Datum'. The lowest point in the Netherlands (6.76 metres (22.2 ft) below NAP) is situated just to the east of Rotterdam, in the municipality of Nieuwerkerk aan den IJssel.
The Rotte river no longer joins the Nieuwe Maas directly. Since the early 1980s, when the construction of Rotterdam's second subway line interfered with the Rotte's course, its waters have been pumped through a pipe into the Nieuwe Maas via the Boerengat.

Conurbations

Rotterdam is located at the southern end of the Randstad. Having a population of 6.7 million, the Randstad is the sixth-largest metropolitan area in Europe (after Moscow, London, the Ruhr Area, Istanbul, and Paris).
The southern part of the Randstad (i.e. the part located in the Province of South Holland) is called the "South Wing" (Zuidvleugel). Including Leiden, The Hague, Zoetermeer, Delft, Vlaardingen, Schiedam, Capelle aan den IJssel, Spijkenisse and Dordrecht, the Zuidvleugel has a population of around 3 million. At the heart of the Zuidvleugel are the conurbations surrounding The Hague and Rotterdam. They are close enough to be almost a single conurbation with a population of about 2.5 million. They share the

Rotterdam The Hague Airport and a light rail system called RandstadRail. Consideration is being given to creating a Rotterdam-The Hague metropolitan area (*metropoolregio*).

Overall the demographics differ per city area. According to a recent area analysis, the city centre has a singles population of 70%, between the age of 20 and 40, considerably more than other city areas. Also the city centre has a much larger population of people with higher education and higher income. Nonetheless, 80% of the homes are rented, not owned. City centre also has a higher percentage (51% vs 45%) of foreign-born citizens (Dutch: Allochtonen). The majority (70%) of shops are also run by foreign-born citizens.

Ethnic make-up
Figures are from 2011:

- Total: 610,386
- Dutch: 319,265 (52.3%)
- Surinamese: 51,885 (8.5%)
- Turkish: 45,699 (7.5%)
- Moroccan: 37,476 (6.1%)
- Antillean / Aruban: 19,562 (3.2%)
- European immigrants: 67,371 (11.0%)
- Other: 61,504 (10.1%)

In the Netherlands, Rotterdam has the highest percentage of foreigners from non-industrialised nations. They form a large part of Rotterdam's multi ethnic and multicultural diversity. 47.7% of the population are of non Dutch origins or have at least one parent born outside the country. There are 80,000 Muslims, constituting 13% of the population. The mayor of Rotterdam, Ahmed Aboutaleb, is of Moroccan descent and is a practicing Muslim. The city is home to the largest Dutch Antillean community. The city also has its own China Town at the (West-) Kruiskade, close to the central railway station.

Commerce and Industry
Rotterdam has always been one of the main centers of the shipping industry in the Netherlands. From the Rotterdam Chamber of the VOC, the worlds first multinational, established in 1602, to the merchant shipping leader Royal Nedlloyd established in 1970, with its corporate headquarters located in the landmark building the 'Willemswerf' in 1988. In 1997 Nedlloyd merged with the British shipping industry leader P&O forming the third largest merchant shipping company in the world. The anglo-Dutch P&O Nedlloyd was bought by the Danish giant corporation 'AP Moller Maersk' in 2005 and its Dutch operations are still head quartered in the 'Willemswerf'. Rotterdam is also home to the Dutch half of the anglo-Dutch consumer goods giant Unilever, and Mittal Steel Company N.V., subsidiary of Luxembourg-based Arcelor Mittal, the world's largest steel company.

The Erasmus University has a strong focus on research and education in management and economics. The University is located on the east side of the city and is surrounded by numerous multinational firms. On Brainpark I, Brainpark II, Brainpark III and *Het Rivium* are located offices of major multinationals. In the center of the city are the above-mentioned Unilever offices, but also Robeco, Fortis (including Mees Pierson and Stad Rotterdam Verzekeringen), ABN AMRO, ING (Nationale Nederlanden), the Rotterdam WTC, and the before mentioned Maersk Line who incorporates the Dutch merchant marine legacy.

The City of Rotterdam makes use of the services of semi-government companies Roteb (to take care of sanitation, waste management and assorted services) and the Port of Rotterdam Authority (to maintain the Port of Rotterdam). Both these companies were once municipal bodies, now they are autonomous entities, owned by the City.
Being the largest port and one of the largest cities of the country, Rotterdam attracts many seeking for a job, especially in the cheap labour segment. The city's unemployment rate is 8.5%, twice the national average.

Ports
Rotterdam has the largest port in Europe, with the rivers Meuse and Rhine providing excellent access to the hinterland upstream reaching to Basel, Switzerland and into France. In 2004 Shanghai took over as the world's busiest port. In 2006, Rotterdam was the world's seventh largest container port in terms of twenty-foot equivalent units (TEU) handled.[9]

The port's main activities are petrochemical industries and general cargo handling and transshipment. The harbour functions as an important transit point for bulk materials and between the European continent and overseas. From Rotterdam goods are transported by ship, river barge, train or road. In 2007, the *Betuweroute*, a new fast freight railway from Rotterdam to Germany, was completed.

In 1872, the Nieuwe Waterweg ('New Waterway') opened, a ship canal constructed to keep the city and port of Rotterdam accessible to seafaring vessels as the natural Meuse-Rhine channels silted up. The canal proper measures approximately 6.5 kilometres (4.0 mi) from the western tips of its protruding dams to the Maeslantkering ('Maeslant Barrier'). Many maps, however, include the Scheur as part of the Nieuwe Waterweg, leading to a length of approximately 19.5 kilometres (12.1 mi).

In the first half of the twentieth century, the port's center of gravity shifted westward towards the North Sea. Covering 105 square kilometres (41 sq mi), the port of Rotterdam now stretches over a distance of 40 kilometres (25 mi). It consists of the city center's historic harbor area, including Delfshaven; the Lloydkwartier; the Maashaven/Rijnhaven/Feijenoord complex; the harbors around Nieuw-Mathenesse; Waalhaven; Vondelingenplaat; Eemhaven; Botlek; Europoort, situated along the Calandkanaal, Nieuwe Waterweg and Scheur (the latter two being continuations of the Nieuwe Maas); and the reclaimed Maasvlakte area, which projects into the North Sea.

The construction of a second Maasvlakte received initial political approval in 2004, but was stopped by the Raad van State (the Dutch Council of State, which advises the government and parliament on legislation and governance) in 2005, because the plans did not take enough account of environmental issues. On 10 October 2006, however, approval was acquired to start construction in 2008, aiming for the first ship to anchor in 2013.

Education
Rotterdam has one major university, the Erasmus University Rotterdam (EUR), named after one of the city's famous former inhabitants, Desiderius Erasmus. The Woudestein campus houses (among others) Rotterdam School of Management, Erasmus University. In Financial Times' 2005 rankings it placed 29th globally and 7th in Europe. In the 2009 rankings of Masters of Management, the school reached first place with the CEMS Master in Management and a tenth place with its RSM Master in Management. The university is also home to Europe's largest student association, STAR Study Association Rotterdam School of Management, Erasmus University and the world's largest student association, AIESEC, has its international office in the city.

The Willem de Kooning Academy Rotterdam's main art school, which is part of the Hogeschool Rotterdam. It is regarded as one of the most prestigious art schools in the Netherlands and the number 1 in Advertising and Copywriting. Part of the Willem de Kooning Academy is the Piet Zwart Institute for postgraduate studies and research in Fine Art, Media Design and Retail Design. The Piet Zwart Institute boasts a selective roster of emerging international artists.

The Hoboken campus of EUR houses the Dijkzigt (general) hospital, the Sophia Hospital (for children) and the Medical Department of the University. These are known collectively as the Erasmus Medical Center, which is ranked third worldwide for medical research, behind the Harvard University and Johns Hopkins University. The Erasmus Medical Center ranks as the top European institution in clinical medicine according to the Times Higher Education rankings. As a combined medical treatment and research center it is particularly noted for its patient cohort studies in which large numbers of patients are followed for long periods of time.

