

## STORYLINE ABOUT WATER AS A THREAT AND HOPE IN TANZANIA

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*(This project was carried out in cooperation with Programme for Teacher Education, NTNU, Norway through professor Anna-Lena Østern and professor Alex Strømme)*

### Evaluation Report

#### Introduction

This report is about a storyline about “Water as a threat and hope in Tanzania”. The setting is in two families, one in Morogoro rural area and the other in Morogoro urban area. This story is made by 14 pupils from Kigurunyembe aged between 11 and 14 ages attending grades five and six. The first part of this report is concerned with the planning session which involved the introduction of the project to the head teacher, the science teacher and the art teacher. This part also reports the meeting with the pupils involved in the project. The second part includes the participants (facilitators and students). The third part involves the detailed description and evaluation of the actual workshops that were carried. The fourth part cites the challenges and problems faced during the workshops and suggestions and recommendations are offered in part five.



Figure 1: 14 pupils from the school participated in the storyline workshops.

### The Planning session

The planning session was done on Friday, 4<sup>th</sup> November, 2011, in the head teacher's office. Present was the assistant researcher, the head teacher, the science teacher and the science teacher. As the assistant teacher I informed those present about the storyline project that was intended to be conducted with the pupils at Kigurunyembe Primary School. I informed them how Scotland became the initiator of the storyline strategy in learning beginning the mid 1960s to date. I also informed the teachers how the storyline has been kept alive and developed in many other countries including Scandinavia, the Netherlands, Germany, the United States, Singapore and Thailand. The teachers saw that now it was an opportunity for Tanzania also to try out the method. This strategy is an educational strategy which encourages models of democracy and good citizenship, the values which Tanzania supports and follows. In the planning session the details of how many pupils and of what age were discussed. (See table 1 for session plan; table 2 for pupils' overview). In this session the letter of agreement was signed (See appendix 4).

Table 1. Overview over the sessions in the storyline project.

DATE	ACTIVITY	FACILITATOR	DETAILS
Friday 4 <sup>th</sup> Nov. 2011	Planning about storyline about water as a threat or hope in Tanzania	Researcher	Meeting and planning with the Head teacher, Teachers and pupils
Monday 7 <sup>th</sup> Nov. 2011	Workshop 1	Science teacher	Water cycle, water as combination of hydrogen and oxygen Importance of water
Tuesday 8 <sup>th</sup> Nov. 2011	Workshop 2	Science teacher	Pupils generating responses to questions about water as a threat and hope
Wednesday 9 <sup>th</sup> Nov. 2011	Workshop 3	Science teacher	Pupils generating responses to questions about water as threat and hope
Thursday 10 <sup>th</sup>	Workshop 4	Art teacher/Researcher	Drawing and painting pictures related to water
Friday 11 <sup>th</sup> Nov. 2011	Workshop 5	Art teacher/Researcher	Singing and creating poems related to water

Table 2. Overview over the pupils' description of activities during the workshop.

DATE	ACTIVITY	WHAT WE DID	Facilitator
Friday 4 <sup>th</sup> Nov. 2011	Planning about storyline about water as a threat or hope in Tanzania	We listened to the researcher, the Head teacher and the teachers about the storyline project about water	The researcher, the Head teacher, the Science teacher and the Art teacher
Monday 7 <sup>th</sup> Nov. 2011	Workshop 1	We got an instruction about the water cycle, water as hydrogen and oxygen and the importance of water	The Science teacher
Tuesday 8 <sup>th</sup> Nov. 2011	Workshop 2	We answered questions about water	The Science teacher
Wednesday 9 <sup>th</sup> Nov. 2011	Workshop 3	We answered questions about water	The Science teacher
Thursday 10 <sup>th</sup>	Workshop 4	We drew and painted pictures of a family in a town and a family in the village facing problems of water	The Art teacher
Friday 11 <sup>th</sup> Nov. 2011	Workshop 5	We created and recited poems about water. We sang songs about water	The Art teacher

After the session with the teachers, then we met the 14 pupils that were selected for the project. These had been purposefully chosen by the teachers based on age, grade and their ability to follow instruction in the English language. The pupils were informed about the storyline project, the intentions and objectives of the project. They were also informed what they were expected to contribute during the workshop sessions.

