II. Identifying labour competencies with a gender perspective

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1. Basic methodological criteria to incorporate a gender perspective

As was mentioned in the previous chapter, one of the areas where the combination of competency and gender approaches is decisive is in the identification of labour competencies, which are the support of the occupational profile and the base, in turn, for training and skills development actions. In order to contribute to the analysis of gender structural asymmetries and discriminations in an area as sensitive as this one, the bi-national Chilean/Uruguayan project "Gender and competency-based training programmes" financed by German Technical Co-operation (GTZ)[1], decided to undertake an empirical study with the purpose of analysing, from the gender perspective, some competency-based vocational profiles. This made it possible to work on case studies in five sectors: in Chile, in the agriculture and livestock, automotive mechanics and hotel sectors, and in Uruguay, in the gastronomy and basic ofimatics areas. In both countries work was done in close relationship with representatives of the educational sector, chambers of entrepreneurs, trade unions and training institutions, as well as with experts in gender studies and workers of both sexes and enterprises. Systematisation and joint reflection on these experiences served as an input and contribute examples that support the reflections and recommendations that are presented below and that are proposed as a working tool addressed to policy designers, social players, methodologists, teachers and, in general, all those persons who take part in the identification of occupational competencies.

As such, they make operational proposals that, from the experience involved, allow both approaches to be integrated and results to be obtained. We are talking of open, flexible solutions that will doubtlessly be enhanced and tested when they are discussed and applied.

In order to facilitate their practical use, reference is made to the successive stages of the identification processes:

1 See more information on genesis, authorship, basic materials, etc. in the Introduction to this document.

- ➔ **Early stage:** setting up working groups, information on the occupational sector, preparing methodologists, both male and female, and basic methodological criteria to introduce a gender perspective.
- ➔ **Development stage:** dimensions to be considered when identifying labour competencies, identifying competencies, defining sub-competencies and performance criteria, developing competency standards and reviewing profiles from a gender perspective.
- ➔ **Validation stage:** participation and validation process.
- ➔ **Presentation of competency profiles:** recommendations on their format.

The objective is to present a paper capable of motivating reflection on the importance of incorporating a gender perspective in the identification of labour competencies, and to advance in the search for answers to questions arising from daily work, both as regards operationalisation and implications for men and women.

Final conclusions are not the issue but rather some remarks and another equal number of questions that will surely and gradually be clarified and enriched in future applications and work.

The concept of competency, beyond the diversity of ways it can be addressed, signals the social nature of the individual construction of learning as a process of interaction between persons, between individual and collective experience.

The methodologies used for identifying labour competencies are varied and the choice of one or another depends upon a diversity of factors, especially the later use that one tries to make of them. It is important to point out some of them that decisively exert an influence on how and where the stress is laid when identifying the complex structure of labour competencies.

- ➔ In the first place, the methodological approach must be a response to the definition and conceptualisation of the competency that is adopted and that determines on what aspects identification will be centred. Approximations are diverse and differences between them can lead to consider as an object of analysis a wide spectrum of options that places stress on: achievements, results, processes, activities, tasks or behaviours.

- In second place, the methodological option also bears a relationship to whoever drives the identification process and for what purpose they do so. Does the initiative come from the productive or the educational area? From a company or a sector? From an institution or the system as a whole?
- Third, the choice of a methodology will also vary if the identification aims at the present status of competencies or at competencies with a change in view.

This last aspect is crucial if a gender perspective is to be incorporated. And this is so because it signals the importance of agreements and consensuses as regards transcending a "photograph" of the competencies –such as they are today– and advancing in the identification of those core competencies the development of which tends towards overcoming situations of inequity and exclusion.

Some methodological criteria that facilitate the inclusion of a gender approach are presented below.

- The methodology must be **participative,** promoting interaction between people. Group reflection on labour practices is in fact a valuable instance of communication, training and research, propitiating questioning and transformation of the said practices.
- **Female and male participation** in the process must be assured. It is a necessary condition, even if not sufficient. The mere presence of women and men does not guarantee in and of itself a critical perspective on gender relations, but it does permit the manifestation of different perspectives and experiences.
- **Start with the aggregate data to get to the object of analysis.** This would imply to consider the characteristics of the sector and of the enterprises operating in it – including their trends – before studying what specifically refers to competencies. Also, obviously, what the relations between men and women in that occupational field are like, the advantages and disadvantages arising from the position they occupy in it, the factors that sustain discrimination, the aspects that make easier or more difficult equitable integration and participation, the differen-

tial contributions and capacities of both sexes, etc. Methodologically, if this criterion is adhered to, a more comprehensive and contextualised analysis of competencies will be achieved, continually linked to the gender approach.