There are also three *Hogescholen* (Universities of applied sciences) in Rotterdam. These schools award their students a professional Bachelor's degree and postgraduate or Master's degree. The three *Hogescholen* are Hogeschool Rotterdam, Hogeschool INHOLLAND and Hogeschool voor Muziek en Dans (uni for music and dance) which is also known as CodArts

Culture
Alongside Porto, Rotterdam was European Capital of Culture in 2001. The city has its own orchestra, the Rotterdam Philharmonic, with its well-regarded young music director Yannick Nézet-Séguin; a large congress and concert building called *De Doelen*; several theaters (including the new *Luxor*) and movie theatres; and the *Ahoy* complex in the south of the city, which is used for pop concerts, exhibitions, tennis tournaments, and other activities. A major zoo called Diergaarde Blijdorp is situated at the northwest side of Rotterdam, complete with a walkthrough sea aquarium called the Oceanium. The city is home to the Willem de Kooning Academy and Piet Zwart Institute.

Rotterdam is currently going through a sort of renaissance, with some urban architecture projects, a nightlife, and many summer festivals celebrating the city's multicultural population and identity, such as the Caribbean-inspired "Summer Carnival", the Dance Parade, Rotterdam 666, the Metropolis pop festival and the World Port days. In the years 2005-2011 the city struggled with venues for popmusic. Many of the venues suffered severe financial problems. This resulted in the disappearance of the major music venues Nighttown and WATT and smaller stages such as Waterfront, Exit, and Heidegger. Currently the city has a few venues for pop music like Rotown, Poortgebouw. The venue WORM focuses on experimental music and related cutting edge subcultural music. There are also the International Film Festival in January, the Poetry International Festival in June, the North Sea Jazz Festival in July, the Valery Gergiev Festival in September, September in Rotterdam and the World of the Witte de With. In June 1970, The Holland Pop Festival (which featured Jefferson Airplane, The Byrds, Canned Heat, It's a Beautiful Day, and Santana) was held and filmed at the Stamping Grounds in Rotterdam.

The self-image of the city is that of a no-nonsense workers' city. In that sense, there is a healthy competition with Amsterdam, which is often viewed as the cultural capital of the Netherlands. There is a saying: "Amsterdam to party, Den Haag (The Hague) to live, Rotterdam to work". Another one, more popular by Rotterdammers, is "Money is earned in Rotterdam, divided in The Hague and spent in Amsterdam". Another saying that reflects both the rivalry between Rotterdam and Amsterdam is "Amsterdam has it, Rotterdam doesn't need it".
Rotterdam has had a rich hiphop music scene since the early 1980s. It is also the home of Gabber, a type

of hardcore electronic music popular in the mid-1990s, with hard beats and samples. Groups like Neophyte and Rotterdam Terror Corps (RTC) started in Rotterdam.

The main cultural organisations in Amsterdam, such as the Concertgebouw and Holland Festival, have joint forces with similar organisations in Rotterdam, via A'R'dam. In 2007 these organisations published with plans for co-operation. One of the goals is to strengthen the international position of culture and art in the Netherlands in the international context.

Museums

Rotterdam has many museums. Well known museums are the *Boijmans-van Beuningen* Museum, the *NAi* (Netherlands Architecture Institute), the *Volkenkundig Museum* (foreign peoples and cultures), the *Kunsthal* (design by Rem Koolhaas),the center for contemporary art Witte de With, the *Maritime Museum* and the *Brandweermuseum* (Fire brigade museum). The *Historisch Museum* (Historical museum) has two buildings: the Dubbelde Palmboom and the Schielandshuis. Other museums include the tax museum and the nature historical museum. At the historical shipyard and museum Scheepswerf 'De Delft' the reconstruction of ship of the line *Delft* can be visited.

Architecture and skyline

In 1898, the 45 meter high-rise office building the White House (in Dutch Witte Huis) was completed, at that time the tallest office building in Europe. In the first decades of the 20th century, some influential architecture in the modern style was built in Rotterdam. Notable are the Van Nelle fabriek (1929) a monument of modern factory design by Brinkman en Van der Vlugt, the Jugendstil clubhouse of the Royal Maas Yacht Club designed by Hooijkaas jr. en Brinkman (1909), and Feyenoord's football stadium De Kuip (1936) also by Brinkman en Van der Vlugt. The architect J. J. P. Oud was a famous Rotterdammer in those days. During the early stages of World War II the center of Rotterdam was bombed by the Germans, destroying many of the older buildings in the center of the city. After initial crisis re-construction the center of Rotterdam has become the site of ambitious new architecture.

Rotterdam is also famous for its Kubuswoningen or cube houses built by architect Piet Blom in 1984. In addition to that there are many international well known architects based in Rotterdam like O.M.A (Rem Koolhaas), MVRDV, Neutelings & Riedijk and Erick van Egeraat to name a few.

Rotterdam houses several of the tallest structures in the Netherlands.

- The Erasmusbrug (1996) is a 790-meter (2,600 ft) cable stayed bridge linking the north and south of Rotterdam. It is held up by a 138 metres (453 ft) tall pylon with a characteristic bend, earning the bridge its nickname 'De Zwaan' ('the Swan').
- Rotterdam has the tallest residential building in the Netherlands: the New Orleans Tower (158.35 metres (519.5 ft)).
- Rotterdam is also home to the tallest office building 'Maastoren' (164.75 m (540.5 ft)) which houses Deloitte. This office tower surpassed the 'Delftse Poort' (160 m (520 ft)) which houses Nationale-Nederlanden insurance company, part of ING Group as tallest office tower in 2009.
- The city also houses the 186 metres (610 ft) tall Euromast, which has long been a major tourist attraction. It was built in 1960, initially reaching a height of 101 metres (331 ft); in 1970, the Euromast was extended by 85 metres (279 ft) to its current height.

Rotterdam has a reputation in being a platform for architectural development and education through the Berlage Institute, a postgraduate laboratory of architecture, and the NAi (Netherlands Architecture Institute), which is open to the public and has a variety of good exhibitions on architecture and urban planning issues. Rotterdam is standing in the best European SkylineTop together with Frankfurt, London, Madrid, Paris, Warsaw and Moscow. Over 30 new highrise projects are being developed at the moment. Two architectural landmarks are located in the Lloydkwartier: the STC college building and the Schiecentrale 4b.

The flood of 1953. (information from Deltaworks.com)

Before the flood of 1953

Years before the disaster of 1953, experts had already warned that something had to be done about the condition of the dikes. Nevertheless, the flood occurred. It is a mystery why nobody had listened to the advice given by the experts. The condition of the dikes will be discussed in the following paragraphs.

Condition of the dikes

In 1929, the Department of Waterways and Public Works (Rijkswaterstaat) started the "Study service of rivers, sea arms and coasts" (Studiedienst van de Benedenrivieren, Zeearmen en Kusten). In its first years, this service mostly studied the encouragement of shipping traffic. Later, the service got involved with studying the conditions and water turning capacities of the dikes. In 1934, the service studied the consequences of impoldering the 'Biesbosch'. Research showed that the consequences for Dordrecht would be disastrous - almost all the dikes appeared to be too low. A report from 1928 had already stated that the dikes in West-Brabant did not meet the safety requirements, but nobody felt like spending a vast amount of money on raising the dikes. Both surveys showed that something definitely had to be done about the condition of the dikes along the rivers.
Mr. Muralt invented a cheap way to solve the problem. He suggested raising the dikes by building concrete walls of a few centimetres high on top of the dikes. In particular, in Schouwen and Zuid-Beveland, 120 kilometres of dikes were raised between 1906 and 1935, by building the so-called 'Muralt walls'.

High water levels in 1943

In 1943, the water level was extremely high. The water ran over the dikes in many places. Again, further research was conducted to check the heights and widths of the dikes, and just like before, the outcome was not good at all. The dikes were proven seriously defective and according to the Department of Waterways and Public Works, severe problems following a high storm tide were highly likely.

