



The (non-) applicability of the Netherlands' Space Activities Act to certain 'Dutch' space activities

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Aims

- Brief recap of Dutch Space Activities act
- Highlight two cases of space activity that the Dutch Act does not (want to) regulate
 - CubeSats
 - Suborbital flights from Curacao
- Make recommendations

Netherlands Space Activities Act

- Act of 2007, In force 2008, flows from Art. VI OST
 - State responsibility for national activities
- Activities covered:
 - Launch, guidance, operation
 - Excludes 'procuring a launch', operation of launch facility
- License by Ministry of Economic Affairs
- Implementation by Telecom Agency
- 1 licence issued to SES New Skies ('08)
 - Operation of telecommunication sats

Netherlands Act (2)

- Generic license, no fee, decision after 6 months
- Audits: technical, legal/insurance, financial
 - Also supervision
- Obligatory insurance, maximum level available
 - As determined by Minister
- Liability limited to insurance amount, right of recourse
- Covers activities in NL, from NL ships/aircraft, but not by NL citizens abroad
- National and UN registry

Art. VII OST: 'procuring' a launch

- NL Govt.: limited to *state* procurement, not procurement by private entities of a launch abroad, but:
 - Main rationale of Art. VI OST: regulate private entities
 - Acts based on Art. VI regulate private activities, not state activities
- Act allows the state to authorize/supervise private activities (Art VI), thanks to licensing requirements, and to recover damages from private entities in case of *its* liability (Art. VII), thanks to insurance and recourse provisions
- It makes no sense to argue that procurement only concerns state procurement...

Kingdom of the Netherlands

- Since 10/10/'10 Kingdom consists of 4 countries:
 - The Netherlands, Aruba, Curaçao, St. Maarten
 - The BES islands have become part of the Netherlands ('gemeente')
- Kingdom ratified UN Treaties on behalf of all, but NL Act only applies to NL itself
 - Aruba prohibits space activity, but no law yet
 - Curaçao to enact space legislation, but slow
 - St. Maarten, BES: unclear

NL Act applicable to suborbital flight?

- Only if launch/guidance/operation
 - Not for 'procured' launch by private entity
 - Not for spaceport operation (e.g. Lelystad)
- Only if from NL or NL ship/aircraft
 - Not for activities of Dutch nationals abroad
 - But extension possible by Council order

Space Expedition Curacao, SXC

- Dutch company, to operate suborbital flights from Curacao & spaceport at Hato airport
 - Wet lease of XCOR Lynch, first flight 2014
- NL Act only applies to NL itself
- Does not regulate activities by NL entities abroad
- Only regulates launch/guidance/operation, not suborbital flights, not procurement
 - But can be extended by council order to 'organization of space activities'
- Curaçao to enact space legislation, but very slow

Cubesats: some background

- Term invented at Stanford/ Cal Poly, refers to standard size 10x10x10 cm, > 1 kg nanosatellite
- Small satellites: > 1000 kg
 - 100-1000 kg: mini
 - 10-100 kg: micro
 - 1-10 kg: **nano**
 - 0.1-1 kg: pico
- Huge increase in last decade, recognition usefulness
- Current meaning includes those > 1 kg and 2U /3U
- Launched as secondary payload in a POD, deployment in space after separation, so no danger for primary sat
- Leader in Europe: SSTL, but many others incl. NL, BE
- Currently > 30 in orbit, ± 80 universities involved

Cubesats (2)

- Traditional uses: educational, research, measurements, testing
- But now, a.o.:
 - Astronomy, earth observation, space weather, telecommunication, navigation, innovation,...
- Low cost, fast, small, low altitude (>3-400 km), light=cheap launch
- Lifetime 2-3 months, then burn up on re-entry, no debris
- Provide access to space for developing countries, smaller states (Art. I OST...)
 - The people's satellites!
- Boosts innovation, miniaturization, STEM education
- Of course capabilities limited as compared to 1000 kg satellite
- Extreme projects without use besides pride or fun to be avoided
- Potential interference with aircraft?, suborbital flights?
- Concern in UN and ITU!
 - Swarms of cubesats? Danger for ISS e.a.?
 - International coordination desirable! PR on usefulness needed!

