

Chapter 24: Developing Sustainability in Higher Education using AISHE

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Abstracts

A description is given of *AISHE*, a tool for auditing and policy development for sustainable development in universities. Some general conclusions will be shown of the audits that have been done so far.

Two special cases will be discussed. The consequences of an audit in an Economics study programme are shown, as a characteristic example. And an audit in an Environmental study programme will be shown, to demonstrate the complicated relation between this study and sustainability, and the way in which *AISHE* can be of help there.

1. Introduction

In the Netherlands, the so-called “Stichting Duurzaam Hoger Onderwijs” (“Dutch Foundation for Sustainable Higher Education”) is working on several projects to strengthen the role of sustainability in the Dutch universities. One of those projects, now completed, was the development of an instrument for the investigation of the situation within a university (-department) with respect to sustainable development. This instrument, called *AISHE* (short for: “Auditing Instrument for Sustainability in Higher Education”), is now used for sustainability audits in many universities.

The instrument is built around a list of 20 criteria, divided into three groups, “Plan”, “Do” and “Act”, corresponding to three of the four parts of a quality circle, also known as the “Deming Wheel” or “PDCA” (see: Deming, 1986). The 20 criteria are shown in see table 1.

For each of these 20 criteria, a five-point ordinal scale is designed. The characteristics of these scales are shown in table 2. This is based on an earlier model for general quality management: the EFQM model (see: EFQM, 1991), adapted as the “Five Stages Model” by INK, a Dutch organisation for quality management (see: INK (2000). The HBO Expert Group (1999) developed a version of this model especially for Higher Education (see also: Van Schaik, Van Kemenade, Hengeveld & Inklaar, 1998).

AISHE was tested in 2001 in a series of universities in the Netherlands and in Sweden. At the end of that year, it was published (Roorda, 2001).

AISHE was compared with other assessment tools for sustainability in higher education by Shriberg (2002).

Consultancy and training

In 2002, a follow-up project started. In this project, consultancy is offered to universities, in which *AISHE* is used as a tool for the development of a policy for the integration of sustainability in the university. Also, a training programme is offered to (future) sustainability co-ordinators in universities, in order to enlarge the number of people able to perform *AISHE* audits. From 2003, this training is offered outside the Netherlands as well.

Table 1: The criteria list	
Plan	1. Vision and policy 1.1. Vision 1.2. Policy 1.3. Communication 1.4. Internal environmental management 2. Expertise 2.1. Network 2.2. Expert group 2.3. Staff development plan 2.4. Research and external services
Do	3. Educational goals and methodology 3.1. Profile of the graduate 3.2. Educational methodology 3.3. Role of the teacher 3.4. Student examination 4. Education contents 4.1. Curriculum 4.2. Integrated Problem Handling 4.3. Traineeships, graduation 4.4. Speciality
Check	5. Result assessment 5.1. Staff 5.2. Students 5.3. Professional field 5.4. Society

Table 2: General description of the 5 stages

Stage 1: Activity oriented	Stage 2: Process oriented	Stage 3: System oriented	Stage 4: Chain oriented	Stage 5: Society oriented
- Educational goals are subject oriented. - The processes are based on actions of individual members of the staff. Decisions are usually made ad hoc.	- Educational goals are related to the educational process as a whole. - Decisions are made by groups of professionals.	- The goals are student oriented instead of teacher oriented. - There is an organisation policy related to (middle)long-term goals. - Goals are formulated explicitly, are measured and evaluated. There is feedback from the results.	- The educational process is seen as part of a chain. - There is a network of contacts with secondary education and with the companies where the graduates find their jobs. - The curriculum is based on formulated qualifications of professionals.	- There is a long-term strategy. The policy is aiming at constant improvement. - Contacts are maintained, not only with direct customers but also with other stakeholders. - The organisation fulfils a prominent role in society.

2. The *AISHE* auditing procedure

In short, the procedure for an audit is as follows (if a minimum scenario is followed):

1. Preparation with the internal assessment leader:
 - Explanation of the method
 - Discussion of the procedure
 - Selection of criteria and appendices to be treated
 - Composition of the group of participants
2. Written information to the participants
3. Introduction with the group of participants:
 - Explanation of the *AISHE* method
 - Discussion of the procedure
4. Filling in the criteria list: by the participants individually
5. Consensus meeting, participants + consultant
6. Review with internal assessment leader

Some of these steps will be explained in some more detail.

Group of participants

In small organisations (up to about 15 staff members) each staff member can participate. In larger organisations a group of 10 to 15 participants is selected. The group has to be representative for the complete teams of the staff members and the students, so there have to be one or more managers, a number of teachers (professors, lecturers, etc.) coming from a wide variety of disciplines and curriculum parts, some students, and perhaps one or more members of the non-teaching staff.