WW II

The outbreak of the Second World War meant the plans to improve the condition of the dikes around Dordrecht were not carried out. The Storm tide commission, founded in 1939, discontinued its research during the Second World War. The Department of Waterways and Public Works therefore did not really receive the commission's plans with open arms. The department preferred to focus its attention on the reclamation of the Zuyderzee, thus reclaiming more land. More land meant more space for agriculture and habitation, and this would yield money.
During the Second World War, Zeeland suffered a tremendous amount of damage. Dikes were bombed and land was flooded in an attempt to chase away the Germans. Repairs to the landscape started in March 1945 and in February 1946 all the gaps were filled in. These unforeseen repairs also helped distract the attention away from raising the dikes.

Brackish problem

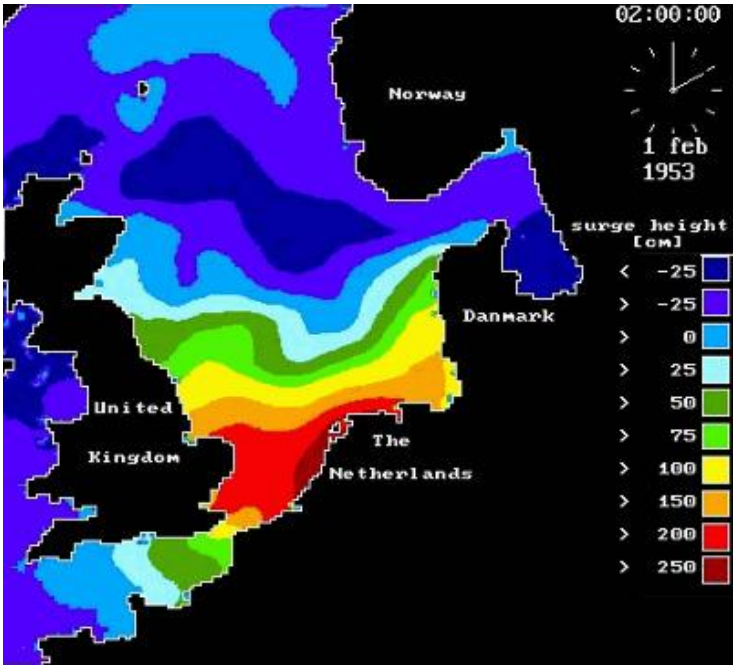
Meanwhile, the study service continued to emphasize the need for raising the dikes, but money was still a large problem. The agricultural sector in the Delta area had to deal with a 'brackish problem', which was costing farmers a lot of money, so the Department of Waterways and Public Works decided to focus their attention on this. Because of the deepened waterways near the coast, it was easier for the sea to come inland. As a result, the groundwater would get salty (brackish), which hampered arable farming. Many agricultural crops were unable to survive the brackish water and died. Various plans were drawn up as a consequent of the brackish problem, each with the same goal, which was to stop groundwater from becoming contaminated, and protect a large area of land from the storm tides. However, it was important for the 'Nieuwe Waterweg' ("New Waterway") to stay open, as it was vital for shipping traffic. Within these plans, dikes did not have the highest priority. It was far more important to close the Zuid-Sloe and Brielse Maas.

It is understandable that people were not too interested in spending money on improving the dikes. There had not been a flood in years and the money could be better spent keeping the agricultural sector going. The agricultural land that had been contaminated by salt received further attention, because crop failures were continuing to cost farmers a lot of money. The damages suffered during the Second World War still had to be repaired, and food shortages during the war further helped distract the attention from the condition of the dikes. To prevent food shortages, more farming land was required. Using improved techniques, it was possible to impolder and dike lower lands as well. Even more attention was taken away from the current unsafe dikes.
After the war, the reconstruction of the Netherlands began. Everything seemed to be running perfectly well again. Nevertheless, in 1953, it turns out that the sea was still lurking...

Climatic circumstances
Aside from the poor condition of the many dikes in the Delta area, the flood was largely due to an unfortunate combination of climatic circumstances.

On January the 30th, a depression to the south of Iceland arose. The depression increased and moved towards Scotland. By one o'clock that night, there was a large storm field behind the depression. Originally, the depression moved towards the east, but the north-westerly storm drove the depression in a south-easterly direction. Soon, the storm field covered the entire North Sea. The storm continued to get heavier near Scotland, and then in the afternoon of the 31st of January, a hurricane developed near the northeast coast. The hurricane moved towards the Netherlands, which, at that moment, had a high

tide. The high tide was intensified by the hurricane's influence and in some places within the Netherlands, water began to run over the dikes.



Via Denmark and the German curve, the storm got closer to the Dutch coast. On the night of the 31st of January, the storm over the North Sea got even stronger, reaching gales of force 11. The Dutch coast was being hit with force 10 winds.
The storm continued, and in the south-western Netherlands, wind speeds of force 9 were measured for 20 consecutive hours. The power of the storm drove the water so high that the water was unable to retreat away sufficiently. There was no ebb tide.

Shortly after midnight, the maximum whip up of the water was measured - the wind drove the water up to 3.1 metres. Three hours later, there was a spring tide. Through the combination of this spring tide, and the huge whipping up of the water, at 3h24, the highest recorded water level was reached - 4.55 metres above NAP (Normal Amsterdam Water Level).
The dikes were not designed to hold such high water levels, and around 3 o'clock that night, the first dikes broke through. The dikes at the polder side broke through first, since they were the least maintained. Reinforcements of the dikes were mainly done on the sea side, because it was expected the sea would cause the most damage there. However, things did not happen as expected. The water surged over the dikes and hollowed them out on the land side. The power of the sea was then enough to break them.

The dikes near Kortgene, Kruiningen and Oude Tonge were first to break, then the dikes near Willemstad, Heijningen, Fijnaart, Gravendeel, Strijen, and Numansdorp followed. Many more dikes failed and, in total, 89 dikes were broke through. The damages and breaches could be found over a total distance of 187 kilometres.

It could have however been much worse if the maximum whip up of the water had occurred during spring tide and not three hours later, as was the case. The water in the rivers was relatively low and the tide had not yet reached its maximum height, but still, the dikes broke through.

Devastating powers of the sea

Flooded areas of the sea

Many people were woken up that night because of the water. They were shut in their own homes and had to try to save themselves. Houses collapsed because of the awesome power of the water. Telephone and radio communications were cut off.

On the morning of February 1st, the tide was finally able to retreat and the water level dropped. Some people seized the opportunity to move to higher areas, while others continued to take refuge on the roofs of their houses. There were individual rescue operations taking place. Villagers in boats were looking for victims and helping them get to higher land. The severity of the situation was still not known to the outside world, due to the lost road connections. It therefore took a while before large-scale rescue operations got under way.

The situation worsened when there was a second flood in the afternoon of February 1st. This flood cost even more lives. Because the dikes had already been breached, the water flowed into the polders with ease. Many houses that survived the first flood collapsed during this one. People and livestock were swept away by the fast moving water. Drowning people grabbed desperately to anything they could that was also drifting in the water, hoping to either be saved or reach higher areas. For many people though, the help came too late; for others, another cold, dark night fell.

Rescue and consequences

The Groenendijk

After the collapse of numerous seawalls and dikes the dike at along the river Hollandse IJssel was all that remained to protect three million people in the extremely low laying area's of North and South Holland. Especially at a part called 'the Groenendijk', the situation became very critical. The section which wasn't reinforced with a stone layer was - despite attempts of volunteers to improve it - crumbling down.
At 5:30 AM in the morning of February 1 this caused it to break under the immense pressure of the water. With the gab widening and moving rapidly into Holland the mayor of Nieuwerkerk commandeered a ship called “de Twee Gebroeders” to be sailed into the hole and plug it that way. Captain Aire Evegroen successfully sailed his ship into the hole and lodged itself firmly into the dike.