#### Facilitators



Figure2: Mkola Kambanga -Head Teacher and elaborator on the water cycle; Godfrey Machaku - Science teacher (Main instructor on water); Gilbert Mwanga - Art teacher; Dr. Ephraim S. Kalanje Assistant researcher and general facilitator (art, songs, poems and dance)

## DESCRIPTION AND EVALUATION REPORT OF THE STORYLINE WORKSHOP

### Workshop 1

Workshop 1 was carried on Monday, 7<sup>th</sup>, November, 2011. All the 14 pupils were seated in a semi circle in their classroom desks. This arrangement was preferred instead of the traditional arrangement where students seat in rows. The semi circle arrangement was judged as ideal for motivating the pupils to interact among themselves and not only with the teacher. On the introductory part of the workshop pupils were first asked to say anything they knew about water. Questions asked were like: what is water? What is the importance of water? What would happen if there was no water? The pupils responded to these questions orally. Most pupils showed more understanding of the importance of water. It was a little difficult for them to define what water actually was and how water came about. They could however identify sources of water like rivers, springs, lakes, water from tanks and pipes. It was then the task of the science teacher to make elaborations, corrections and explanation based on science.



Figure 3: Three pupils explain the water cycle.

The science teacher used the Water Cycle or the Hydrological cycle chart to explain how water comes about through the processes of evaporation, condensation, precipitation and collection thus the cycle going on and on. The teacher also explained that water may exist in three states namely liquid, gaseous (water vapor), and solid (ice, snow and frost). The pupils were more familiar with water in liquid form than the other states. Ice and snow is not a common phenomenon in Tanzania. In this workshop the pupils were also elaborated how water can be formed in a laboratory by combining Hydrogen and oxygen. After the introductory part the science teacher guided the pupils to answer and discuss the questions for the workshop 1. Table 3 presents the question posed and the responses from the pupils. Some responses are specific for either the town or the village.

Table 3: Key questions in workshop 1.

	TEACHER'S QUESTIONS	PUPILS' RESPONSES	
		IN TOWNS	IN VILLAGES
1	<b>How do Tanzanian families have different access to clean water?</b>	-water storages and pipes -dams -rain water -wells However, this needs to be boiled and filtered	-springs -dams -rivers -streams -lakes -rain -wells However, this needs to be boiled and filtered
2	<b>Types of families?</b>	Urban or rural families; Well to do or poor families; Father, mother and children, Single parent families, Guardian and children (mostly orphans); Father and mother without children; Bachelors and spinsters	

3	<b>What kind of houses do they live in?</b>	Modern-cement blocks or red blocks; flats, corrugated roofs or tile roofs and some thatched with grass or coconut straws; cemented floors; modern furniture some with TV sets, Radios, piped water and electricity but not all of them.	Mostly mud houses or huts, wood houses, thatched with grass or grass let growing on the roofs. There are some modern house in the villages too owned by well to do people.
4	<b>How is their wc/washing facility?</b>	In modern houses there may be sinks and toilets and washrooms or bathrooms with piped water. Soap, brushes, basins are used. However sometimes water is scarce or short and this limits the use of these facilities.	Where water is at a distance washing takes place in streams, near rivers wells or a lake. It may also be fetched in buckets, pots, tins at home. The well to do may use soap and brushes. Others, the less to do may scrub utensils with sand and ashes. Clothes may be washed by beating it on rocks and using pawpaw leaves as soap.
5	<b>How do families get water?</b>	In towns mainly through piped water. Others get it from wells or nearby streams	<ul style="list-style-type: none"> <li>-springs</li> <li>-dams</li> <li>-rivers</li> <li>-streams</li> <li>-lakes</li> <li>-rain</li> <li>-wells</li> </ul>
6	<b>When is it rain time in the year?</b>	In Tanzania there is a short rain period and a long rain period. Short rains come in November to.....Long rains come in ....to...	
7	<b>When is it draught?</b>	Draught in Tanzania comes when the rains are not coming. Mostly in tropical summertime.	
8	<b>What is the water used to?</b>	<ul style="list-style-type: none"> <li>-drinking</li> <li>-cooking</li> <li>-washing</li> <li>-animals</li> <li>-gardening</li> <li>-cooling machines</li> <li>-industrial/factory purposes</li> </ul>	<ul style="list-style-type: none"> <li>-drinking</li> <li>-cooking</li> <li>-washing</li> <li>-animals</li> <li>-growing crops</li> <li>-home for fish and other plants and animals (rivers, lakes, sea etc)</li> </ul>
9	<b>How much water does the family need per day/use per day?</b>	Amount of water depends with availability of water, the size of the family, what it is used for, the distance from where it is fetched especially in the village and the cost especially in the towns. In the town it may be 12 buckets (240 litres) and in the village 3 to 5 buckets (60 to 100 litres).	
10	<b>What about animals, and their need for water?</b>	Water is fetched for animals to use	Animals are driven to where there is water. They may go long distances. Sometimes they may look for water for themselves.