Filling in the criteria list (individually)

After the model has been explained to all participants, they are asked to read the part of the *AISHE* book that contains the descriptions of the five stages for all criteria. While doing this, individually, they compare this to their own organisation (e.g. an education programme or a faculty of their university), and find the stage that resembles their own situation most.

At the end, they write their conclusions down on a form and hand it to the assessment leader, who combines the conclusions of all on one composite form.

Consensus meeting

Next, a meeting takes place in which all of the participants are present. At the beginning (or earlier) the copied composite form is distributed. As before, every participant has the *AISHE* book, in which the own scores and annotations are written: these are essential for the meeting.

All participants have an equal weight in the discussions, in the proceeding of the conversation and in the decision making. Each (selected) criterion is discussed. On a basis of intrinsic reasoning, a common conclusion is looked for about the right score of the organisation.

If possible, decisions are made based on consensus. If, however, for some criterion no consensus can be reached, the chair will conclude that, of all proposed scores, the *lowest* is the one that is decided upon: this is, because a (higher) score has only definitively been realised if all participants agree with it. In *no* case at all, decisions are made by voting.

Desired situation, priorities, policy

During the discussion of the criteria, naturally a number of possible improvement points will rise. This will enable the group to formulate – for each criterion – a *desired* situation. This desired situation is defined, not only in the form of a stage to be reached, but also in the form of a series of concrete targets and associated activities that will lead to the desired stage.

In order to guarantee that the necessary concreteness is really achieved, at the beginning of the consensus meeting a decision is made about the (future) policy period the desired situation is related to. This may for instance be a period of one year, starting at the moment of the assessment.

When for all 20 criteria, or for a major part of them, policy intentions are defined in this way, a large list of goals and activities will be formed on which work can be done in the coming period. But then of course the danger is that if this list is rather huge, in reality probably many of them will not have much of a chance: it's a well-known fact that a policy plan with more than 3 to 5 priorities usually has not much chance of success.

This is why the meeting ends with the assignation of those elements in the list of policy ideas that the group judges are most important: those elements receive highest priority.

The result

At the end, the audit results consist of:

- A report containing a description of the *present* situation, in the form of a number (the stage) for each criterion plus a description for each criterion in words;
- A ditto description of the *desired* situation;
- A *date* on which this desired situation has to be reached;
- A list of first *priorities*, that are considered to be crucial in order to be permitted to conclude that the policy will have been successful (see figure 1).

In the end, this package has the status of “recommendations to the management”. This set of recommendations has a good chance of being accepted by the management and to become a part of a concrete policy plan. This is because the management itself is represented in the group of participants (and that is exactly why that is so vital!); and the recommendations have – if all went well – been chosen in consensus by a representative group from the staff and the students, so it is likely that there is support for the conclusions.

For an assessment in which all 20 criteria are investigated, the consensus meeting(s) will probably take 4 to 5 hours.

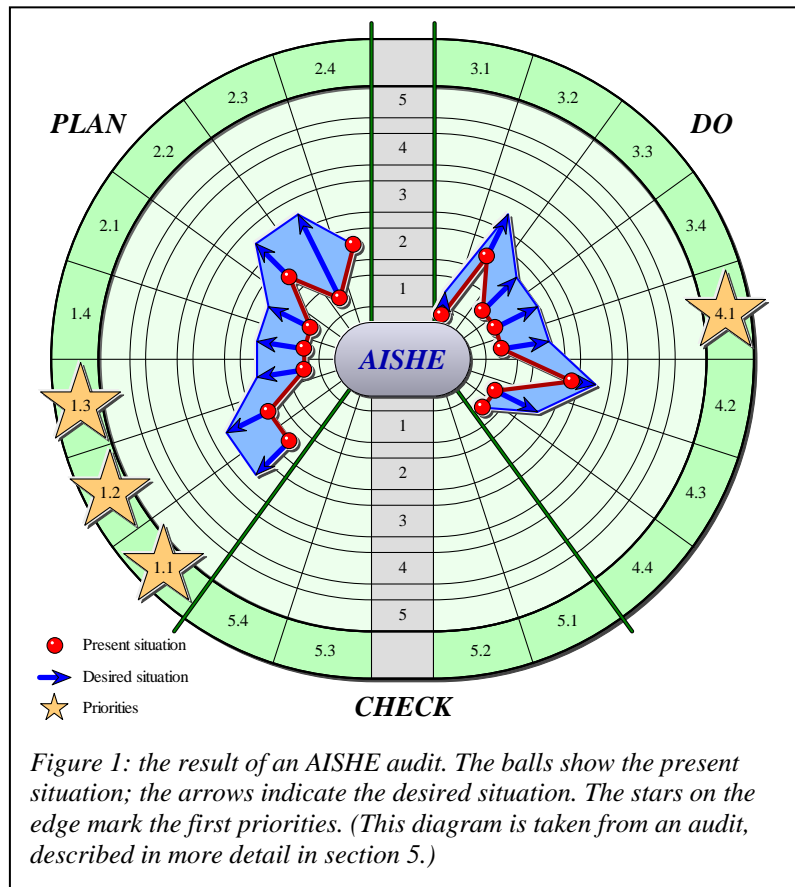


Figure 1: the result of an AISHE audit. The balls show the present situation; the arrows indicate the desired situation. The stars on the edge mark the first priorities. (This diagram is taken from an audit, described in more detail in section 5.)