Rescue

On Monday February 2nd, large-scale relief was slowly getting under way and the severity of the situation became clear. Reconnoitring helicopters flew over the disaster-hit area and started to drop supplies and sand bags. Aid from abroad was also offered. Belgium, England, the United States, Canada, Denmark, and France sent materials and soldiers. Cautiously, the first evacuations were started. On February 3rd, there were 12,000 men in harness, and by that night, the worst of the disaster was over. The storm had cleared and there are no more casualties. In some places, people were still stuck, but they would be rescued soon. Within a few days, the evacuations of the flooded and dangerous areas were completed and people were able to start inspecting the damage and begin restoring the dikes.

Consequences
The consequences of the flood were huge. 1,836 people died as a direct consequence of the flood. There were 846 casualties in the province of Zeeland, 247 in the province of North-Brabant, 677 in the province of South-Holland and 7 in the province of North-Holland. About 40 people died afterwards as a result of the flood. 200,000 cows, horses, pigs, and other cattle died in the water and almost 200,000 hectares of land was flooded. The contamination by the salty water meant that the once fertile soil was unusable for many years. 3,000 houses and 300 farms were destroyed and another 40,000 houses and 3,000 farms damaged. 72,000 people had to leave their houses and were evacuated to other areas.

In South-Holland, dikes were damaged over a distance of 91 kilometres and there were breaches over a distance of 17.5 kilometres. The breaches had a combined total length of 1 kilometre. In North-Brabant, over 10 kilometres had broken and there were breaches over a distance of 6.7 kilometres. In Zeeland, the breaches were nearly 3.5 kilometres wide and 38 kilometres of dike was damaged. Breaches could be found over a distance of 17.7 kilometres.

International

United Kingdom

Before the surge reached the Netherlands it already caused devastating disaster in the United Kingdom. Along its coastline more then 1.600 km of coastline and seawalls were damaged. At many places they breached, inundating 1,000 km². More then 24,000 properties were seriously damaged and over 30,000 people were forced to evacuate.
At Felixstowe in Suffolk many people were killed when their prefabricated homes were destroyed by the water. This caused the unfortunate death of 38 people. In Essex the damage was even bigger. Canvey Island was completely inundated. Over 58 lives were lost. The Seafront village of Jaywick near Clacton lost 37 inhabitants when I was flooded. In the United Kingdom a estimated 307 people died during the 1953 floods. Most of them drowned when their ferry the Princess Victoria sank at open sea. An estimate 224 lives were lost.

Belgium

Along the Belgium coast, fortunately the damage was smaller. Nevertheless over 4400 hectares of ground were inundated, mostly in the area around Antwerp. A total of 25 people lost their live in several smaller incidents along the Belgium coast.

Help from home and abroad
Both from the Netherlands itself and from abroad, aid goods continued to arrive. There was so much help that within a few days, warehouses were unable to store all the supplies. Besides, since some of the supplies were not suitable for the local needs, not all the support could be used. Therefore, on February 4th, the Red Cross requested people to stop sending clothes and furniture. For the remaining goods, other destinations were found. Some goods were sent to the isolated city of West Berlin, and some to Korea, where a war was being waged at the time.

Financial help for people in the flooded areas was needed well after the disaster. Eventually, 100% of the furniture of stricken families was replaced. For some people, this meant an improvement in lifestyle, compared to their situation before the flood. However, whether people were compensated financially or not, the emotional damage still remains today.

Recovery of the area afflicted

The flood disaster of 1953 eventually led to the understanding that the condition of the dikes needed to be improved at last. On the 4th of February 1953, Minister Drees announced that the restoration of the dikes would receive the highest priority. A Delta committee was appointed with Mr Maris, director of the Ministry of Waterways and Public Works, as the leader. In August 1953, the Delta committee gave advice for the restoration of which dikes needed to be repaired most urgently: the dike of Schouwen and the moveable storm surge barrier in the Dutch IJssel (Hollandse IJssel).

Meanwhile, volunteers and dike workers worked to close the gaps in the dikes. Within a week, 30,000 volunteers had registered to help repair the dikes. The Ministry of Waterways and Public Works led the restoration works, which was financed by the government.

Difficult start

The restoration work was divided between different parties. In North-Brabant, the regional board of the Ministry of Waterways and Public Works took care of the restoration, together with the Dike Improvement Department. In South-Holland, the largest part of the works was executed by the Provincial Ministry of Waterways and Public Works, whereas in Zeeland the Dike Restoration Department was appointed.
The conflicting opinions of the organisations meant a difficult start. The Dike Restoration Department, for instance, preferred to use caissons to close the gaps in the dikes. Caissons are large concrete blocks, which can stop the flow of water very quickly. Other parties preferred to close the dikes by means of clay and stone. Eventually, it was chosen to build so-called unit caissons: blocks that could be used in many different variations.

Difficult current gaps

By the beginning of April 1953, the largest part of the disaster area was already dry, but there were still some current gaps that were difficult to repair, such as those near Bath, Kruiningen, Schelphoek, and Ouwerkerk.
The current gap near Bath was closed on the 23rd of April 1953 by means of a vessel, after a method with raising the sand failed because of the strong water currents. Near Kruiningen, three gaps had to be closed: the western gap, the eastern gap, and the gap in the port. After the closure of the inner dikes, the western gap could be closed by means of clay, plunging stone and six uniform caissons. The eastern gap was a more difficult job and was unable to be closed at its original position. Instead, a ring dike had to be built on the land, in which forty caisson elements were used. Consequently, a pontoon with uniform caissons of 33 metres long was used, and the gap was finally closed on the 8th of July 1953. On the 24th of July, the last gap, the gap in the port, was closed and the railway traffic could continue once again.

On the 18th of August 1953, the largest current gap of the disaster area, near Schelphoek, was closed. Around 125 million cubic metres of water flowed through this gap during the ebb and the flood. As a

result, eight canals were created behind the gap. The canals were closed by different types of caissons and the new dike was built.
The closing of the gaps near Ouwerkerk was another difficult job. A summer storm hampered the progress, and for a moment, Ouwerkerk seemed to be lost in the sea. The rates of water flow were high near Ouwerkerk, and it was not possible to fix the heavy caissons in the right position. It can be seen that the caissons were not placed correctly next to each other, nevertheless on the 24th of November the dike was completed.

Basis for the Delta law

The dike workers were very proud after successfully closing these problematic current gaps. By the end of 1953, the area was officially declared dry again. The dike workers learned a lot from the restoration works. What was learned, for instance, is that caissons need to be able to let through as much water as possible, before they are placed in their correct positions. This way, a strong current will not occur in the last remaining gap and this facilitates the placement of the other caissons. To allow as much water as possible to flow through the caissons, slides were installed into them. The slides could then be closed after the caissons were located in place.
The Delta committee extended the plans for large restoration works. On March the 16th, 1953, the committee gave extensive advice, which would be the basis of the Delta law of May the 8th, 1958.

The Delta Works (information from Deltaworks.com)

History

Studies conducted in 1937 by Rijkswaterstaat (Department of Public Works), showed that safety in many parts of the Netherlands could not be guaranteed at times of storms and high sea levels. In the densely populated areas near the river mouths of the Rhine, the Meuse, and the Schelde, it proved very difficult to build new dikes or strengthen the original ones. The first solution was to close all the river mouths: the Western Schelde, the Eastern Schelde, the Haringvliet, and the Brouwershavense Gat. This proposal was christened 'the Deltaplan'. In 1950, the first river mouths of the Brieles' Gat and the Botlek were closed. The Brielse Maas became a freshwater basin. This not only made the area safer, but it also provided Voorne with a freshwater supply. The plan was to build the remaining dams in the following decades. Unfortunately though, the infamous flood of 1953 prevented this from happening. Nearly two thousand people died and more than 150,000 hectares of land were flooded. People soon became aware that something had to be done, and very, very quickly.

