

# Young Ambassadors for Chemistry (YAC) 2011-2012

YAC TEAM: Lida Schoen, Erica Steenberg, Mei-Hung Chiu

**Objective of the [YAC project](#) is to facilitate the flow of ideas between chemistry and society. The project uses the 'train the trainer' model to create public interest in chemistry through YACs, assisted by their trained teachers by running local public awareness events. A [2<sup>nd</sup> project](#) evaluates results to make the programme sustainable and self-supporting.**

## Practical implementation

We try to achieve our aims by showing teachers (all levels, but mainly secondary school) possible meaningful content, related to students' daily life and student centred methodology with e.g. group work, discussions, collaboration with other subject teachers and international projects as the [Science Across the World](#) exchange programme to use their resources like 'Chemistry in our lives'. SAW additionally offers [Facebook](#) and [Factworld](#), a platform to find exchange partners. The chosen content is 'Cosmetics', a topic all students are interested in. The teachers carry out all experiments and learn about the science. On the last course day the teachers guide the students to perform hands-on experiments in a public venue and to interact with and interview the public. We aim to make YAC sustainable and self-supporting by evaluating questionnaires collected from organisers, teachers, students and public (by our roving student reporters).



## IYC 2011

The YAC team submitted YAC as an [idea for IYC 2011](#). The idea was well received, with since earlier invitations for smaller or more extended projects from **Ethiopia, Kuwait and Jordan**, new invitations from **Puerto Rico, Bulgaria and Tanzania** (2012).

## Puerto Rico, San Juan, before the General Assembly (July 29)

Prof. Dr. Ingrid Montes organised a morning [YAC activity](#) with teachers, PhD students and a few students. Even in such a short time, anyway part of the message came across!

## Bulgaria, Gorna Malina (November 8)

We got a unique chance to combine the [prize giving ceremony](#) for the Global Stamp Competition with a [YAC activity](#) in the winner's class with her teachers.

## 2012

After the failure to organise YAC Tanzania Thadeo Ntambala did manage in 2012!

## Tanzania, Kasulu (April 25-27, 2012)

A complete new experience: YAC Kasulu in rural NW Tanzania. A group of 14 private schools hosted and facilitated the YAC course, locally organised and facilitated by headmaster Mr. Gideon Bunyaga of Kasulu Secondary School. The YAC event took place in the local football stadium, a spatial location with a lot of students and public around. 25 Teachers from around Kasulu (up to 90 km away) and 50 students from the 14 participating secondary schools in and around Kasulu, participated in the programme.

We encountered many challenges: no internet, no computers (many teachers never touched one), no LCD projector (rented for one morning, so we could show many guiding pictures), little equipment and chemicals, etc.



*All participants, organisers and helpers of YAC Tanzania in Kasulu*

During group work the subject 'Chemistry in our lives' generated many 'national' ideas. We all learned about local production of soap and preparing of cassava mash (staple food) from scratch (including the dangers of the cyanide containing variety).

During the course days, we are well looked after: cooked breakfasts, lunches and refreshments for all! As for the students, life happens outside!



*Julius Nzohumpa Ntidoga, our chairman, reports.*



*Lunch outside*



*Erica leads a group activity*



*Teacher cleans 'beakers' after the practical work.*

We show a simple technique for teachers to find what all students know or think about a subject in a short time. In our case for the teachers, we choose 'Chemistry'. Good to see it works out very well, ideas from all participants show their expectations and problems clearly.

We go on with practical work, without 'equipment', after a short demonstration. We use the students' tea cups as beakers and plastic tea spoons as measuring devices and/or stirrers on the other side. groups the participants carry out experiments and present their results.

After convincing the participants they will be in charge completely and responsible for the success of the YAC event, we help to divide roles and appoint coordinators: Our English teacher participant suggests, the students should present their results and ideas in Swahili, as many in the public won't understand English. Very good idea, the local population

speaks Ha, in primary school students learn Swahili. After a useful evaluation and a last lunch, students and teachers carry everything needed for the practical work and (heavy) tables to the football stadium.

The coordinators prepare the students and themselves to start with the practical work efficiently. We are very audible (microphones and loudspeakers) and visible from our covered grandstand!