The pupils were given opportunity to ask questions where more elaboration was needed. It was an interesting session and all the pupils made some contributions. They seemed eager to learn new things and looked attentive and happy. After the lesson the pupils were given assignments related to questions on water that were to be dealt with in workshop 2.

## Workshop 2

Workshop 2 was carried on Tuesday, 8<sup>th</sup>, November, 2011. In this workshop the pupils mainly responded to the questions that were given to them in workshop 1. The questions and the responses are given in table 4.

Table 2. Key questions in workshop 2.

	TEACHER'S QUESTIONS	PUPIL'S RESPONSES	
		IN TOWNS	IN VILLAGES
1	<b>Which are the threats of water?</b>	-water scarcity for people and animals -water pollution -water flooding -water borne diseases	
2	<b>How can water be dirty?</b>	-toileting in the water (urine and feces) -polluting the water with waste materials -letting animals use the water -destroying sources of water by grazing, farming etc -bathing, washing in sources of water -fishing by using dynamites -through floods -through factory wastage -through mining near water sources (ie mercury)	
3	<b>Which diseases are spread through water?</b>	-bilharzias -worms -fungus -cholera -Typhoid fever -Dysentery -Diarrhea -Skin rashes and cancer -stomachaches	



Figure 4: Pupils elaborating their assignments.

Workshop 2 was bound by responding to pupils' questions and assigning them tasks for the forthcoming workshop. For workshop 3 the pupils were informed to prepare for two questions and a drawing and painting workshop. They were divided into two groups of seven with gender balance. One group was assigned to draw a family in the town and the other a family in the village. The pupils were tasked to give names to the family members and to give their families a problem with water and suggest how their fictitious family solved the water problem in their home. The pupils were told that the best drawings would be drawn onto big paper and painted. The pupils were given pencils, erasers and paper for sketching at home.

### Workshop 3

Workshop 3 was carried on Wednesday, 9<sup>th</sup>, November, 2011. The procedure in this workshop was similar to the previous workshops. The questions and the responses are presented in table 5.



Figure5 . Making the fictive fram with families in a village and in a town.

Table 5: key questions in workshop 5.

	TEACHER'S QUESTIONS	PUPIL'S RESPONSES	
		IN TOWNS	IN VILLAGES



1	<b>How do you clean water?</b>	-Boiling and filtering locally -Using cleaning agents or chemicals e.g. water guard -Having special areas for disposing waste and refuse from factories	-boiling and filtering locally -taking care of sources of water so that they are not polluted
2	<b>What do you do with the cloak water from urine and excrements?</b>	-Disposed in flash toilets for those who have them -Many dispose them in pit latrines Availability of water is important for the functioning of flash toilets	-Mostly disposed in pit latrines and some flash toilets for those who have them. -disposed in some nearby bushes
3	<b>DRAWING AND PAINTING PICTURES ABOUT WATER</b>		



Figure 6. Pupils visualize their idea about living in rural area in a hut, and in urban area in a house.

After responding to the questions the children set to make their drawings. The art teacher had prepared the necessary materials needed for session that is water colors, brushes, water mixing gadgets and containers (broken pieces of glass, cups, and saucers), pencils, erasers and pairs of scissors and paper. The pupils were very engaged in this task and seemed to be enjoying themselves while they solved the challenges they faced. The art teacher and the researcher went round assisting the pupils those in need of help. Four drawings were selected as best and these were drawn on large paper and painted. For the next workshop the pupils were told to prepared songs, dances or poems concerning water. (See appendix 3 for sample stories about the pictures drawn).

#### Workshop 4

In workshop 4 which was conducted on Thursday, 10<sup>th</sup>, November, 2011. Each pupil was asked what he or she had prepared. Most of them had poems about water. Each child was given opportunity to recite or sing his or her poem. The poems were very interesting although not perfect as adults would write them. One poem was chosen to be recited or sung by all. The researcher taught the pupils a song of his creation about water but with an addition of a common chant known to the pupils about wishing rain to come but rebuking Katarina to go away: “*Mvua*

*njoo! Katarina Usije!*” Literally meaning: “*Come rain! Katarina go away!*” The pupils danced to the song with the accompaniment of the guitar played by the researcher. (See appendix 1 for the sample song. For the sample poem see appendix 2).



Figure 7: Ephraim Kalanje accompanying, and the pupils singing about water.

### Workshop 5

Workshop 5 was done on Friday, 11<sup>th</sup>, November, 2011. In this workshop the pupils reported what they had been doing in the project. They reported to other pupils, teachers and some parents what they have gained from the workshops. They exhibited their writings, and the art work. The pupils together with the teachers and the researcher sang and danced to the water song. The poem was recited too.

