

## The Dutch Deltaprogramme – a cultural heritage of living with water

*Speech by deltacommissioner Peter C.G. Glas MSc LLM at the residence of the ambassador of the Kingdom of the Netherlands, Hôtel d'Avaray, 21 November 2022.*

When I was asked to think about coming to Paris and delivering this key-note speech at the residence of your ambassador Versteeg. It did not take long to say "yes". I thank in particular Mariette van Empel, Marjo van Amerongen and Nicolette Koopman for making this gathering possible.

Over the course of the past 10 years I visited Paris frequently in my capacity as chair of the Water Governance Initiative (WGI), based at the OECD here in the French Capital. I made friends here, both French and international friends. Within OECD, within the French administration and also in the French business community. And during the WGI meetings, and certainly also over not a few dinners and accompanying glasses of wine, I had many discussions about the principles and practices of good water management all over the world.

My career in water management and policy making spans almost 40 years now. When I graduated as a biologist at Leyden University in 1982 I did not foresee this professional path. I did my thesis on the ecology and behavior of parasitic insects! It was only because I happened to see an advertisement of the Hydraulics Research institute in Delft, asking for applications for a "mathematical biologist", that I found myself in the domain of dikes, rivers, streams and estuaries, and all related topics of flood protection, water resources management, water quality, aquatic ecology and so forth.

With hindsight, and at the ripe age of almost 67, it all seems logical. I grew up as a school boy in the sixties, when Apollo rockets brought humanity to the moon in 1969 and the first pictures from space of our beautiful blue planet were published. How small did the earth seem then, and how vulnerable. It still does to this date, and perhaps even more so than back then. I collected everything on the space programme. I still have the books with clippings from newspapers and magazines.

In 1972 the Club of Rome published its groundbreaking book: "Limits to growth". I was a high school boy of 16 when I bought the book, I still have it in my library at home, and it led me to take up this study of biology and ecology, and also take on statistics and computer science besides field work and lab research on plants and insects.

In the 70's and 80's climate change was not at all an issue. "Limits to growth" was about the depletion of natural resources, not about greenhouse gases and global warming. Let alone about melting of the ice caps, accelerated sea level rise and increasing risks of floods, droughts and heatwaves. In the Netherlands we are nevertheless very much aware of the threats of flooding from the sea. We have almost a thousand years on record. Next year we will commemorate that it is now 70 years ago, in 1953, when a devastating storm surge from the North Sea hit the coastal areas of my country, and also the UK and Belgium. More than 2200 people lost their life, most of which in the South Western coastal areas of the Netherlands. From an historical perspective this flood was only the last of a series of disasters that have hit the Lowlands for centuries. They include also numerous floods from the rivers, in particular from the river Meuse (that connects both our countries) and the river Rhine. Living in a delta next to the sea has its advantages, but also comes with risks. The Dutch have lived with this, and adaptation is in our DNA I suppose. People sometimes ask me: why are the Dutch so tall? Maybe "survival of the tallest" during a flood may be the logical explanation.

Anyway, this hazardous environment has in the past also prompted some historical figures to comment on this delta which I call my home. The Roman scribe Plinius (born in 23 AD) wrote about the Frisian people that lived up North: "There a pitiful people sit on small hills mounted with their own hands to a height of the highest flood by experience. They seem like sailors in their huts when the waters flood the surrounding land, and they are like beached castaways hunting for fish

when the floods retreat". It was Napoleon Bonaparte who declared in 1809, and I quote: "the Netherlands are the sedimentation of France". And his minister of foreign affairs the count de Montalivet was even more explicit in saying it consisted of the washed-up sediments of the rivers Rhine, Meuse and Scheldt, all being rivers of the French Empire. And therefore, the logical conclusion was that Les Pays Bas were annexed in 1810. Maybe this line of reasoning was just too convenient to Bonaparte because his brother King Louis Bonaparte turned out to be too popular with the Dutch people, and had to be pushed aside by his brother the emperor. Well, we all know what came of this.