Twenty days after the flood of 1953, the Delta commission was inaugurated. The commission would give advice about the execution of the Deltaplan that would, in the long run, increase the safety of the Delta area. Although safety was the number one priority, the seaways De Nieuwe Waterweg and the Western Schelde would have to stay open, because of the economic importance of the ports of Rotterdam and

Antwerp. In order to be able to build dams in the rivers' mouths, some auxiliary dams would first have to be built in the Zandkreek, the Krammer, the Grevelingen, and the Volkerak. These dams were known as 'compartment dams', since they would divide the large area of water into multiple compartments. In 1959, the Delta Law was passed, in order to organise the construction of the dams. The building of the 'Delta Works' was such an enormous project, that it was sometimes referred to as the 'eighth wonder of the world' - and not without good reason.

Execution

The first works

By 1958 the first Deltawork was already operational. It was the storm barrier in the river Hollandse Ijssel. This barrier (not a dam) was of great importance because it protected the densely populated western part of the Netherlands (known as 'the Randstad') against future flooding. Three years later, in 1961, two more mouths were closed: the Veerse Gat and the Zandkreek. The water between these dams soon became fresh and is now known as the Veerse Meer (Lake of Veere).

Haringvliet sluices and Brouwers dam

An enormous array of sluices was built in the mouth of the Haringvliet in order to drain off excess water from the river Rhine. The sluices are able to be opened during very cold winters, to prevent the tide from freezing. This could be necessary to prevent the freezing of the large Dutch rivers. It was therefore, only in emergency situations, that salt water from the North Sea would be allowed to enter the freshwater Haringvliet. After the construction of the Haringvliet dam, the Haringvliet gradually became fresh. By 1971, the seventeen sixty-metres-wide sluices were fully operational. The Brouwers dam, south of the Haringvliet dam, was finished almost a year later.

The Eastern Schelde

According to the original plans, the Eastern Schelde would be closed, just like the other river mouths. The water enclosed behind the dam would therefore become fresh, exactly like the water in the Haringvliet and the Lake of Veere. There was some unexpected resistance against the construction of a closed dam, because people were concerned that the unique salt water environment of the Eastern

Schelde would cease to exist. Specifically, not only the environment, but also the fishing industry would suffer from a dam.

In 1976, the Dutch government agreed to an alternative plan: instead of building a closed dam, an open barrier would be built, containing a number of sluices that would only be closed during heavy storms and high water levels. The unique freshwater environment and the favourable fishery conditions would be maintained. Sixty-two openings, each forty metres wide, would be installed to allow as much salt water through as possible. It was supposed to maintain the tidal movement.

The Eastern Schelde storm surge barrier turned out to be one of the biggest structures of the world. The costs of an 'open dam' were considerable higher than the costs of a ordinary closed dam: 2.5 billion euros were needed to complete the barrier. On October 4th, 1986, the Dutch Queen Beatrix officially opened the Eastern Schelde storm surge barrier.

Significance of the Delta Works

Besides shortening the total length of the dikes by 700 kilometres, the Delta Works had many other advantages. Firstly, the agricultural freshwater supply was improved. Because the border between freshwater and saltwater was moved further west, less freshwater was required to balance the freshwater-saltwater division. The excess water could be transported to the north of the Netherlands, in the direction of the Ijsselmeer (Ijssel lake), where extra freshwater was welcomed to improve the water conditions.

Secondly, the complete water balance of the Delta area was improved. Thanks to the construction of the major and auxiliary dams, the streams in this area were able to be manipulated more easily. Different types of sluices made it possible to allow fresh water in, or polluted or excess water out.

Thirdly, the construction of the Delta Works encouraged traffic between the many islands and peninsulas. Large parts of the province of Zeeland had literally been isolated for centuries. The building of the Zeeland Bridge together with a tunnel under the Westerscheldetunnel (2003), also helped increase mobility.

Hartelkering

Fourthly, the inland waterways shipping was supported by the Delta Works. In 1976, Belgium and the Netherlands signed a contract that would regulate the shipping between the ports of Antwerp and Rotterdam. Obviously, this agreement had to be taken into account when building the Delta Works.

Lastly, the Delta Works have influenced new developments in the areas of nature and recreation. Understandably, a number of nature reserves were irreparably damaged, but as compensation, new nature reserves have emerged at different sites. Nowadays, dry shores are sometimes used as recreational areas. Whether or not nature has benefited from the Delta Works will remain an unsolved debate. However, there is no doubt over the need for durable water management, in which safety, prosperity, and nature are taken into account.

Other developments

In addition to the construction of new dams and barriers, at several places, existing dams had to be heightened. This was especially the fact in the western parts of the islands (Walcheren, Schouwen, Goerree) and along the waterway of Rotterdam and the Western Schelde. The dikes needed reinforcement because they were not directly protected by the large works. It is a common misconception that the Delta Works were only built to replace dikes.

Maeslantbarrier

In most of the cases, building a deltawork was much quicker, and cheaper than reinforcing existing dikes. Since the building and strengthening of dikes are time consuming and expensive, another deltawork was built to the west of Maassluis at the end of the 20th century. The movable barrier, called the 'Maeslant Barrier', can close off the New Waterway when water levels are threatening the dikes in the environment. Due to the recent climate change and the rise in sea level, high water levels are more likely to occur near the coasts of Zeeland and Holland. The number of people that live in the polders, several metres below sea level, has actually increased since the flood of 1953. The general consensus among scientists is that the reinforcement of dikes and the construction of dams and barriers is in no way the final siege in the battle against the sea.

The Oosterschelde storm surge barrier

The construction of the Oosterschelde barrier was such a large-scaled and complex project, that a whole website could easily be devoted to this dam. The storm surge barrier of the Oosterschelde is, without any doubt, the most impressive storm surging structure of the Netherlands. Other flood barriers can be found in the 'Hollandsche IJssel' and the 'Nieuwe Waterweg'.

The storm surge barrier, which eventually cost 2.5 billion euros, was officially opened by Queen Beatrix on October 4th 1986. What had all this money been spent on? The chance to have another flood had decreased from once per ???? years to once per 4,000 years. Moreover, the storm surge barrier would not have to be replaced in the next two hundred years. Hopefully, one does not have to think about a new solution until the middle of the 21st century.

Dam or barrier?

Initially, the Oosterschelde would be closed with a regular dam. In 1967, one had already started raising three artificial islands. After that, concrete would be poured to close the Oosterschelde. This never happened, however. More and more people began to realise that the closure of the Oosterschelde would have several consequences. The first priority was safety, but nature could not be forgotten. One possibility was to keep the Oosterschelde open and to systematically raise the 150 kilometres of dikes around the Oosterschelde. In 1975, however, the then cabinet proposed to build an open barrier, which could be closed. The barrier would consist of piers among which slides were hung. These slides could close the Oosterschelde in time of necessity. The barrier would be much more expensive than a dam. For that reason, a lot of discussion arose in the Dutch Lower Chamber. The parliament eventually agreed in 1979 that two auxiliary dams had to be constructed: the Philips Dam and the Oester Dam. These dams restricted the surface of the Oosterschelde and strengthened the tidal movements. Additionally, a tide-free shipping route was created between Antwerp and the Rhine.

Nature conservation

The scenery around the Oosterschelde cannot be found anywhere else in the world. Nowhere else, the combination of land and sea left such unique impressions. There is a great variety of life: more than 70 types of fish, 140 types of water plants and algae, 350 types of animals living in the water and between 500 and 600 types on the land. The Oosterschelde is an important area for birds that are looking for food, or want to brood or are looking for a place to hibernate. If the Oosterschelde would have been closed, this unique saltwater environment would have been lost, together with the mussel and oyster culture. This would also have had severe economic consequences. Fishery has always been the largest source of income for the traditional fishing villages such as Yerseke and Bruinisse. People have been farming oysters in the Oosterschelde since 1870.