3. The AISHE audit as a part of the Total Quality Management

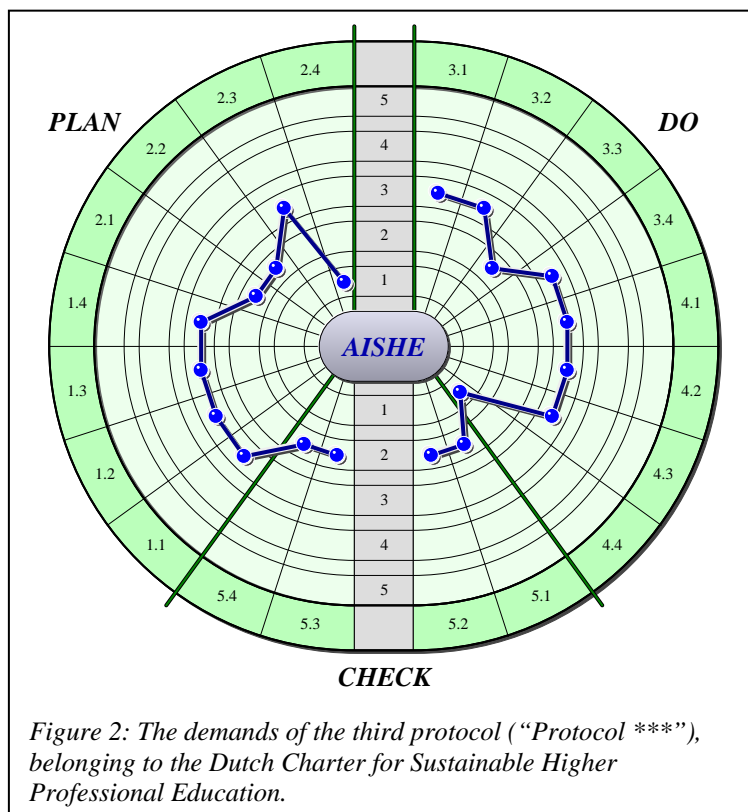
One of the results of an AISHE audit will be a list of improvement points, together defining a “desired situation”. This description is not yet a complete policy plan, and by far no activity plan on an operational level. But these can be made, using the AISHE report. In fact, as a part of the current consultancy project, assistance with this appears to be the main task of the AISHE consultants. A few interesting cases will be shown below.

Probably, the policy plan will contain a deadline, on which the desired situation will have to be realised. On that date, AISHE can be used again, in order to evaluate the results of the activities that have taken place. In this way, a quality cycle (PLAN – DO – CHECK - ACT) is completed. Next, the results of this second AISHE audit can be used as a starting for a new policy plan, etc.

This is exactly the way in which general quality management usually works. This is no coincidence: in the optimal situation, the sustainability policy is integrated in the total quality management. Or, to put it in a different way: the logical consequence of the implementation of a Total Quality Management System is the integration in it of sustainability: think of subjects like professional responsibility and long term planning.

This is reflected in the way AISHE can be used in a system for quality management in Higher Education: think of self-evaluations, visitations and accreditation. On several occasions, AISHE has been used as a part of a self-evaluation process in preparation of an external visitation. In other cases, it was the inverse: complaints by an external visitation committee about a lack of sustainability in the curriculum gave rise to a request for an AISHE audit.

At present, the AISHE auditing team has contacts with the designers of the Dutch academic accreditation system, in an attempt to give sustainable development a prominent position in the accreditation system. As it seems, this will result in a situation in which universities or study programmes can adopt sustainable development as a special characteristic.



For Dutch universities for professional education ("hogescholen"), a "Charter for Sustainable Higher Education" has been developed by the Dutch Foundation for Sustainable Higher Education (1999). This Charter differs from the Charters of Talloires (1990), Copernicus (1994) etc., because it demands from the signing universities a series of concrete activities and assessable results, as formulated in a series of Protocols. Each of the four protocols puts demands on a level varying from rather low ("Protocol *") to very strong ("Protocol *****") (See figure 2, showing the third Protocol). The demands are formulated as criteria and stages of AISHE.

