Summary of the workshop of the SedNetWG on Education-Science-Policy Interfacing & Sediment Management Concepts (ESPI-SMC)

- Four new sediment stories (Sandy's Adventures) for toddlers and children in primary school were brainstormed and created during the workshop of the WG ESPI-SMC. In the coming months, the text of the stories will be finalized, and illustrations will be created. The stories will be translated into at least English, German, Dutch, and Portuguese. We are looking for native speakers of other languages to translate them into their own language! Please let the SedNet Secretariat know if you would like to help with this.
- We will develop a (serious) "Sediment Game" aimed at high school and university students as well as adults. It will be a cooperative team game with the goal of solving different sediment challenges in a fictional river basin. In the coming months, we will further develop this game. If you would like to help with formulating sediment cases (defining the problem/challenge, outlining possible solutions, etc.), or if you would like to volunteer to "try out" the game once it is developed, please let us know!
- We plan to create a website with various sediment education and communication materials. If you have such materials, even if they are only in your own native language, please send them to us or provide us with a link where we can find them. This way, we can share good examples with everyone on our website!

Feedback of the 4/6/24 workshop of the SedNet WG ESPI-SMC

Co-chairs Cristina Lira & Edward Van Keer

Increase Sediment Literacy

Create Sediment Stories

Target audience

Kids:

Toddlers (Kindergarten)

Primary school kids

& Their Teachers

Materials

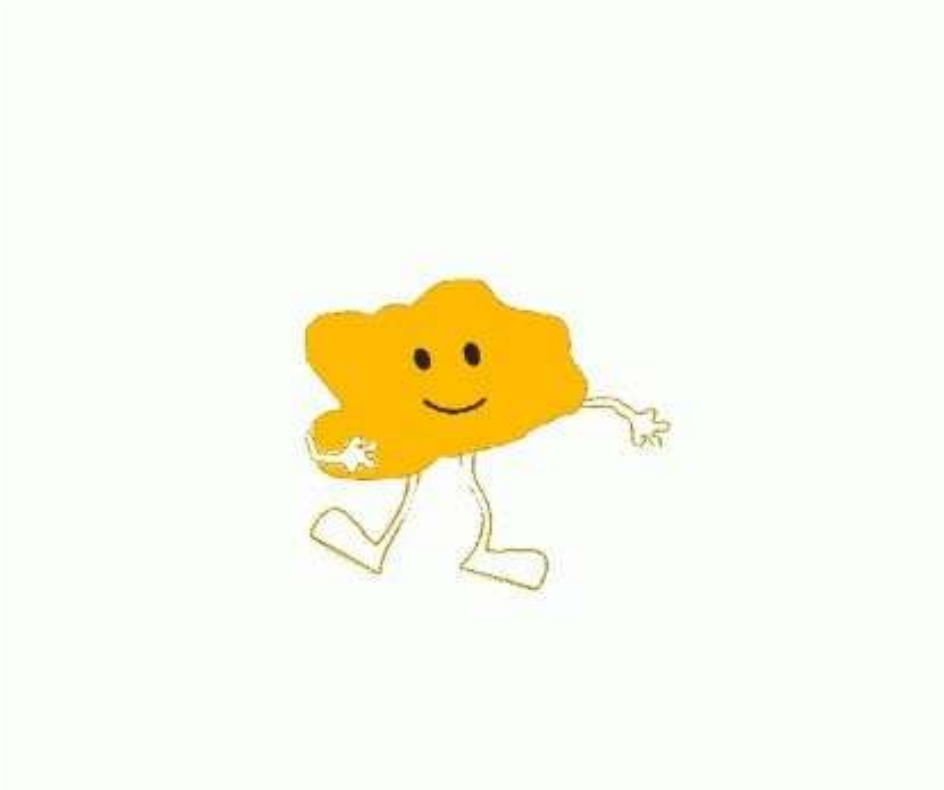
The Sandy stories

Activity Resources

Learning guideline documents for teachers

The first Sandy Story:

https://sandy-story.com/



4 more stories developed during the workshop

Angry Agriculture

A Sandy Adventure

Sandy is at sea

- Once upon a time, Sandy was at the sea: “Why are there so many algae? And why are so many fish dying? I got to find out what is causing this!”

Sandy meets Ingrid Insecticide & Fred Fertilizer

- Sandy: “Hey, hi, who are you? What are you doing here?”
- Ingrid: “O, I’m Ingrid Insecticide. I kill weed plants on the fields. But during a heavy rainstorm, I got washed away and ended up here in the sea.”
- Fred: “And I’m Fred Fertilizer. I help the plants on the fields to grow. But I was also washed away together with Ingrid.”