Construction

The storm surge barrier, with a total length of three kilometres, would be placed over three channels: the 'Hammen', the 'Schaar van Roggeplaat' and the 'Roompot'. It would consist of sixty-five prefabricated concrete piers, among which sixty-two steel slides would be installed. When the slides are open, three-quarters of the original tidal movement is maintained. That should be enough to maintain the environment in the Oosterschelde. Some of the sandbars ('Roggeplaat' and 'Geul') were already raised, in view of the full closure of the Oosterschelde.

The building excavations of Neeltje Jans and Noordland, together with the sandbar Geul, formed the closed part of the storm surge barrier. Neeltje Jans was the island from which the operation was performed. The greater part of the prefabricated elements were built there – the piers, tubes, and foundation mats. The stones, which would be plunged around the piers later, were also stored there. As many parts of the dam as possible were made beforehand, on the mainland. This increased the tidal movement and the safety of the employees.

Bottom consolidation

Soon, the question arose whether the bottom of the Oosterschelde was prepared for the weight of the barrier. For that reason, the bottom was thoroughly investigated. The solidity and density of the foundation, the composition of the bottom, the bottom stratification and the geological structure of the layers were examined. The research showed that several adaptations should be made before the barrier could actually be constructed. The bottom on which the barrier would be placed, was revealed to be far too weak. Tests were conducted in laboratories, in order to examine what would happen to the bottom under certain circumstances.

Several operations were performed to consolidate the bottom. The ship Mytilus, for instance, placed vibration pipes into the bottom. After the vibration, the grains of sand were knocked closely to each other down to fifteen metres of depth. Synthetic mats were also put at the bottom around the location where the barrier would later be placed. Consequently, these mats were covered with concrete blocks. Next, the silt was dredged and replaced by sand. However, the bottom of the Oosterschelde was still too weak to carry the barrier. Because of that, special mats were made on the mainland, which would be fitted to the relevant section of the storm surge barrier. This mat was a kind of mattress, which was filled with sand and gravel, instead of springs.

Piers and slides
The piers
Construction dock

The piers were the most important elements of the dam. They were produced in a building excavation with a surface area of about one square kilometre, located 15.2 metres below sea level. A ring-dike kept the sea water outside the excavation. The dry dock consisted of four parts. When the piers of one part were finished, this part would be flooded. The lifting ship then sailed into the dock, lifted the heavy pier and shipped it off to its place in the barrier. Each pier consisted of 7,000 cubic metre of concrete. Therefore, the dock may also be typified as a large concrete factory in which 450,000 cubic metre of concrete was manufactured between 1979 and 1983.

Pillars

The construction of each pier almost took one and a half years. One started building a new pier every two weeks. This way, thirty piers were in production at the same time. It took an enormous amount of organisation and planning to finish the giant and complex structures in time. People worked day and night, because otherwise the concrete could not harden properly. The sixty-five piers were each between 30.25 and 38.75 metres high and weighed 18,000 tonnes. Two extra piers were built, for safety's sake. Visitors of Neeltje Jans, the former artificial island, can now climb one of these left-over piers.

The placement

Inundated construction dock

When all the piers were finished, the building excavation in which they were built was flooded. Two ships took the piers to the right place. The ship Ostrea could lift the piers one by one and sailed them to a floating pontoon. This pontoon marked the place where the pier should be sunk. The placement was precision work and could only take place when the current was as weak as possible: during the turn of the tide. The hole between the piers was filled to let the piers link up with the mats perfectly. In order to increase the stability, the piers were filled with sand. Finally, the piers were wrapped up in poured concrete. It was very important that the barrier was absolutely immovable. When, for instance, one slide could not close, the current in the gap would become gigantic. In total, five million tonnes of stone were put among the piers. The stones, which

weighed ten tonnes each, were put in their place perfectly by the Trias. Some of the stones were imported from Germany, Finland, Sweden and Belgium, because the amount required was not available in the Netherlands alone. Importantly, a stone with a high density was needed (2.8 to 3.0 tonnes per cubic metre), in order to prevent the tide from moving it.

Slides

Bolt

When the piers stood firmly on the bottom of the Oosterschelde, the construction of the barrier could be finished. The piers were raised with the top-pieces, upon which the slides were fixed. Hollow tubes were placed on the piers, and on top of this came a road. The tubes provided room for the equipment responsible for making the slides move. In fact, the slides are steel tubes, which are provided with sheets on the side of the Oosterschelde. The height of the slides depended on the depth of the gap to be closed. To close the deepest gap, a slide of twelve metres was needed, which weighed 480 tonnes. The slides are driven by hydraulic cylinders, which are operated from the 'Ir. J.W. Tops house' (1986).

Cooperation

The construction of the storm surge barrier was so large-scaled and complicated that it could not be left to one single building contractor. No single building contractor could promise that the dam could be finished for a fixed price and within a certain period of time. Therefore, a so-called 'framework contract' was drawn up, consisting of a general framework which could be filled up in a later stadium. In 1977, the Ministry of Waterways and Public Works concluded a contract with the Oosterschelde Storm Surge Barrier Building Combination (in Dutch: 'DOSbouw'). This combination was formed on September 1st, 1976 by eleven building contractors:

· Ballast-Nedam Groep Inc
· Bos Kalis Westminster Group Inc
· Baggermaatschappij Breejenhout PLC
· Hollandse Aanneming Maatschappij BV
· Hollandse Beton Maatschappij PLC
· Van Oord-Utrecht PLC
· Stevin Baggeren PLC
· Stevin Beton en Waterbouw PLC
· Adriaan Volker Baggermaatschappij PLC
· Adriaan Volker Beton en Waterbouw PLC

· Aannemerscombinatie Zinkwerken PLC

Some of the ships that were used during the construction, were owned by the combination ('Jan Heymans' and 'Johan V'). Other ships were built under the authority of the Ministry of Waterways and Public Works (the condensation pontoon 'Mytilus', the mat installer 'Cardium', the lifting ship 'Ostrea' and the mooring pontoon 'Macoma'). DOSbouw was located at the port in Burghsluis and was removed after the completion of the barrier on the 30th October 1986. The purchase of building materials remained outside the contract and was directly arranged with the suppliers from within and outside the country. A separate framework contract was concluded with the Combination of Construction Companies Oosterschelde (also called 'Ostem'), for the construction of the closure materials, such as the slides.

The ships

Lifting

The barrier had a revolutionary design. Many techniques had not been used before and if they had, it was not during such a large-scaled project as this one. There were no ships suitable for the construction of the storm surge barrier. For the building of the dam, several ships were designed, which were tours de force one by one. The ships were all 'state-of-the-art'. Most of the ships were provided with a system which could automatically and very precisely determine the location of the ship. The bearing techniques for orientation were quite new. In addition, new techniques were used to identify the surface and the structure of the sea bottom. Equipment such as gyroscopes and accelerometers would have been indispensable. To process the data flows provided by the equipment, large computers were necessary.

Mytilus (mussel)

This ship made sure that the bottom of the Oosterschelde was compressed along the section were the barrier would be built. When the bottom is compressed, the sand and clay parts are compacted more closely to each other. The bottom becomes more solid. Without the work of the Mytilus, the barrier would not have been as firm. The entire compression process took place under water and continued twenty-four hours per day. The ship consists of five pontoons: a main pontoon of 18.9 metres long and four auxiliary pontoons with a total length of 32.9 metres. On the ship were lifting porches of fifty-five metres high. The lifting winches which were fixed to them had a pulling

power of 120 tonnes. Vibration needles with a diameter of 2.1 metres and a length of eighteen metres were drilled into the bottom of the sea. The engine of the ship generated vibrations which were transferred into the needles. The needles transferred vibrations to the sea bottom, with a frequency of between 25 and 30 Hertz and an amplitude of 4 to 5 millimetres.