From the beginning we get a lot of public and 2 natural leaders, chairman Julius Nzohumpa Ntidoga and Science teacher Emmanuel Saguda Kingi of Kasulu

Secondary

School keep convincing the public of the importance of chemistry for the region!

The students prepare their presentations, so everybody can see and hear what and how they are advertising their 'chemistry' products with a lot of creativity like little acts, singing raps, shouting and dancing!

An international jury has a difficult job to appoint winners. We get more and more visitors, but the organisation manages to keep them on a (little!) distance. We end this wonderful event with handing certificates to all participating teachers and schools with YAC students. Not to forget mentioning a lot of kissing and hugging!



*Students carry tables to the football stadium.*



*Packaging service and marketing area*



*Students produce their products.*



*More and more interested public!*



*VIPs discuss the chemistry products with the students (far right in the front).*



*Science teacher Emmanuel Saguda Kingi informs and entertains the public!*



*Students present their products to the public.*



*The jury gets the 'impossible' task to choose winners.*



*Headmaster of Kasulu Teacher Training College hands out certificates.*

And this was the glorious end of our 13<sup>th</sup> YAC event, the 1<sup>st</sup> in Tanzania with students, being great **Young Ambassadors for Chemistry!**

### **Evaluation: summary of teachers' and students' evaluations**

Eighteen teachers' responses could be analysed. 83% of the group said that they had learnt much about the application of chemistry in their daily lives; that they were committed and earnest to participate in the YAC Workshops and that they regarded the activity as valuable. 100% of the teachers said they would participate in YAC again, amongst others expressing the opinion that "It is very interesting and educational because of the practical work". When teachers were asked whether they would apply what they have learnt to their future teaching, only 22% of the group said that they would not be able to, primarily giving the lack of resources as a reason. The benefit of YAC in Kasulu was overwhelmingly seen as the awareness of how to make useful products safely and easily, and one gets the impression that teachers could see possible economic benefits had they been able to produce and supply these cosmetic items in their villages.

Very often the duration of such workshops is dictated by financial constraints that teachers are unaware of. Increasing the duration of the workshops emerged as the single one aspect teachers would like to see in future workshops of this nature.

Teachers' viewpoints of practising chemists show that they see a scientist very much in a traditional laboratory setting, rather than merely handling chemicals.

One English teacher attended the workshops and indicated that there was some initial anxiety at the start of the sessions, but that she enjoyed working with science teachers and felt confident about using YAC materials for language students.

Unfortunately only a handful of students' responses were collected. The reason for this is not clear at this stage. Of the responses analysed, 100% of the students said they had learnt much about the application of chemistry in daily life and that they were committed and earnest to participate. Students commented positively on doing the practical work and one gets the impression that teaching of chemistry is either only theoretical, or that students do not get extensive opportunity to do their own experiments. All students would like to promote chemistry as YAC's in future. The views students have of chemistry as a career agree with teachers' views, but they also see a chemist as handling chemicals on a large scale. No public responses are available for analyses at this stage.

### **Postscript for CCE**

All organisers and involved organisations received a letter of endorsement from Dr Temechegn Engida, president of the Federation of African Societies of Chemistry (FASC). Disappointing was that after promising first contacts with the IUPAC NR in CCE and the Tanzanian UNESCO representative, both from Dar Es Salaam, later all communication failed, even from the capital itself, so nothing could be organised from their sides. Nevertheless, this successful YAC course and event showed that it's very valuable, CCE also supports **private bottom-up** initiatives!

## **Acknowledgments**

- **Thadeo Ntambala** (Netherlands), initiator, organiser and facilitator;
- **Fabian Kagadye** (Dar Es Salaam), local organisor in Tanzania;
- **Mr. Gideon Bunyaga**, headmaster Kasulu Secondary School, with his team of schools, local organiser in Kasulu;
- **Our distinguished jury Ewa Delezuch Ntambala** (MSc, the Netherlands) and the **Headmaster of the Teacher Training College** (Kasulu) with also Mr. Bunyaga participating;
- **CCE** for facilitating travel expenses for Lida Schoen (Netherlands);
- **IFF Netherlands** for donating concentrated oils for perfume;
- **Annindriya, Netherlands** for donating small spray bottles for perfume;
- **SASOL Germany** for donating detergent for shampoo;
- **Seppic France** for donating emulsifier for the emulsion.