More than 60% of the Dutch hogescholen have signed the Charter. Those who meet the demands are granted the Certificate for Sustainable Higher Education. About 10 hogescholen are in possession of this Certificate, most of them based on the lowest level Protocol.

4. A short overview of results

A number of interesting conclusions can be drawn out of the audits that have been done so far.

- *Communication* about sustainability (criterion 1.3) is, so far without *any* exception, always a main point for improvement (i.e. it is given high priority). Usually, many things are less than optimal, because of a lack of effective communication between the management and the staff, among staff members themselves, with other people or parties involved (like the professional field) and especially, between the university and the students. In all investigated cases, in consensus it was decided that the improvement of the communication should be one of the first priorities. (Below, in sections 5 and 6, more details will be given.)
- Also, in almost all audits, improvements in the *vision* and the *policy* about sustainability (criteria 1.1 and 1.2) have a high priority. The vision and the policy often lack an explicit mentioning of sustainable development. In some cases, explicit reference is made to relevant aspects, like ethics, responsibility, societal role, etc.; in other cases, even those are not present. When sustainability is mentioned implicitly or explicitly, in most cases the texts are regarded by the audit group as a dead letter. So, an improvement that is regarded as vital is the explicit formulation of sustainability in the mission statement and in policy plans in such a way that there are real implications for the university activities and the education.
- Usually, there is a *wide variety* in the individual opinions. It is not uncommon that the opinions about a criterion vary from stage 1 up to stage 4. It appears that there are two main causes for this. One cause is a lack of effective communication. The other cause usually is a difference of opinion about the concept of sustainability and the meaning of it in relation to the own education. Nevertheless, it almost always appears to be possible to find a consensus on all criteria.
- Also rather typical: In a number of criteria, the *manager thinks more optimistic* than the other participants. This, too, is usually caused by a lack of communication: often, the manager knows much more about management processes that are going on, but less about the effectiveness of them, than the staff and (especially) the students.
- Not in all cases, consensus is reached on a stage where originally the majority of participants thought it should be. There are interesting examples in which it even occurred that a stage was concluded that was lower than *everyone* expected. This was usually caused by a critical examination of the existing opinions by the AISHE consultant.

In the AISHE audit report, a small group of global indicators is calculated:

- The *median* of the 20 scores is, in most audits, stage 1. In many of the audits, the participants define a desired situation with a median of 2. Usually, the desired situation has a date that is one year from the audit date; sometimes it is 1½ or 2 years.
- The "*Plan Do balance*" is simply the difference between the added scores of the "Do" part (criteria 3.1 till 4.4) and those of the "Plan" part (criteria 1.1 till 2.4). If this indicator is far below 0, this indicates that the university

is making a lot of plans and visions, but not very successful in implementing this in the education. If, on the other hand, the indicator is very high above zero, much has been achieved with respect to the education, but there is not much support from the management, and so there is a risk that the achievements may vanish in the near future: they are not anchored in the university policy.

- The “*Policy ambition*” is calculated by adding all scores of the desired situation, and subtracting the sum of the scores of the present situation. Policy ambitions appear to vary between about 5 and about 20. An interesting phenomenon is that usually the ambition is higher when the present situation is higher: it seems that the forerunners tend to be wanting to preserve their front position.
- The “*Distance to Protocol*” is related to the already mentioned Dutch Charter for Professional Higher Education. When this distance is zero, the audit indicates that it is likely that the Certificate will be granted.

Around this Certificate for Sustainable Higher Education, also some interesting conclusions can be drawn.

- In some cases where the Certificate was granted to university departments, afterwards an *AISHE* audit pointed out that in the present situation the demands for the Certificate were definitely not met. The most likely cause is that the method that is used for the Certificate assessment, mainly based on filling in a series of questionnaires by the university staff themselves, has not a high validity, mainly because the staff is eager to obtain the Certificate. During the *AISHE* audit, although also being a self-evaluation, the critical role of the *AISHE* consultant is a guarantee that the test validity is higher. From the middle of 2003, the tests for this Certificate will be done exclusively through *AISHE* audits.
- Quite a lot of Dutch “hogescholen” show a real interest in being able to sign the Charter and obtain the Certificate. *AISHE* audits clearly show that there is a strong positive effect of the existence of the Certificate on the process of developing and implementing sustainability in the education and the university operations. This implies that it is worth while to investigate whether such a Certificate could be a means of strengthening the process of implementing sustainability in universities in an international context.

5. The case of an Economics Study Programme

In a large university, an *AISHE* audit was done for a study programme in Economics. (Following a request of this university, its name is not given here.) (See: Van den Bergh and Withagen, 2001)

The median of the present situation was in stage 1; in fact, 70% of all scores were in stage 1 or lower. An interesting set of improvements was suggested for a desired situation, to be reached in one year; the policy ambition was 14, which is rather high. The high priorities were set on the usual criteria 1.1, 1.2 and 1.3 (*vision, policy and communication*), as well as on criterion 4.1: *curriculum*.