Cardium (cockle)

Although the Ostrea was the most impressive ship of the fleet, the Cardium was the most expensive one. Nobody ever thought the ship would cost so much. The actual costs were eighty percent higher than expected. For this amount of money the Cardium carried out an important task: putting down the mats. These mats which were thirty-six centimetres thick, forty-two metres wide and two hundred metres long. The synthetic mats were filled with sand and gravel in a factory. The mat was moved to an enormous container, which was fixed to the Cardium. The mats were put on the sea bottom at a rate of ten metres every hour. An extra mat was put at the areas where the piers were to be placed. This was to protect the mats against wear, which could be developed through the opening and closure of the slides.

The Ostrea (oyster)

The Ostrea was the flagship of the Delta fleet. With its length of eighty-seven metres, the typical U-shape and a capability of 8,000 horsepower, it was the most impressive ship. The ship lifted the piers from the dry dock and sailed them to the place of the barrier. With the open side of the 'U', the ship manoeuvred around the pier. The ship could steer easily, thanks to its four screw propellers. On both sides there were two porches fifty metres high. The piers were fixed to these porches. The porches could not lift more than 10,000 tonnes however, whereas the piers weighed 18,000 tonnes. So how did the Ostrea put the piers in the right place? Fortunately, the levers did not have to lift the piers completely out of the water. The most important factor was that they did not touch the bottom of the sea during transportation. Because of the upward pressure of the water, the levers needed to provide less power.

Macoma (nun)

This pontoon, named after a shellfish, was situated exactly in front of the place where a pier would be placed. When the Ostrea had taken a pier, it moored against the Macoma. To offer the Ostrea some stability, the pontoon had a coupling mechanism with a power of six hundred tonnes. The Macoma also had a second function: an enormous vacuum cleaner was used to ensure there was no sand between the pier and the bottom. This was an extremely difficult job, because the tidal movements moved large amounts of sand each day.

Wijker Rib (fish)

This inspection ship originally plunged stone. During the construction of the Oosterschelde barrier, the Wijker Rib was multifunctional. It, among others, supported the small inspection vehicle Portunus. This vehicle was the size of a small van and could drive on the bottom of the sea with caterpillar tracks. The observations of the Portunus were transferred to the mother ship via an umbilical cord. The data was checked, processed and interpreted in the Wijker Rib.

Other ships

Jan Heymans

There were many more ships cooperating in the construction. The Johan V was a geotechnical reconnaissance pontoon, which was built especially for this project. It was provided with a drill and a diving bell. By means of a diving bell, samples of the sea bottom could be taken. Another ship, the Jan Heijmans, helped the Cardium place the mattresses. The Jan Heijmans was also responsible for the filling of the holes between the mattresses and the gravel. The Macoma worked together with the Sepia and the Donax I during the placement of gravel ballast mats on the bottom.

Nature

Many types of plants and animals live in and around the Oosterschelde. The optimal water temperature, the salt content and the food supply make sure that many birds, fishes and water plants flourish here. Not only are there many different types, but they are also living in large quantities.

Fishes

There are about sixty-six sorts of fish, which are continually present in the Oosterschelde. Plaice, sole, young flatfishes and flounder are just a small sample. About fifteen types, such as salmon, sturgeon and angler, are rarely seen. The litter of many sorts of fish, such as sole, cod, bass, plaice, dab and herring, grow up in the Oosterschelde. The litter of the following sorts of fish are born in the Oosterschelde: anchovy, sea needles and eel pout.

Birds

The Oosterschelde is full of birds. Apart from the West Frisian Islands, this is the area with the most fish. There are four factors which influence the bird population: 1) running water with a high salt calibre; 2) clean, unpolluted water; 3) a quiet, rural environment, and 4) sufficient food. There is an excess of food here. Birds can eat mussels, worms, cockles, shrimps, small fish, sea grass, seaweed and sea lettuce. The favourable circumstances make the Oosterschelde a popular destination for migratory birds. During spring and autumn large groups of birds, ducks and gooses come and go. The most famous are the autumnal migrations towards the warmer areas and the spring migrations towards the breeding ground. The period in which the migration starts differs strongly among the sorts. Larks already return to their breeding places in February, whereas most migration birds do not reach the Netherlands until April, or even May like swifts. In the beginning of August, the swifts, cuckoos and golden orioles leave again, followed by the autumnal migration of many insect-eating songbirds in September. By the time of October, the climax of the autumnal migration is reached.

Mussels and oysters

These shellfish are very important for the fishers in Zeeland. The mussel farmers depend to a great extent on a variety of circumstances that can influence the cultivation. The place where the mussels or oysters grow needs to be chosen carefully. Firstly, the water must run fast enough for a sufficient supply of plankton. Secondly, the water cannot run too fast, because the mussels may then be flooded with sand. Thirdly, long branches of ash wood or oak wood must surround each section. Finally, the mussels need to lie on a harsh, flat bottom during the dilution (settling), surrounded by clean water. Despite the dependency on the quality of the water and the weather influences, the mussel and oyster culture became more professional. The image of old rickety ships has been history for a long time.
The weak parts, also called ‘meat’, are a delicatessen. The mussel season runs from July until early spring. Many mussels are exported to France and Belgium, where one strives to serve the first new mussels. Of course, many mussels are consumed in Zeeland as well. The ultimate mussel town is

Yerseke, which almost completely depends on the mussel industry. Mussels contain fewer calories per 100 grams than for instance fish and meat (242 kilojoules – 57 kilocalories). They contain more minerals than meat (100 milligrams calcium, 250 milligrams phosphorus, 6 milligrams iron, 300 milligrams sodium and 300 milligrams potassium) and about the same amount of vitamins (mostly B-complex and 2 milligrams vitamin C). Unfortunately though, many people are oversensitive to mussels.

Other animals

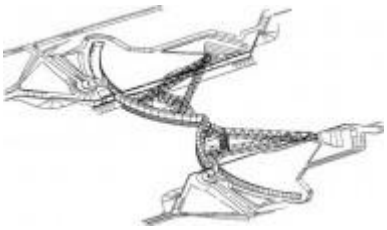
During the construction of the Oosterschelde barrier, different sorts of stone were used. The fact is that sea anemones, sponges, tunicates, and crumble starfish (Ophiothrix fragilis) each have their own favourite stone. Seaweed also appears in many different types. There are forty-two types of red seaweed, thirty-four types of brown seaweed, thirty types of blue seaweed, and thirty-eight types of green seaweed in the Oosterschelde. Other special creatures, which can be found in relatively large amounts are slugs, Chaetopodes, sea acorns, starfish, jellyfish, crabs and shrimp. Octopuses rarely appear. Although the environment is improving, water sports enthusiasts regularly disturb the animals' rest.

Maeslant barrier

Competition

A year after the opening of the Oosterschelde barrier, the Ministry of Waterways and Public Works held a competition for the construction of another storm surge barrier. Were the costs of 2.5 billion Euros for the Oosterschelde barrier not high enough? Wasn't Zeeland protected against the upcoming water? Weren't all waterways closed, except for the Westerschelde?

The winner



Design Maeslantbarrier

This time, there would not be a storm surge barrier in Zeeland, but in the New Waterway (Nieuwe Waterweg). Raising the dikes around Rotterdam would not be necessary anymore. The most important demand for the design was that the barrier should not hinder the shipping. The barrier should only be closed under exceptional circumstances - no more than once or twice every ten years. In 1991, four years after the competition was held, construction started. Which design had won? Out of six submissions, the design of the Building Combination Maeslant Barrier won. The Maeslant barrier would consist of two steel doors which could be sunk down and could be turned away in the docks in the shores.

Party-time!

On Saturday May 10th 1997, the Storm Surge Barrier New Waterway near the Hoek of Holland was introduced. The barrier was officially opened by the Dutch Queen Beatrix. At 4:30 PM, the giant storm-surging doors were sailed equally from the shores on to the New Waterway for the first time. Altogether, this took about two hours.