Having said this, we must pay tribute to Napoleon too. He had the vision that a more centralised approach to managing water in the Netherlands was called for. His vasaal administration founded in 1798 Rijkswaterstaat, the national water agency, which is still in existence today and by some is considered to be a state within the state.

Another important and uniquely Dutch branch of government also deserves mentioning: the Dutch regional water authorities, also referred to as 'water boards' (or in Dutch: 'waterschappen') In the 13<sup>th</sup> century in Flanders and in the provinces of Zeeland and Holland they were established by the feudal overlords of that time as separate co-operative organisations charged with building and maintaining flood defences: the dikes. Over the centuries they developed into strong independent organisations, with the right of taxation, managing the water infrastructure, supervising the contribution in labour by all landowners to the maintenance of dikes and channels, and if need be to fine or even execute those that took action to damage the infrastructure and threaten the safety of all living collectively behind the dikes. The waterboards, now 21 in number, covering the whole of the territory of the country, are therefore the oldest branch of government in the Netherlands. Older than the country, older than the crown. An important scholar and professor of administrative law, Professor André Donner of Leyden University, once put it very strongly: "The state, are the dikes".

It is true that 60% of the country is protected by dikes along the major rivers, the North Sea coastline, and the former Southern Sea (now Lake IJssel) and the former estuaries. Ten million people live behind the dikes, the dunes, the delta barrages, and two third of GDP is earned behind the dikes! And besides the 3500km of primary flood defences, there is another 12000km of smaller dikes and levees. On top of that we measure 220.000km of waterways big and mostly small, 150.000km of sewerage and 120.000km of drinking water mains. Plus, hundreds of water production installations and sewage water purification stations. And thousands of pumps, locks, weirs, and I don't know how many thousand kilometres of drainage pipes in agricultural lands. The Netherlands is largely man made, and it is literally a Water Machine. And by law all the major infrastructure and utilities are 100% publicly owned and operated.

One may ask how much all this costs. I could do a small questionnaire among you in the audience, but I know from experience that even most Dutch people are ignorant of the extend of the infrastructure and what it requires to operate and maintain this, for now and for the future. And what the consequences would be if this infrastructure would fail – even for a week!

If fact, the annual budget for public water management in The Netherlands is about 8 billion euros. Which is a whole lot of money, but relative to our GDP, it is a mere 1%. And for this we live in a country which would economically go to waste and largely drown if we didn't spend this sum. It is both a collective insurance premium and a *conditio sine qua non* for the nation.

This brings me to the question: how will this develop in the next decades and even the centuries to come?

Actually, this existential question was raised during the early years of the present century: "can we the Dutch remain to live in this country?". The question was raised after floodings and evacuations in the nineties during high waters on the rivers Meuse and Rhine. But also, the dawning insight of inevitable global warming, the prospect of increasing sea level rise, and more and more weather extremes (heavy rains, heat waves, droughts). And then there was hurricane Katrina in New Orleans and the Mississippi delta and Al Gore's film "an inconvenient truth". A state delta committee was installed in 2007 (for the second time after the first delta committee in 1953). After a year of consultations, the verdict to the question was: "yes we can remain to live in this delta, proving we take a radical proactive and forward looking adaptive approach". From

reaction to past crises, to action to prevent future disasters and limit the damage. We have to adapt. To transform even. To transform how we live with water. From fighting against the forces of nature, to accommodation and adaptation. To live with the forces of nature and use these to our advantage while maintaining our safety standards and preferably our way of living. Now can this be done?

To answer this the Delta committee recommended to start the delta programme from 2010, to appoint an independent delta commissioner and to establish a national fund for investments and maintenance and for other expenditures connected to the programme. The committee also formulated bold goals. I name a few: 1) to upgrade by a factor of 10 the safety standards for the design of the primary flood defences, 2) to upgrade the sand suppletion to our sandy beaches and dunes, and 3) to strive to be resilient against droughts. And all of this with the objective to be resilient to climate change by the year 2050. The recommendations were followed up by cabinet and parliament and legally consolidated in the Delta Act of 2012.