Cubesats and NL Act

- Delfi C3 launched by TU Delft on Indian launcher in 2008, still in orbit
 - To be followed by Delfi n3Xt (move in space) in '12; DelFFi (formation flying) in '14
- ISIS, established 5 years ago, spinoff TU Delft
 - Very successful, many international clients
 - Also because Telecom Agency files for them at ITU
- NL Govt: these satellites are not launched/guided/operated from NL (not manoeuvrable) so not covered by NL Act
 - No license required, no supervision
- NL does not consider itself a launching state as 'procurer' of a launch by its private entity
 - No registration by NL

The next (legal) challenge: QB50

- EU funded project (FP7) to launch 50 double Cubesats (2U) from Russian submarine
 - EU funds i.a. launch (!), universities build/own satellites
- Universities from EU/abroad, incl. China, US, Iran, Israel and more
- Kick-off Nov. '11, precursor launch '13 (5-10 commercial cubesats, to 500 km), launch '14, to 320 km, life \pm 2 mths
- Lead: Von Karman Inst., BE (signs launch contract); ISIS in charge of launch campaigns, TU Delft participates
 - All come to NL for integration in PODs in box, shipped to Russia, box placed on launcher, deployed in space
 - Those subject to ITAR could be sealed in POD, shipped directly...

QB50 and Articles VI, VII, VIII OST

- Who is the appropriate state and is **responsible** to authorize and supervise (license)?
 - NL: will not require license
 - BE: not sure, UK: will require license, others?
 - Related question: insurance? Recourse?
- Who is a **launching state** and can be held **liable** in case of damage?
 - NL will not consider itself as procuring the launch
 - BE will not either, UK probably will, Others?
 - Could EU be considered as procurer? It pays!
 - The states of the universities as owners of the satellites?
- Who will **register** the satellites?
 - Since they do not want to consider themselves as launching state, NL/BE will not, UK? Russia?
 - The states of the universities that own the sats?

Solution?

- With the increased use of Cubesats it is essential to coordinate at int. level, harmonized approach
- UNCOPUOS: sustainable use of space on agenda
- Perhaps agree on a maximum height of 300 km to avoid interference?
- Encourage states to take **responsibility** and license
 - Light touch, cf in UK: no obligatory insurance for Cubesats
 - Operators would not be against a license, on condition of reasonable admin / financial burdens
- Encourage states to **register**
 - Perhaps with a 'no registration no launch' policy, to be implemented by launchers?



Registration convention art. II

- If there are 2 or more launching States, they shall jointly determine which one of them shall register the object [...] without prejudice to appropriate agreements concluded or to be concluded among the launching States on jurisdiction and control over the space object [...]
- This may solve the question of **registration**, but it implies recognition of being a launching state...



LIAB & launching state Resolution

- A/RES/59/115 on the concept of the launching state:
- [...] recommends that States consider the conclusion of agreements in accordance with the Liability Convention with respect to joint launches or cooperation programmes
 - LIAB Article 5.2: “The participants in a joint launching may conclude agreements regarding the apportioning among themselves of the financial obligation in respect of which they are jointly and severally liable”
- This may solve the question of **liability**, but it implies recognition of being launching state...

Conclusion: recommendations for NL

- Extend scope of NL Act, in order of urgency:
 - To launch procurement
 - Procuring is not limited to state procurement only
 - To all functional objects
 - Manoeuvrability should not be a criterion for licensing
 - To suborbital flights
 - To cover future suborbital activities in NL and abroad
 - (And continue pressure for Curacao legislation)
 - To activities of nationals abroad
 - To cover activities of NL nationals elsewhere
- Participate in int. coordination on regulating cubesats!

Thank you!

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