### Pupils' Evaluation Report

In this part the pupils' evaluation report is presented. The pupils were guided to make their own evaluation of their learning by each one of them responding to three basic questions given to them in Kiswahili: What have you learned during the five days of the workshops? How do you find the strategy of storyline in teaching and learning? What would you like to be improved in your learning about water? Below are the pupils responses in combined form translated in English.

#### 1. What have you learned?

-How rain is formed. What water is? How water is obtained in the village and in the town. How to clean water. How water is used. How water is made dirty. Problems that people may get with dirty water (diseases). That water is life. The water cycle. When draught comes in Tanzania. The rain season in Tanzania. Constructing songs, poems and dances about water. Sources of water. How and why to take care of water sources. The importance of using clean and safe water. Water is home for fish and other animals and plants. Water sources in the villages and in towns. Kinds of water problems that may face families in the village and in the town. How families in the village and in town may solve the problem of water. How to store water.

#### 2. How do you find the strategy of storyline in teaching and learning?

-It is good because it enables one to understand more and to learn more

-It integrates science with art, songs, dance and poems to learn. This motivates learning.

- Students contribute more what they know about the theme.
- You know many things that you did not know.
- We learned a lot about water.

### **3. What would you like to be improved in your learning about water?**

- To visit the water sources, factories where water is used, where water is made dirty etc
- More materials could have been available e.g. colors, paper.
- Conducive physical environment for learning
- Students should have good attendance.

### **Reflection on the storyline workshops**

The five days of the workshop were in general very exciting to both the pupils and the teachers. Nobody seemed to be bored. Everybody felt they were contributing something towards the development of the story. This was, firstly, because before anything new was presented the pupils were firstly given the opportunity to demonstrate whatever pre-knowledge they had on the subject in question. It was upon this that their ideas were extended, corrected or elaborated by the teacher. The teacher then proceeded on with more explanation where there was need. Secondly, before commencing each workshop the pupils were well prepared with the oncoming questions because after each workshop they were given the tasks to find out at home. In this way each child would have something to contribute. Thirdly, the issue about water is everybody's concern to a child and an adult alike in Tanzania. When children go to school in the morning they may be carrying plastic containers of water from home to water the gardens at school. But at home the children especially the girls would be busy after school fetching water for domestic use. Fourthly, the integration of teaching the water theme in science terms, practical experiences and integrating this with art, music and dance makes a deeper understanding of the theme to the pupils.

### **Challenges and problems**

- Mostly the Kiswahili language was the medium of instruction during the workshops. English was only sparcely used.
- Inadequate art materials.
- Incentives for the facilitators are needed.

### **Suggestions and recommendations**

More data collection is needed by using actual town representatives and actual rural representatives.

For comparison older student in secondary school and teacher colleges could also do the same.

Try out this strategy to a wider area in Norway, Finland and Tanzania and other countries.

Norway, Finland and Tanzania to collaborate and cooperate more on this project.

Expert and student exchange.

Kigurunyembe School, Trondheim School and Vikinga school in Finland, which was involved in this project, need to collaborate and cooperate more, even in other educational areas.