Effectively the programme started in 2010 and so it runs now for 12 years. Since 2019 under my supervision. With inputs from all branches of national, regional and local government. With strong connections to the scientific community and consultation of the business community and representation from civil society and NGOs, as well as a youth panel.

Every year a new delta programme is presented to the nation. It includes also 3 concrete plans: 1) on investments on flood safety, 2) on freshwater availability, and 3) on climate and physical adaptation in cities and rural areas. The plans are then presented by me to the minister of Infrastructure and Water Management and cabinet, and after political approval to the Dutch Parliament. To be discussed and possibly amended. But this has not happened so far, because climate adaptation in The Netherlands up to this date is not politized as much as climate mitigation is, as we all know.

The delta fund has a time horizon of 14 years and covers all costs towards the goals set in the delta act at national level and is supplemented annually with about 1,3 to 1,5 billion euros. So currently the budget which is earmarked for the execution of measures in the delta programme is about 20 billion until 2036, and the projection until 2050 is double that amount: 40 billion.

Now aiming to be climate resilient by 2050 requires that we develop scenarios. Because the future is uncertain. Scenarios on the physical conditions of the future as published for instance by IPCC, as well as scenarios for the socio-economic conditions and even cultural preferences of the country. This is all shrouded in uncertainty of course, but nevertheless we do so and also develop adaptive pathways in response to these scenarios. We are aware that the increased sea level rise by the end of the century could be anything between 30cm and 1,2 meters, or even two meters if the Antarctic ice sheet becomes unstable. The IPCC labels this last scenario as "low likelihood but with high impact". Nevertheless, it is on the table and in the next few years we in the Netherlands, but also here in France and in many other countries will have to think about this possibility and the adaptive response. Obviously the first response should be to live up to the goals and the promised global solidarity of the Paris Agreements of 2015 agreed upon during the COP21 meeting here in this city. We witnessed COP27 already during the past two weeks. Only this Sunday in the early morning a decision was reached. The positive news is that there will be a fund to compensate developing countries for loss and damages from climate extremes. Unfortunately, no concrete progress was reached on the topic of limiting global warming by limitation of greenhouse emissions. But as we know that global warming will unfortunately be with us for quite some time to come, we must think about the urgent adaptive actions now, and also about long term responses to even more extreme conditions.

This will potentially have far-reaching consequences. On how we live, where we live, how we build, which crops to grow, which industries to transform, and also how to reconstruct and build back better the infrastructure, houses and businesses after damaging extreme events like floods and droughts have occurred.

It is my conviction that the governance of water management, and in the broader sense of physical planning, needs to be addressed parallel to the technical design and execution of adaptation.

For this we need a broad array of disciplines: obviously strong civil engineering, but also ecology, agronomy, architecture, political science, law and economy. But further, and increasingly important: communication, meaningful public participation, and investigative journalism. And certainly, the cultural sector, historians and perhaps even philosophers to guide the debate. To draw the future we have to know who we are, where we came from and have a debate on where we want to be three generations from now, and why.

And moreover, we must think about the fundamental democratic process of making choices. Democratic choices that extend beyond the time frame of next year's budget or the next general election. And how to involve stakeholders, how to give a voice to minorities and for instance to nature which has not even a voice of its own.

When we designed in the Netherlands the first editions of the annual deltaprogramme we had a debate on the underlining values for any adaptive measure: we decided that these core values are "solidarity, flexibility and sustainability". And I also promote very much to use the framework developed by the OECD Water Governance Initiative I mentioned before. A framework on the principles of good water management in terms of effectiveness, efficiency as well as transparency and integrity. To use this framework to determine which gaps and obstacles there may be, and to use these findings as input for a national debate on the course to take and necessary investments. Monetary public and private investments indeed, that may surpass the present levels, but also investments in the science base, in capacities and capabilities of all those who will be involved in taking the necessary measures.

I am very much interested to learn from the next speaker Geoffroy Caude how some of the issues and dilemmas I raised resonate in French society, in the administration and in the domain of water management organisations and professionals.

I am looking forward to hear about this also from you in the audience and I hope we will be able to inspire each other on the challenging path towards a climate resilient future.

I thank you very much for your attention!