➔ **Consider competencies in a broad sense,** not limiting the analysis to operationally technical aspects. It is necessary to include social, interactive and attitudinal competencies, regarding management, participation in work teams, problem solving, choice of alternatives and evaluation of results, whatever may be the category of the profile. In that regard, it is advisable in all cases to ask oneself whether the different types of competencies have been considered –not only technical competencies–[2] and whether the use of technologies is differentiated by sex, if there are gender stereotypes that make certain performances "invisible", etc.

➔ Furthermore, as a methodological criterion it is indispensable to **take into account the learning arising from social roles traditionally assigned to women and to men,** generally not identified and credited as occupational competencies. To make visible and place a value on this learning becomes a basic condition to continue to advance in analysis with a gender perspective.

➔ Along the same lines, it is important that in the analysis of competencies **there should be concentration on the product or the service, not on the description of procedures**. The traditional methods of occupational analysis identified precisely and exhaustively both the tasks and operations of a certain job and the means to carry them out: what the worker, either male of female, should do, what were the steps to do so and what they should use at each step. Surmounting the prescription of the tasks and operations required for a job (which prescription does not disappear from the organisations but rather is reformulated and transferred to expected objectives and results) demands focalising the analysis on the capacities of the persons who are working to achieve certain results and to respond to unforeseen situations.

2 See Chapter III for greater development of these aspects.

This implies identifying what people must achieve and what capacities they bring to bear to solve working situations. From the point of view of a gender approach this may mean an opportunity, to the extent that it opens up spaces to diversity and allows different "hows" to be considered to reach the same result.

- ➔ Another key feature is **the definition of performance criteria and evaluation instruments.** The criteria serve as a basis to evaluate performance of male and female workers. Therefore analysis must be undertaken regarding whether they refer to aspects that only depend on individual competency or on that of other persons, and/or on the conditions of the setting. In that which concerns gender relations it is vital to clarify in what cases work is performed under a hierarchy and in what cases it is individual or teamwork.

- ➔ Lastly, it is necessary to **evaluate what methodological procedure** in keeping with the objectives and resources available will be the **most appropriate for men and women to participate effectively in the process, as well as being more permeable to include a gender perspective,** assuring a greater output and also rigorous results. Operational aspects such as time schedules, the duration of meetings, the care of children if the meetings are held outside the workday are, *inter alia*, aspects that cannot be left out.

Given that the identification of competencies requires being able to count on the consensus of their protagonists, i.e., representatives of the entrepreneurial and worker sectors, the State and the vocational training institutions, it is effective and convenient to supplement those methodological criteria with prior agreement on dimensions and indicators that help to detect differences and discriminations. It is suggested that the following dimensions be kept in mind, among others:

- ➔ **Androcentrism:** This is defined as the description of work only from the masculine perspective, **"presenting the male experience as central to human experience and therefore the only relevant experience".**[3] This

3 Facio, Al, Metodología para el análisis de género de un texto legal. Proyecto Mujer y Justicia Penal, ILANUD, Costa Rica, 1991.

form in turn presents two subcategories: "**misogyny**" or the repudiation of the feminine and "**gynopia**", when it is impossible to see the feminine or the feminine experience is made invisible.

- **Overgeneralisation:** This occurs when **the behaviour analysed in studies is male behaviour and the results are presented as valid for both sexes.** For example, if only the needs of a group of male workers are identified within the processes and they are taken to be valid for all workers.
- **Gender invisibility:** This dimension is defined as **"ignoring the sex variable as a socially important or valid category"**;[4] the different impacts between the sexes are ignored and the behaviour of the male is generally taken into account as a "model of the human," or even when the female is taken into account but the consequences of the differentiation are not identified.
- **Double parameter:** In this case, because **the situation and the characteristics are the same, both sexes are valued differently,** on the basis of sexual dichotomy and differences in the duties of each sex that contribute criteria and values to judge women and men (cultural archetypes).
- **Duty of each sex:** This is a pre-concept, that **there are human behaviours or characteristics that are more appropriate for one sex than the other.** Its origin is cultural and it implies, for example, stating that women have less training to be scientists in areas such as mathematics, physics, nuclear energy, etc., or, vice versa; that it is not proper for a man to work as a secretary, kindergarten or early education teacher; household advisor. The duty of each sex has its origins in the cultural archetype of a certain society and influences feminisation or masculinisation of the job and occupational segregation.
- **Sexual dichotomy:** This situation occurs when **the sexes are treated as diametrically opposed,** without being able to visualise those features that could be similar or converge on the job. That is to say, the contribution of women can improve performance of a traditionally male occupation (for example, automotive mechanics or serving in bars and lounges) and, symmetrically, men can be incorporated in feminised areas (as, for example, education).