## **Appendix 1 (Sample song)**

### **MAJI NI UHAI (WATER IS LIFE)**

**Mvua Njoo Katarina usijex4**

**Uhai ni uhai.....Maji ni uhai x4**

Baba Mungu twaomba maji.....maji ni uhai

Viongozi twaomba maji.....Maji ni uhai

Watu wote tafuteni maji....Maji ni uhai

**Uhai ni uhai....Maji ni uhai**

Mvua ije tupate maji.....Maji ni uhai

Mabwawani kujae maji....Maji ni uhai

Na mitoni yajae maji.....Maji ni uhai

Visimani kujae maji .....Maji ni uhai

**Uhai ni uhai.....Maji ni uhai**

Tunywe maji safi salama....Maji ni uhai

Tuepuke kuumwaumwa....Maji ni uhai

Tunyweshee mazao yetu.....Maji ni uhai

Tunyweshee wanyama wetu....Maji ni uhai

Na misitu ineemeke.....Maji ni uhai

Tuepuke kuwa na jangwa....Maji ni uhai

**Uhai ni uhai.....Maji ni uhai**

Mvua ije iwe salama....Maji ni uhai

Mafuriko yasitupate...Maji ni uhai

Tuendeshe miradi yetu....Maji ni uhai

Tanzania iwe salama...Maji ni uhai

Na dunia iwe salama.....Maji ni uhai

Watu wote tuwe salama.....Maji ni uhai

**Appendix 2 (Sample Poem)****MAJI SUALA MUHIMU KWA VIUMBE VYAKE MOLA****(WATER IS NECESSARY TO GOD'S CREATION)**

Hodi hodi uwanjani, ndugu ninawasalimu

Ninalokubwa moyoni, kulitoa yalazimu

Likae masikioni, muuone umuhimu

**Maji suala muhimu, kwa viumbe vyake mola**

Umuhimu wake maji, ni nani asofahamu

Na wanyama wahitaji, na siyo tu binadamu

Umeme wataka maji, la twaupata kwa zamu

**Maji suala muhimu, kwa viumbe vyake mola**

Tuyatunze mazingira, na vyanzo vyake vya maji

Ili tukwepe hasara, zitokanazo na maji

Nchi iwekwe imara, iwe na wingi wa maji

**Maji suala muhimu, kwa viumbe vyake mola**

Tamati nimefikia, mbele sitaendelea

Kalamu chini natua, msidhani natania

Maji ni uhai pia, ndugu ninamalizia

**Maji suala muhimu, kwa viumbe vyake**

### **Appendix 3 (Sample stories - Town family and Village family)**

#### **1. Story about Town family picture drawn by Augustino John (13; Boy)**

This is a picture of Mr. and Mrs. Amani family. They have four children. The children's names are Neema, a girl, Tumaini, a boy, Ikunze, a girl and Bukeyenza, a boy. All of the children attend school. They walk half a kilometer to school carrying with them plastic containers of water to water the flowers at school. This family lives in a modern house built of cement blocks and the roof has corrugated iron sheets. The house has good surroundings. There is green grass growing around it and there are also flowers around the house. But now the green grass and the flowers are in a danger of drying up. There is shortage of water in the house although there are water taps. It is a dry season in Morogoro and the water is rationed. There is only water enough for drinking, washing and cooking. The toilets also cannot flush. They have pit latrines at the back of the house. Mrs. Amani and the girls sometimes have to walk some distance to fetch water from another family which lives a few blocks away. The other family has a water tank that can reserve some water. This other family sells water for 300 shillings a bucket. When the situation is like this Mr. and Mrs. Amani become very worried because now they need extra money to spend on water. The girls become very unhappy too because they have to wake up very early in the morning to fetch water. Mr. Amani insists that fetching water is girls' work. So on many occasions the girls go to school late.

#### **2. Story about Village family picture drawn by Kisa Mbao (11; Girl)**

This is a hut in the village called Mkundi in Morogoro Region. It is owned by a family of four people. The hut is mostly surrounded by dry land. There is not much green vegetation. It is the rain season, but the rains are short every year in this part of the land. They are short now too. The father's name is Atanasio Mkude, a Christian. He is married to a Moslem woman named Asha Hamis. So one child, the girl has a Christian name, Maria and the boy a Moslem name, Juma. The father makes some simple stools, pestles and mortars for the village people. He sells these for only a little money. The mother works in the field but does not get enough produce because the land is dry. Sometimes she makes mats and baskets and selling these to other villagers for a little money. The girl does not attend school because the father cannot afford to pay for her school uniforms and cannot make any money contributions to the school when asked. The nearest school is two kilometers away. He needs a bicycle to carry his daughter to school. So the girl stays at home to help the mother in the field or doing the house chores like fetching firewood. The boy looks after

two goats looking for places where they can graze and have water, most often to a stream two kilometers away. Often the mother and the girl have to go to the stream to fetch water for their cooking and washing. The whole family sometimes takes their bath at same stream when there is water. Sometimes the stream dries up. When this happens the family has to look for some other places near the stream looking for water. They do this by digging holes in the ground. They carry the water in pots, gourds or plastic containers.

#### **Appendix 4 (Letter of Agreement)**

### **STORYLINE ABOUT WATER AS A THREAT OR HOPE IN TANZANIA**

#### **LETTER OF AGREEMENT**

I allow EdD Ephraim S. Kalanje and Professor Anna-Lena Østern to carry out a development project, the water project in Kigurunyembe Primary School, Morogoro, Tanzania. I allow that the project is documented through photo and video clips of the pupils work in exploration writing, singing and dancing making music and telling the story about water. The pupils might be interviewed about the project or they might fill out evaluation schemes. The project will be reported together with other water projects carried out in schools in Norway and Finland. I trust that will bring educational benefits and other kinds of benefits for Finland, Norway and Tanzania.

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M. KAMBANGA

**HEAD TEACHER**

**KIGURUNYEMBE PRIMARY SCHOOL**

**Date**-----

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Dr E.S. KALANJE

**RESEARCH ASSISTANT**

**Date**-----