The general conclusions of the audit were:

<u>Global indicators:</u>	<u>Present situation</u>	<u>Desired situation</u>
Median	1	2
Plan Do balance	-2	-4
Policy ambition		14
Distance to Protocol *	-1	0
Distance to Protocol **	-12	-5
Distance to Protocol ***	-28	-15
Distance to Protocol ****	-47	-33

These indicators show that, compared with other universities, the Economics programme scores quite average: a median of 1, hopefully going to 2, is usual. The Plan Do Balance is not significantly differing from zero. And the policy ambition of 14 is not extremely low or high. The programme almost meets the demands of the first protocol, and will probably do so completely in a year or so, but not so with the demands of the second protocol.

A small part of the resulting audit report will be shown here. The corresponding graphical representation (the circular diagram) was used for figure 1 (above).

Criterion 1.3. Communication

Present situation: Stage 1

Only a few staff members know that the Copernicus Charter has been signed.

Nevertheless, sustainability is a frequent subject in meetings, especially of the management.

In several educational projects, sustainable development is present, for instance in the projects of rural renewal and urban renewal. One education development group had the task of implementing sustainability.

The manager has asked students to investigate “phase 3”.

Desired situation: Stage 2 - *High Priority*

In order to spread the management vision on sustainable development, there must be an intense

communication in the near future. A good opportunity is the coming process of curriculum redevelopment. The staff may be involved through e.g. the university magazine and the e-mail news bulletins, and also in meetings. Students may be informed through brochures and on information days.

Criterion 1.4. Internal environmental management

Present situation: Stage 1

Environmental management is not a part of the policy and the management. As a consequence, you can see a lot of polluting processes. Many people are unsatisfied with this.

Desired situation: Stage 2

Start with the main aspects. Within the team, attention will be given to paper waste, printer toner catering waste, use of energy.

Students will be asked to design and perform a quickscan. They could make use of the ecological footprint, see www.novib.nl).

A problem is that the department that is now investigated has no own authority regarding many environmental problems. Therefore, the situation must be discussed with the utilities department. The manager will take this initiative.

Criterion 2.1. Network

Present situation: Stage 1

We keep regular contacts with companies in the professional field. But sustainable development is not an important aspect in these contacts. In one large student project, there is a relation with the environment department of the local government.

Desired situation: Stage 2

Sustainable development as an aspect of the contacts with the companies has to be given a high priority: it should be anchored within the university department. A small number of partners in industry (e.g. 5) will be selected with which state of the art expertise about sustainable development will be exchanged intensively. These will be used for guest professors, for traineeships, and for curriculum development.

The manager of the study programme was optimistic. He thought it was a good set of intentions: ambitious, coherent and realistic at the same time. Together with his co-ordinating team, he designed an activity plan to realise all intentions within the chosen time period of one year. In this stage, no *AISHE* consultant was involved.

Half a year later, part of the intentions had been realised. A basic module in sustainable development for the propaedeutic year was made, and was about to be used in practice. An educational project for the students was designed and already used once. From a methodological viewpoint, much had been realised. So, the work on criterion 4.1 (curriculum), which had a high priority, was rather successful. On the other hand, sustainability had not yet been integrated into the curriculum in a systematic way: the sustainable elements were not logically connected as a thread throughout the curriculum.

At the same time, a Mission Statement had been made for the entire university. The team of the Economics study programme had had a role in it. However, although this Statement contained a number of elements that were sustainability-related (for instance: ethics, professional responsibility), the concept of sustainability itself was not mentioned explicitly, and the text was rather abstract, so it was difficult to draw conclusions from it with respect to a policy or to concrete activities. The most important problem, according to the manager, was the definition of the professional profile of the future graduates (criterion 3.1): he and his team experienced a gap between the university vision, as formulated in the Mission Statement, and the professional profile of the Economics programme. If it would be possible to make the vision more explicit, i.e. to operationalise it, then it could be used to formulate the professional profile, and next to redesign the curriculum in such a way that sustainability could be integrated systematically.

On the subject of communication (criterion 1.3), some achievements were made, but again not in a systematic way. Some communication on a university level about the Mission Statement had taken place, but since sustainability was not made explicit, this was not fully successful. In the university magazine, some attention had been given to sustainability in the education and the university operations, but here too, the risk existed that this was not going to be repeated. Besides, sustainability had been on the agenda of some meetings.

All in all, in half a year a rather good job had been done, but there was still much more to be done. At that moment, the manager and his team were somewhat confused about the sustainability policy as a whole.