- Sandy: “So, you and your fellow insecticide and fertilizer friends ended wrongly up in the sea. And now this is causing all these problems here in the sea! Let me help you get back on the field and make sure you can’t get washed back to the sea! Let’s go!

Sandy, Ingrid and Fred in the river

- Sandy: “Why is there so much sand in this river? The ships get stuck in the sand, the water floods out of it? And where have all the plants gone?”
- Fred: “Also a lot of your sand and clay friends washed away from the fields with us and ended up in the river, filling it up!

Sandy meets many sand & clay friends

- Sandy: “O no, did my sand and clay friends also were washed away from the fields? Than in what will the plants be able to grow?”
- Ingrid: “There are many sand and clay friends of you on the fields. But if they keep washing away this quickly in the rivers and to the sea, than plants will not be able to grow on the fields in the future!”

- Sandy: “Let’s hurry up than! Let’s go to those fields from where you come! Show me the way”
- Fred and Ingrid: “Follow us upstream!”

Sandy, Ingrid and Fred on the fields

- Ingrid: “do you see those big trenches on the field? We were washed in those during the rain storm. And than ended up in the river and in the sea.
- Sandy: “Ok, let’s see how we can fill up those trenches. Let me talk to my sand friends on the fields!”

Sandy meets sand and grass seed friends

- Sandy: “Hi sand friends of the fields! Can you help me and my friends Ingrid and Fred to fill up those trenches?
- Sand friends: “We would love to, but we keep getting washed away when it rains!”
- Fred: “O, but me and my fertilizer friends can talk to the grass seeds and ask if they can grow on top of the trench to keep you stable!”

- Fred: “Come on, my fertilizer friends! Let’s help the grass seeds in the trenches to grow!”
- Grass: Thank you! (growing longer and longer)

Filling the trenches, growing grass, stopping erosion

- Sand friends jumping into the trench, mingling with the grass roots, grass keeps them steady, although it starts raining again. “Thank you, now we don’t get washed away to the river and the sea!”
- Fred and Ingrid join their fertilizer and insecticides friends again: “Thank you Sandy, for all your help! Now we can help grow the plants on the fields again! And now we don’t cause problems in the rivers and the sea anymore!
- Sandy: “Bye, my new friends!”

Sandy back in the sea

- Sandy, back in a clean sea, with many fish swimming around, waving at the readers: “Bye, see you soon for other Sandy adventures!”

- Once upon a time...
- Sandy has a river adventure

- When Sandy and its siblings were coming down the river, when they got dragged by the river current and missed the river joint to the sea.

- Sandy and its siblings, were carried way into a river reservoir, called a dam.

- Sandy liked when it arrived on the reservoir, as it looked like a big swimming pool.

- But they eventually got tired of of swimming and wanted to get trough and reach the beach.
- It was when they discovered that the dam was a real big obstacle that traps water and sediment.
- They could not get through.

- How could they now manage to pass by the dam and continue through the river course.
- They had to think of a solution.
- So, they decided to explore a bit what was going.
- They dive into the bottom of the reservoir and found other sand grains.

- They met Oscar, a river sand that was trapped in the reservoir for quite some time.
- Oscar told Sandy and its siblings that we come to the reservoir a few years back. And has been here ever since.
- Sandy told Oscar about their plan, of leaving the mountains to go leave at the beach.

- Is there any way we can leave the reservoir and pass the dam?
- Oscar told them that he knew someone who could help them...
- ...and lead them to the dam wall.

- As they were reaching the thedam wall, they could see how huge and tall it was.
- They thought, how are we going to pass though.

•When they reached the wall, they met with Tony, a big clay particle.

•Tony told them, that the dam had a sort of a hole, where water is drained.

•Sometimes, when the dam gets drained, sediments can use the mechanism to escape the reservoir.

•But Tony warned them that only the small grains can pass.

- Sandy was concerned that one or two of is bigger brother could not pass.
- Nevertheless, they would all try to get through.

- Tony explained what they had to do.

- Swim to the dam drain hole and wait for the water discarge.

- Sandy and its siblings did as Tony told them.
- When they were all reaching the drain hole, they felt a sudden change in the water current.
- The water around them became very rapid and they felt pull down by the current.
- They were passing the dam hole very quickly.

•Sandy got tangled with its siblings, they were twisting and swirling around…

•… and then they escaped the dam all…. And fell from a huge high.