4 Facio, Ob.cit.

2. Steps prior to the identication process

Setting up the working groups

The working groups in charge of identifying competencies with a gender perspective are, by definition, areas for dialogue and collective creation. The richness of their products is directly related to the contributions of their members and, obviously, to the quality of their interaction. Therefore, an initial point to be considered is the composition itself of such groups.

Because of the specificity of the task, several points of view need to be combined in the working groups. The protagonists of the identifying phase shall be:

- ➔ Representatives of the entrepreneurial sector and persons in charge of enterprises of the sector
- ➔ Representatives of trade union organisations and experienced male and female workers.

Active participation is also needed, although in the role of facilitators in their respective areas of specialisation, of:

- ➔ Training area representatives
- ➔ Specialists in the identification of occupational competencies
- ➔ Experts of both sexes in gender studies.

Also important is the participation of persons who can contribute by providing background material, requirements of other functional areas linked to occupation, data on training practices, etc. Without a doubt this will be to the benefit of the task to be developed, it being understood that these contributions are a supplement –and not a substitute– of the main perspectives mentioned above. It is necessary to insist on this aspect since the strength or weakness of these working groups to achieve relevant products that take into account the different labour

realities of men and women and aim at the sustained development of their competencies depend, to a large extent, on how suitable those working groups are for the task.

Information on the occupational sector

> The working groups need to handle considerable information on the sector corresponding to the profile of competencies to be analysed. Data may be obtained during the prior stage of the process thus facilitating the development and/or review of such profiles.

It would be better to keep in mind the need to avoid an accumulation of an undifferentiated mass of information, orienting the data search in terms of its relevance and not simply regarding everything already in place in the environment.

It may be useful to organise the information into two sets: one, the contents of which allow the sector to be viewed as a whole, and the other, markedly specific, on the participation of women and men in the occupational sector involved, their main conditionings, etc.

References to the history, present situation, trends and prospects of the sector will be incorporated into the first set, as well as on the connotation of "feminine" or "masculine", predominantly in the social imaginary.

The most important aspects of the second set are the following:

- ➔ Composition of the sector (men and women: absolute values and percentage distribution).
- ➔ Participation of men and women in the different areas and functions of the sector.
- ➔ Jobs according to educational levels and sex.
- ➔ Wage levels and decision-making levels, data broken down by sex.

- ➔ The same, on levels of participation in training, with special attention paid to conversion and technological innovation processes.
- ➔ Technologies and forms of organisation of work prevailing in the sector: participation by sex.
- ➔ Occupational histories characteristic of women and men.
- ➔ Participation trends by sex.
- ➔ Detection of gender stereotypes in the sector and occupation.

Part of this information may be obtained from statistics and studies on employment, but it will have to be supplemented by individual and collective interviews of representatives of the sector (for example, entrepreneurial chambers or associations and trade unions), male and female employers and workers with experience in the field of labour and even of consumers and/or users of the products or services of the sector.

Quality, volume and even possibilities of access to data may vary significantly according to occupational sector, wherefore it may not always be feasible to produce a technically rigorous assesment of it from a gender perspective, more so in those cases in which there is no background. Anyway, from a gender equity perspective it is also important to survey and point out which the existing voids are.

It is advisable to remember anyway that the important thing at this stage is to reach a basic characterisation of the sector and an identification of the main "gender marks" in the appointment of women and men to the occupations of the vocational field involved.

Preparation of methodologists

We have already mentioned that within the working groups it is necessary to be able to rely on the participation of methodologists specialised in identifying occupational competencies, as well as on experts on gender studies. Keeping in mind that such specialists will have to work in close contact with and be a support to the remainder of the members of the groups, it is necessary that in the prior stage of the process some instances should be held to prepare for this work.