The *AISHE* team was consulted, and it had two meetings with the manager and his co-ordinating team. During the first meeting, the situation was analysed. It appeared that the main problem at that moment had to do with communication. As a result of the *AISHE* audit, a necessity was felt to intensify the communication about sustainable development, and so, this communication had become a target on its own, somewhat neglecting the reasons why communication was important. So, all kinds of communication had been used in the last half year, and now they did not know what to do next.

At the same time, it was important to revive the involvement of the staff and the students, which had faded away a little bit in the six months after the *AISHE* audit. So, a necessity was felt to find out a way to systematise the way in

which the communication with all kinds of stakeholders was made. However, the team couldn't think of a way to do this.

A simple scheme for the communication system about sustainability was suggested to the co-ordinating team, in the form of a matrix. On one axis of this matrix, a variety of kinds of communication are set out, like:

- “give information to”
- “Receive information from”
- “Generate information together”
- “Create support”
- (etc.)

On the other axis, a list of possible stakeholders was put, being the result of a stakeholder analysis, for instance:

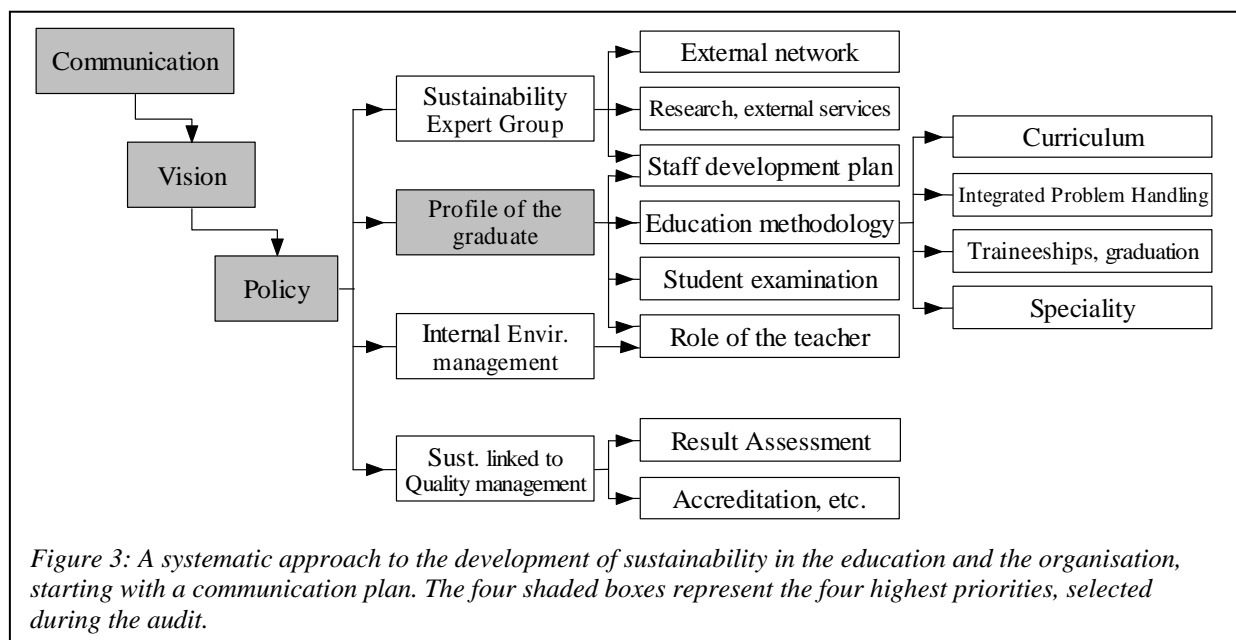
Teaching staff - Students - Management - PR department - Professional field - Public media - Government (etc.)

In the cells of this matrix, it was possible to fill in two kinds of things:

1. the reasons for communication; and
2. suitable communication tools.

In this way, it was possible to discern all kinds of reasons for communication, and for each of them think of suitable tools to realise this communication systematically and periodically.

The manager and the team thought this a realistic way to invent the communication system they needed. Besides, they judged that it could be a good starting point for a systematic development of sustainability within the university. Based on good communications, it would be possible to revise the Mission Statement in co-operation with staff members, students and of course the central university board. Next, based on an operationalised university policy for sustainability, a policy plan could be designed, aiming at several things, among which the definition of the profile of the graduate, to be formulated as a set of professional competencies. This looked like figure 3, also showing a possible way to enhance this scheme with some next steps.



The Economics team is working along the lines of this scheme at present. Some time ago, a Certificate for Sustainable Higher Education has been awarded to them.