The functioning

During water levels of 3 metres above Amsterdam ordnance zero, the arms of the barrier are activated. The waterway, with a width of 360 metres, can then be closed completely. At first sight, it is almost unbelievable that such a barrier is capable of such an achievement. The Maeslant barrier is almost as long as the Eiffel tower and weighs about four times as much. It is the only storm surge barrier in the world with such large moveable parts. The storm surging doors have a length of 240 metres each. Under normal circumstances, these doors are fully opened, so that the ships have access to the port of Rotterdam. The doors are stored in docks with a length of 210 metres, which lie along both shores.

During storm tide the docks are flooded and the hollow doors begin to float. They are driven into the water by means of a small train. This lasts for about half an hour. When the doors are situated in the middle of the river, valves are opened and as a result the doors are flooded. Consequently, the doors sink to the bottom because of their weight. On the bottom, there is a concrete threshold. A lot of silt gathers on this threshold. To close the New Waterway properly, arms need to be positioned exactly on the threshold. The doors do not sit directly on the threshold yet, but are hung a little above them. The current under the doors becomes so strong that the silt is washed away. After about an hour, the doors can sit flat on a silt-free threshold. The water level on the seaside is then higher than the water on the riverside. The force against the surging wall during a storm is about 350 Mega Newton: this is equal to the weight of 350,000 strong men, carrying 100 kilograms each. The pressure difference is so large that a ship of equal measurements would capsize instantly. The unique shape of the barrier prevents this from happening.

Indispensable

Maeslantkering

The Storm Surge Barrier New Waterway formed the final piece of the Delta works. Thanks to the storm surge barrier, about one million people in South-Holland are protected from the sea. The Maeslant barrier is indispensable, in many ways. The barrier will probably become increasingly important to the protection of Rotterdam and its surroundings in the near future. The sea water is coming up more and more due to the rising of the sea level.

Rotterdam

Rotterdam was not the only area that needed to be protected. The basin along the New Waterway and the New Maas also needed protection. The Maeslant barrier could not handle all of this by itself. Together with the Europort barrier and the Hartel barrier, the Maeslant barrier forms a line of defence for the whole area. The Europort barrier consists of a dike which runs from Rozenburg to the Maeslant barrier. In a south eastern direction, the dike ends near the Hartel barrier. The whole project, including the dike reinforcements cost 635 million Euros. This was 150 million Euros less than the alternative plan, in which all dikes in the area would have been reinforced and raised. Moreover, the Maeslant barrier was

finished in 1997, whereas the dike reinforcement project would have taken an additional ten years of work.

Parts
Ball-and-socket joints

Balljoint

The arms of the barrier are a treat to the eye. However, their function is limited: the power exerted on the retaining walls when they are closed is transferred through to the ball-and-socket joints. The ball-and-socket joints are in fact the main figures. Both joints ensure the gates can move in all directions, both horizontally (when sailing out) and vertically (when sinking down). Furthermore the gates must be able to sway on the waves in case of a storm. Finally it must be capable of transferring the enormous water pressure on the gates through to the foundations.

Foundation Ball-joint

The only kind of joint that is able to follow all these movements is a ball-and-socket joint. It can be compared to a human hip or shoulder joint. However, the joints of the dam have a diameter of ten meters and weigh 680 tons.

Threshold

The threshold construction on the bottom of the New Waterway has three functions:

1. To form a flat base and strong foundation for the retaining walls, which are moored with buffers onto the threshold blocks.
2. To limit the flow of water in the case of a closed barrier.
3. To grasp the base on which the blocks are founded.

Movement works

Locomotive

The movement works are operated from control buildings at the north and south side. The movement works consist of three parts: the dock gate, the locomotive and the ballast system of the retaining wall. The dock gate opens when the barrier is activated. The barrier is driven into the New Waterway by the locomotive. The ballast system allows the barrier to sink.

BOS and BES

The Maeslantkering is operated by a computer. In the case of a storm flood, the decision of whether or not to close the barrier is left to a computer system (BOS). The chance of mistakes is greatly increased if people were to make the decision.

Sinking barrier

A computer will only follow predefined procedures, it doesn't get its own ideas and it is not affected by poor environmental conditions. The system only takes into account the water and weather forecasts. On that basis it calculates the expected water levels in Rotterdam, Dordrecht and Spijkenisse. When the BOS decides to close the barrier, it gives orders to another computer system, the BES. The BES carries out the orders of the BOS. The system operates entirely automatically, but remains under constant human supervision with regards to the procedures.

English Summary European Water Framework Directive

(From website Rijkswaterstaat, http://www.helpdeskwater.nl/onderwerpen/wetgeving-beleid/kaderrichtlijn-water/engelstalig/english/

Water does not stick to national boundaries. EU member states have agreed therefore to the European Water Framework Directive (EWFD). The goal of this directive is to ensure that the quality of the surface water and groundwater in Europe reaches a high standard ('good ecological status') by the year 2015.

The EWFD is based on a river basin district approach to make sure that neighbouring member states assume joint responsibility for managing the rivers and other bodies of water they share. To meet the 2015 deadline, water authorities in each river basin district in Europe must have agreed on a coherent programme of measures by 2009. Where a river basin district includes more than one member state, a trans-boundary management plan must be drawn up. The Netherlands is involved in management plans for four trans-boundary river basin districts: Rhine, Meuse, Scheldt and Ems.

- Organisation
- Public participation
- Publications

Bladwijzer Organisation

From the European level...
The implementation of the EWFD starts on a European level. The European Water Directors provide an informal structure in which guidelines are drafted for the further implementation of the directive. Moreover, the European Union is preparing further measures, including a directive on priority substances, to address several aspects of the EWFD.

To the national...
In the Netherlands, the implementation of the EWFD is managed by the national government. Issues that need to be addressed on a national level include basic monitoring principles, and the criteria for denominating the various types of water bodies. All these issues are coordinated by the ministry responsible for water management. As far as possible, however, decisions are made in close cooperation with other relevant ministries, provinces, water boards and municipalities.

To the regional...
A national basin area coordinator has been appointed for coordinating the drafting of the basin area management plans. For each basin area, the regional directorate of the water management ministry, provinces, water boards and municipalities have partial responsibility for water issues and must closely cooperate in drawing up the management plans as well as executing the programme of measures contained in these plans.

And across the border...
To make sure that goals and measures fit in with the overall picture for the river basin involved, those responsible consult closely with the international river commissions for Meuse, Scheldt and Ems. The EWFD is also a prominent issue in the international discussions between Rhine Water Directors.

BladwijzerPublic participation
Public involvement is an important part of the EWFD. The Dutch public will be kept up-to-date and will have the opportunity to participate in the decision-making process. Over the next few years, each member of the public and organisation will have three chances to voice their opinion. In 2006, this will relate to the working programme and time schedule. In 2007, this will concern the most important issues that have to be addressed in the basin management plans, and in 2008 the consultation will involve the concept basin management plans.

In addition to the public, NGOs can be involved with the implementation process of the EWFD on both a national and a regional level. Regionally, organisations are to be given the chance to participate in sounding board groups, with a group in each basin district. On a national level, organisations are participating in a national platform that organises theme discussions on the EWFD. Moreover, these organisations can also participate in different working groups and contribute with their specific expertise in certain areas.

Bladwijzer Publications
Most documents of the European Guidances of the Water Frame Directive. You have to choose for public library.

Brochure 'Delta Dilemmas '
Implementing the European Water Framework Directive in the Netherlands.

Brochure 'No frontiers for the Rhine'
This brochure gives an overview of the most important conclusions from the international article 5-reports about the international river basin Rhine (1.8 MB).

WFD project factsheets
The WFD Project Fact sheets on pollutants aims to provide a basis for the elaboration of the policy line for dealing with pollutants. Fact sheets have been compiled for a total number of 174 potentially significant pollutants. In this report, overviews have been distilled from the fact sheets regarding heavy metals/metalloids, pesticides and other organic micropollutants. A distinction is made between priority hazardous substances, priority substances and other substances. (481.3 KB)

MEP/GEP Guidelines in a nutshell
Scope for local interpretation on ecological objectives for the Water Framework Directive