BILATERAL COMPARISON OF LOW LEVEL RP TRAINING AND EDUCATION COURSES
– A TOOL FOR FACILITATING THE MOBILITY OF RPOs AND RADIATION WORKERS

Hielke Freerk Boersma Correspondence: University of Groningen, Health, Safety and Environment / Radiation Protection Unit, Visserstraat 47, NL-9712 CT Groningen, The Netherlands, e-mail h.f.boersma@rug.nl.
Jan-Willem Vahlbruch Institut für Radioökologie und Strahlenschutz, Leibniz-University, Hannover, Germany
Jack Haagen Medical Centre Alkmaar, Alkmaar, The Netherlands
Marcel Greuter University Medical Centre Groningen, University of Groningen, Dept of Radiology, Groningen, The Netherlands
Oskar van Dongen Nederlandse Aardolie Maatschappij, Assen, The Netherlands

university of groningen

Abstract
We report on a bilateral pilot project to compare the content of low level Radiation Protection (RP) Education and Training (E&T) courses in The Netherlands and Germany. Attention will be paid to differences in national systems of RP E&T. We suggest a possible roadmap to mutual recognition of low level RP E&T courses between Germany and The Netherlands and, more in general, throughout Europe.

1 Introduction
- Goal of the European Foundation on Training and Education in Radiation Protection (EUTERP): remove obstacles for free traveling of RWs, RPOs and RPEs within the Member States of the EU.
- Essential: good comparison of the content of the RP courses in the Member States → bilateral pilot project.
- Special attention to low-level RP training, suitable for RWs as well as for RPOs responsible for low risk applications (this will concern the largest part of RP professionals crossing EU-borders).

2 Method / objectives
- Carried out as an apprenticeship by students participating in the Dutch RPE Course (Level 2).
- Restricted to the medical and technical field.
- Inventory of the system of RP courses in both countries.
- Comparison concerning the content of various low-level RP courses (presented separately).
- Results including recommendations are available through the EUTERP-website[1].

[1] J.H.P. Haagen, M.J.W. Greuter, O.A.D.M. van Dongen, J.-W. Vahlbruch and H.F. Boersma – Comparison of the lowest level radiation protection courses in Germany and The Netherlands – a bilateral pilot (2012, available on www.euterp.eu).