•They were happy to escape the dam wall, but concerned about the fall.

•After the fall, they dived into the river again... and everything was ok.

•Sandy had escaped the dam together with its brothers and sisters and could now continue they journey into the beach...following the river course.


Once upon a time...
Sandy met Clay

Swimming down
the river...
Sandy once was
washed ashore...

There she heard a sound...
Somebody was weeping...
And when she looked around, she saw who it was.

Who are you? She asked...

I... I... I... am Clay...

Why are you weeping?

Nobody likes me, they say I‘m just dirt...

But aren‘t you beautiful? I can see you can change your shape-I can’t!

Is that any good?

Yes! Children can play with you, build anything!

Clay was feeling a little better then...

And what's that you got with you, asked Sandy?

Oh, that’s just some water, and some nutrients...

But that’s great! That is what makes flowers grow, you’re a hero!

Clay smiled a little... I like flowers!

And apples, and carrots, and broccoli, and strawberries!

They all wouldn’t grow without you, Clay!

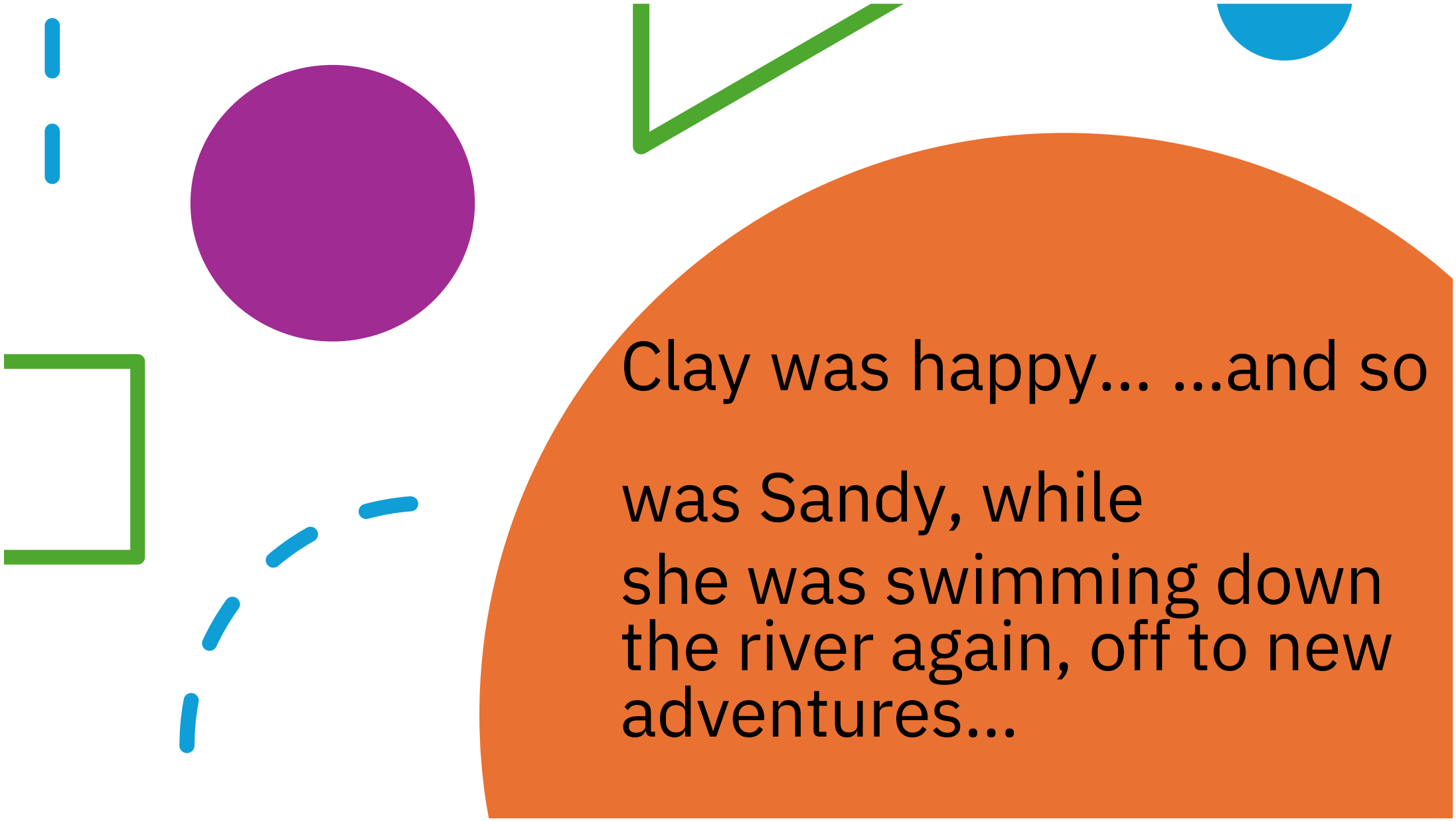
Now Clay was happy!
He was beautiful, a hero
and very useful.