6. The case of an Environmental Technology Study Programme

In the Netherlands, for almost all of the university programmes in environmental science and -technology, the number of students is decreasing strongly. At the same time, investigations in the professional field indicate that the need for environmental experts will diminish in the coming years. Because of this situation, several studies were performed. Dröge and Schoot Uiterkamp (2000) looked at the future needs of the professional field for environmentalists, and attempted to redefine the professional competencies they will need. In another investigation, a

commission of the Dutch Association of Universities for Professional Education (“HBO-Raad”) looked at the question, what the relation should be between the environmental study programmes and sustainability, regarding the fact that more and more non-environmental university programmes are integrating aspects of sustainability in the curriculum: the environmental programmes are “loosing territory” (HBO-Raad, 2000).

In the final report of this latter investigation, it was recommended that three major profiles are to be discerned for the future environmental experts: the *consultant*; the *researcher*; and the *process manager*. For all of those profiles, an interdisciplinary role as part of a team of various disciplines will be vital.

After the report was published, many of the universities with environmental programmes were searching for a new definition of this programme, a new “*raison-d’etre*”.

In this context, an *AISHE* audit was done in one of those environmental programmes. Not surprisingly, the results showed an emphasis on the need for the development of a new vision. The high priorities for improvement were criteria:

- 1.1 - vision
- 1.2 - policy
- 1.3 - communication
- 2.3 - staff development plan
- 3.1 - profile of the graduate
- 4.1 - curriculum

The problems investigated in the above mentioned studies were reflected in the discussions during the consensus meeting. A sample of the audit report reflects this clearly. The present situation was described as follows:

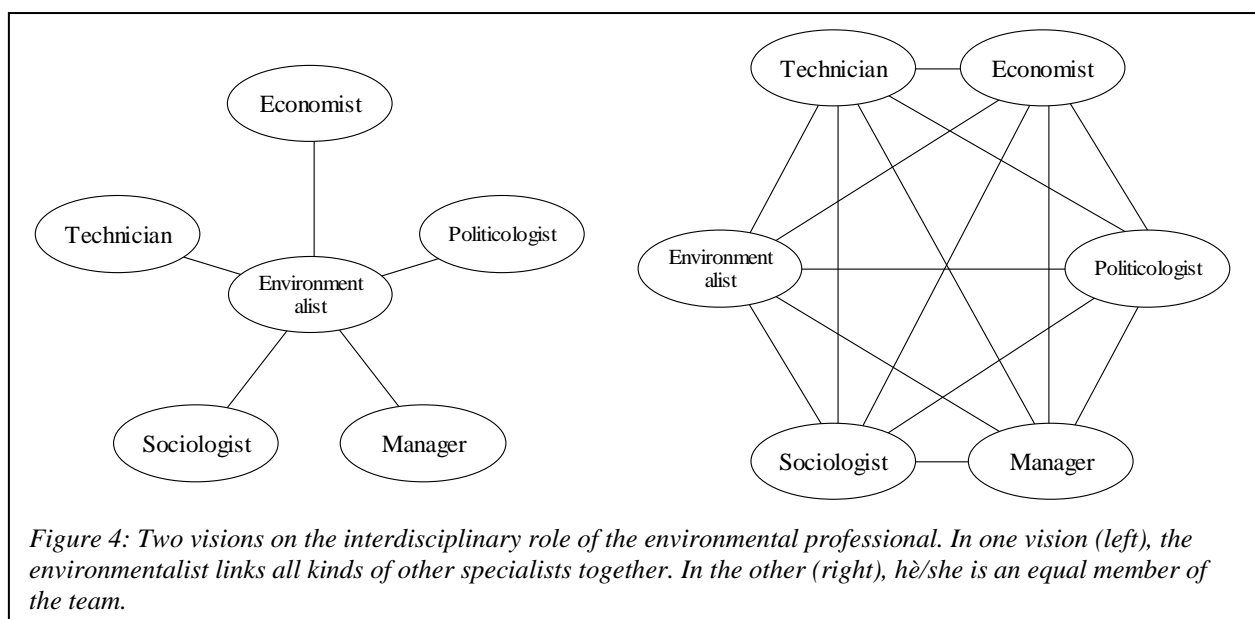
A “kind of a” vision exists, but the contents are not formulated very explicitly. There is much emphasis on environmental subjects, and not enough attention to sustainable development in general. That is to say, sustainability is interpreted too narrowly as “mainly environmental matters”. (...)

It is virtually impossible to check whether the students acquire the right and enough professional competencies, because the staff team hardly has an idea about what kind of professional competencies related to sustainable development they should be taught.

The ambiguity regarding the role of the environmental professional, appearing during the audit, was formulated even stronger when, a month after the audit, a meeting took place of the co-ordinating team of the study programme. There, it appeared that there existed a lot of confusion about a mixture of subjects, all related to vision, policy and the profile of the graduate.