3 E&T System in Germany and the Netherlands

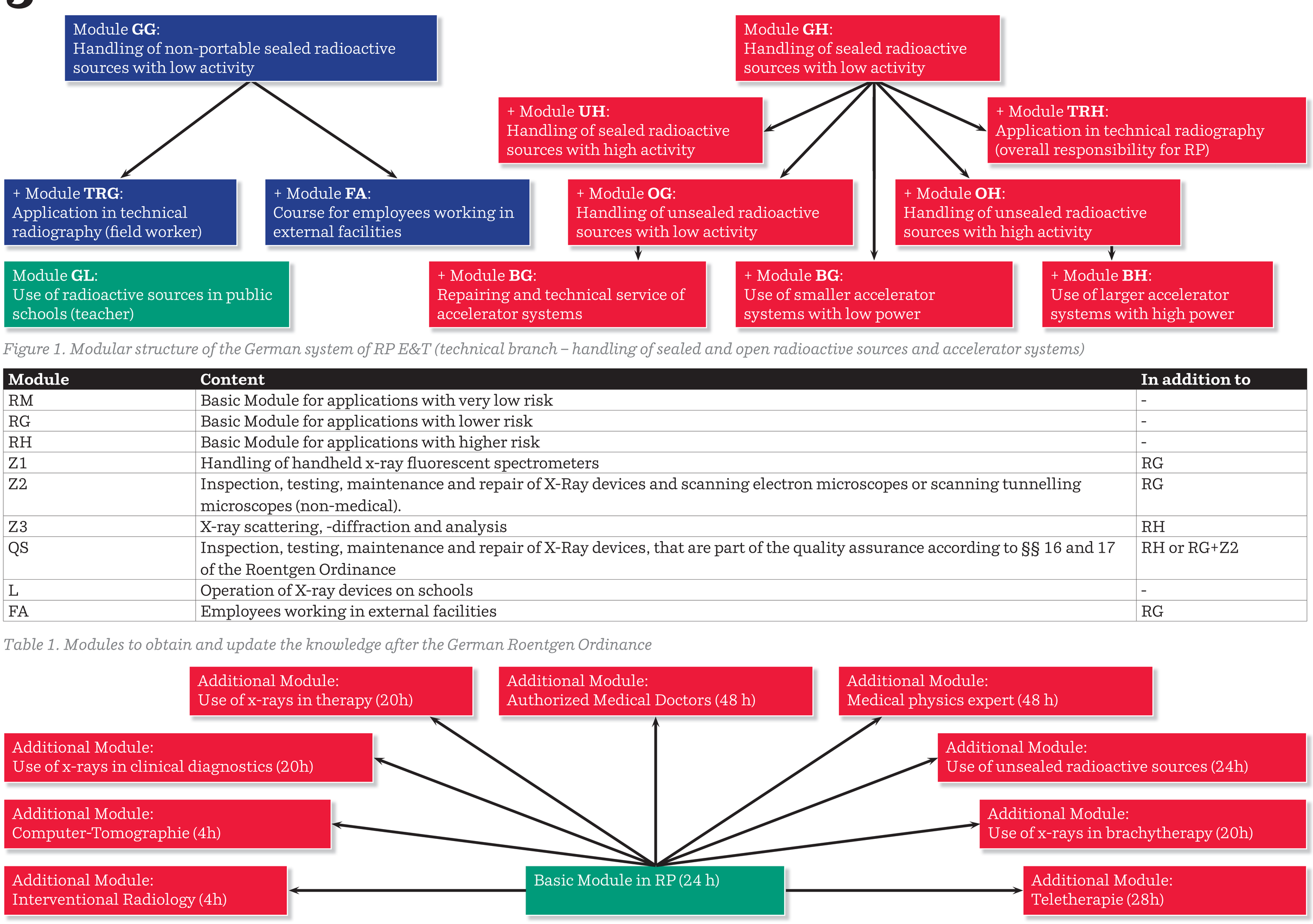

Figure 1. Modular structure of the German system of RP E&T (technical branch – handling of sealed and open radioactive sources and accelerator systems)

Module	Content	In addition to
RM	Basic Module for applications with very low risk	-
RG	Basic Module for applications with lower risk	-
RH	Basic Module for applications with higher risk	-
Z1	Handling of handheld x-ray fluorescent spectrometers	RG
Z2	Inspection, testing, maintenance and repair of X-Ray devices and scanning electron microscopes or scanning tunnelling microscopes (non-medical).	RG
Z3	X-ray scattering, -diffraction and analysis	RH
QS	Inspection, testing, maintenance and repair of X-Ray devices, that are part of the quality assurance according to §§ 16 and 17 of the Roentgen Ordinance	RH or RG+Z2
L	Operation of X-ray devices on schools	-
FA	Employees working in external facilities	RG

Table 1. Modules to obtain and update the knowledge after the German Roentgen Ordinance

Figure 2. RP Modules for medical applications in Germany. Omitted is a basic course (8 h) for doctors without expert knowledge.

Level of Expertise	Characteristics	Purpose
5 (A or B)	Low risk and few sources	X-ray (5A), sealed sources (5A&5B), open sources (5B – only RWs)
5AM	Low risk	X-ray in dentistry
4 (A or B)	Moderate risk or low risk and more than ten sources	X-ray (4A), sealed sources (4A&4B) and open sources (4B – only RWs)
4AM	Moderate risk	X-ray in Cardiology, Pulmonology, Gastro-Intestinal Disease and Orthopedy
3	Significant risk	Small accelerators, X-ray, sealed and open sources
3M	Significant risk	X-ray in radiology and radiotherapy
2	High risk / complex licenses	All licenses

Table 2. Summary of the Dutch system of RP E&T primarily based on the Directive for recognition of RP Training Providers.

4 Results and recommendations
Results:
- Global equivalence between the Dutch level 5 courses and the low level modules in the German system.
- Main difference: national legislation.

Recommendations:
- mutual recognition of RP courses and modules in both countries provided that additional legislative modules are introduced (Table 3).

RP courses or modules	Equivalent to
5A	GG, GG+TRG, GG+FA, GH, L, RM, RG, RG+FA, RG+Z1, RG+Z2, RG+Z2+QS, Kenntniskurs (basic course of 8 hours for doctors without expert knowledge), Grundkurs im Strahlenschutz (Basic Module in RP)
5A	RH and RH+Z3 for specific Expert Knowledge Groups
5B	GG, GG+TRG, GG+FA, GH
GG, GG+TRG, GG+FA or GH	5A or 5B, but only for those applications that match with the corresponding German Knowledge Expert Groups
L, RM, RG, RG+FA, RG+Z1, RG+Z2, RG+Z2+QS, RH or RH+Z3	5A, but only for those applications that match with the corresponding German Knowledge Expert Groups
GG, GH or GG, GH plus additional modules	Instruction for RWs working with sealed sources for which the employer requires 5A
GH+OG or GH+OH	Instruction for RWs working with open sources for which the employer requires 5B
RG, RH or RG, RH plus additional modules	Instruction for RWs working with X-ray devices for which the employer requires 5A
RM and L	Instruction for RWs working with X-ray devices for which the employer requires 5A, but only for those applications that match with the corresponding German Knowledge Expert Groups
Basic Module in RP (Grundkurs im Strahlenschutz für Ärzte und Medizinphysikexperten)	Instruction for RWs working with medical applications for which level 5A or 5AM is required

Table 3. Suggestions for mutual recognition of RP Courses and modules in Germany and the Netherlands. Items in the left column are at least equivalent to the corresponding items in the right column.

5 Conclusions
- Apprenticeships (work load approximately three months) offer a good opportunity to bilateral comparisons of RP E&T courses between EU Member States.
- From these comparisons recommendations can be made to the national authorities for mutual recognition of RPOs.
- Various bilateral comparisons are easily extendable to multilateral comparisons.