Let’s go down the river together,
Sandy said...
And with the next flood they set off...

And when they came to a field full of beautiful flowers...

Clay said: I will stay here for a while, help them grow...

...and then, maybe later I become a brick, or a nice mug or a piece of art...


Clay was happy... ...and so
was Sandy, while
she was swimming down the river again, off to new adventures...

Next steps for the Sandy stories

01

Boris, Cristina, Edward, Ilka, Karen: each finalize one of the stories created into a real book (0,5 to 1 day of work, Cristina sends the template of the first Sandy story.

02

Collect existing sediment communication and put it online.

03

Put up the website sediments4kids.org

List of other existing Sediment Educational material to put on the website

- https://www.youtube.com/watch?v=DK6yI-ithzM&list=PLnpqQ5So_TJxXg86XWwQ8-nXNBMTWcWNB&index=2
- https://www.youtube.com/watch?v=tZ33Hm64bdw&list=PLnpqQ5So_TJxXg86XWwQ8-nXNBMTWcWNB&index=4
- https://www.youtube.com/watch?v=KFTVXz4BU-w
- https://youtu.be/NsfmcNHePiE
- https://thekidshouldseethis.com/post/stoney-and-silty-the-sediment-superheroes-of-mya
- https://www.youtube.com/watch?v=8hwY58kR4LU
- https://www.youtube.com/watch?v=yU1cd6eS7lM
- https://www.coastsforkids.com/

- Article “Sound of Sediment” – Carmen Molenaar
- …

The Sediment Game

Target audience/players

Students:

High school

University

Policy makers and stakeholders

Goal of the game (for the players)

Have fun!

To win… (Do better than previous players, or play against different group)

Lower sediment management costs and

maximize benefits

- economically : electricity production at dams, navigation, re-use of sediments
- and/or ecologically: more fish and better water quality,…
- and/or sociologically: less flood risk, …

Our goal: Educate players on the principles of good sediment management

River catchment scale (mountain to sea)

Sediment quality

Sediment quantity

Hydromorphology

Edward types out slide 2-3-4.

Concept of the game

- At beginning of the game: different sediment cases to “solve” during the next “10 years”, each year contains following steps:
  - Get “yearly money”
  - Choose which sediment solutions to implement and/or save money for more expensive solution in one of the next “years”
  - Get information on what “happened” during this year and consequences:
    - For the cases to solve
    - New sediment cases might pop up

Elements of the play screen/board game

- Whole catchment
- Simplified riversystem (main river and few branches)
- Dams, locks
- Industry
- Some cities
- Hot spots of polluted sediment
- Bridges
- Flood areas
- Erosion area/farm land
- Cliffs
- beaches
- Cristina

Ideas for cases

- Dams: sediment trapped, sediment flushed, contamination: Emanuelle?
- Industry: historical pollution, emerging contaminants: Ilka
- Navigation: dredging, erosion at bridges, TBT historical problem, sediment trapping (at locks): Edward
- Floods: contamination of soil around river, due to too much sediment: Heidi/Edward
- Extraction of sediment out of rivers to use them: WG CE member?
- Sea: coastal erosion, coastal accumulation of sediment: Cristina (erosion)/Heidi (accumulation)
- Habitat creation: restoring wetlands: Heidi
- Urbanization: pollution, engineered water ways, sewage risk: Kevin
- Solution: more monitoring/data/possible solutions: Monica

Disasters during the game!

Due to not taking action

- Flood of old mining material : Kevin
- Flood because not dredging enough: Edward
- Sued by the EU (Boris)
- Floods at the coast (Cristina/Heidi)
- …

Due to taking the wrong action(s)

- Put contaminated material in wrong place: leaching or flooding: Ilka
- Clean pollution downstream that get's polluted again from upstream: Ilka
- Dredging too much/taking too much sediment out of the system: WG CE member ?
- …

Next steps for the Sediment Management Game

01

Write out a first draft of the sediment cases and what can happen during the game by the end of July

02

Organize an online meeting to work further on developing the game at the end of August –beginning of September