The discussions had been complicated by an attempt to interpret the recommendations of the HBO-Raad report. The emphasis in this report on interdisciplinarity had been interpreted by some team members as a recommendation to see the environmental expert as specialising in interdisciplinarity, as a “spider in a web”, as the one who was going to connect all kinds of other specialists with each other. This seemed as an impossible task, because in this vision, the environmentalist almost had to be an expert in all kinds of specialities. In this vision, the environmentalist was to be seen as an “interdisciplinarity specialist”.

In contrast, some other team members thought of quite another interdisciplinary role, where the environmentalist still is a specialist in his own field, and functions as just one of the members of an interdisciplinary team. Figure 4 shows the distinction between the two visions.

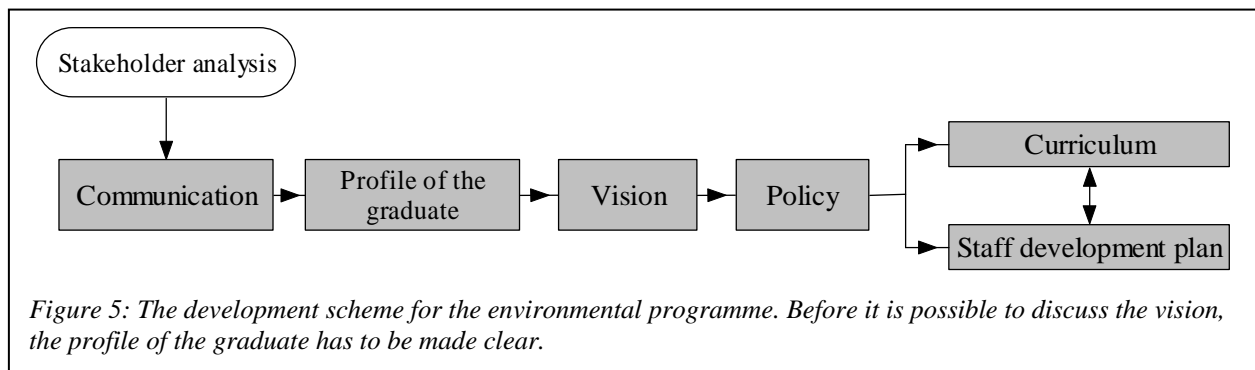


It took a lot of discussions, before this distinction was made explicit; at the start, it all seemed like a diffused set of opinions. After this distinction was discovered, clarified and understood by all, the team concluded that it was possible to structure the decision process in a step-by-step approach.

First, decisions about the profile of the graduate should be made: especially, a fundamental choice between the two possible roles of the environmentalist should be made. From that, a vision about the relation with sustainability could be developed, followed by a policy plan leading to a curriculum and to a staff development plan for sustainability subjects.

Even before that, it was vital to develop a good plan for communication with all kinds of stakeholders. Only if there was a solid communication structure, guaranteeing that all interests of the professional field, of NGO's, of governments and of other stakeholders would get the right attention, it was to be expected that a valid and durable profile of the graduate could be developed.

As a consequence, a development scheme was designed which, superficially, resembles the one shown in the earlier case of the economical programme (section 5), but in reality differs fundamentally. This is shown most clearly by the different position of the "profile of the graduate" (see figure 5).



In terms of quality management: the environmental programme development is in a quality circle, a "Deming wheel", at the moment. The *AISHE* audit functioned as a "Check", testing the achievements of the years before. The discussions after the audits can be seen as the "Act" phase. The development scheme that resulted was the start of the "Plan" phase, which went on afterwards as the designing of a policy plan for the coming years. And at this moment, the staff is performing this policy plan: "Do". In one or two years, a new *AISHE* audit will be done, closing the quality circle and assessing the results.

7. Conclusions

The cases described above show how the implementation of sustainable development in a university, i.e. in the vision, the policy, the organisation and the education, can be treated as a part of the general quality management, and how *AISHE* can be of help therein.

At the moment, there are no examples yet of university departments where the whole Deming wheel has been completed, that is, where an *AISHE* audit has been done twice. This will be the challenge for the coming few years: to investigate what the results will be of a time period after an *AISHE* audit, and to investigate through a second audit what the effects are of an approach towards sustainability in higher education in a quality management style.

Biography

Niko Roorda, MSc, works as a consultant for universities on the implementation of sustainable development in higher education. He is a member of the Dutch Committee for Sustainable Development (CDHO).

He studied theoretical physics at the universities of Leiden and Utrecht. After working as a teacher for some years, he developed a study programme for Sustainable Technology in the Brabant University for Professional Education. After functioning as the manager of this programme for a number of years, he developed and managed the Cirrus Project, which worked on the implementation of sustainable development in the curricula of the study programmes of the Faculty of Technology of the same university. This project was awarded the Dutch National Award for Innovation and Sustainable Development in 2001.

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