On the one hand, it is convenient that the gender specialists become familiar with the principles and techniques of the competency approach. On the other hand - and this is a key aspect since not always will there be specialists on gender studies available to make a contribution –, it is necessary to ensure that the methodologists in competency identification have a suitable level of training in gender studies, including both its present theoretical framework and its operationalisation, to apply it to identification and analysis of competencies and to curriculum design.

Regarding the latter, the importance of the following aspects is basic:

- ➔ Detection of gender stereotypes in occupational profiles.
- ➔ Analysis of the language in which the elements of competencies are expressed and mastery of non-sexist language in that regard.
- ➔ Identifying performance regularly made invisible due to sexist prejudices and/or "naturalisation" of the differences between men and women.

It is fitting to underscore that the training of methodologists regarding gender issues implies, in fact, a critical review of the very methods and instruments used to produce competency profiles, with a view to avoiding in their application every form of sexist discrimination. This is especially so when these are not very evident and, therefore, a greater risk when asymmetrical relations of power between men and women are reproduced in the world of work.

On another level – although very linked to the previous one -, the preparation of methodologists must also include components related to co-ordination and moderation of meetings and workshops. Indeed, beyond the specific contributions of these specialists to the review and design of profiles, in practice their role is essential in terms of facilitating the collective work of the working groups and ensuring a proper systematisation of their progress.

The capability to handle participative techniques and others to stimulate collective reflection, the ability to synthesise agreements and delimit critical points to continue to analyse, as well as to generate a climate of co-operation among the members of the working groups are, by way of example, basic conditions for an effective performance of the delicate role of the methodologists.

Obviously the gender approach cannot be alien to the methodologists when they exercise the co-ordination and moderation of the working sessions. Errors such as expressing oneself in a language charged with sexist connotations, tacitly accepting to relegate women to a secondary plane in discussions or, even worse, their points of view in the successive agreements that are gradually reached, compromise in depth the success of the whole process.

No matter how great the efforts of the experts in gender are, and of the participants in general, if there are these kinds of deficiencies in the co-ordination and moderation of the meetings, it would be difficult for the working groups to achieve an even minimal level of relevance and quality in their production.

Gender and working group

It is worthwhile to reiterate that it is necessary that whoever encourages the process of competency identification and makes it legitimate must be thoroughly familiar with the principles of gender equity and the need to introduce this perspective in the analysis. This is the starting point.

Regarding the participants in the working groups, prior sensitisation regarding gender is advisable. This is not always viable for several reasons: limited time and resources, difficulties to visualise their relevance, etc. In such cases, group work and the intention to discuss concrete experiences of the participants constitute the area of sensitisation and visualisation of gender as a critical dimension of competency identification.

3. The competency identification process

Dimensions to be considered when identifying labour competencies

The increasing demands for quality, productivity and competitiveness that today beset enterprises, as well as the impact of the new technologies, have contributed strongly to change those aspects valued as most significant in job performance.

In previous times, the most important thing was technical capacity, defined in terms of each job and of the tasks involved in it. This conception was based on several assumptions: extreme stability of the productive system, in which knowledge did not lose its effectiveness over time and where tasks planned for each job in the structure of the enterprise were invariable and were always in keeping with work requirements.

Transferred to the training area, these ideas translate into curriculum schemes that tend to be closed, terminal, with little or no consideration of alternatives.

At present, the labour competency approach, as an instrument to analyse labour, refers to the combination of complex capacities that people mobilise to solve a real work situation. The reference is no longer the job, nor the tasks, but the people performing them in the context of productive capacity.

Therefore, besides technical knowledge, aspects such as initiative, autonomy, ability to face unforeseen situations and solve problems, responsibility and interpersonal relationships, a willingness to learn, etc. acquire special importance. It is a case of attitudinal, social and personal dimensions that, joining up with technical capability, make up a comprehensive whole that is demonstrated in a labour context.

From this perspective, since competencies are revealed in a real job situation, they can only be inferred from the performance of individuals, keeping in mind the results that they are to achieve in each case.

As any learning, occupational competencies are a social construction. They are developed and transformed in the interaction between individuals, and are acquired both in formal learning instances and –to a large extent–, through social

and work experience. Competency is a synthesis of the learning constructed by the individual through his or her many experiences in the various spaces (job, social, family, etc.) that have constituted and constitute their life setting.

The multidimensional conception of labour competencies, as well as their recognition as a product resulting from social experience, facilitate a gender reading because:

- ➔ it opens the way to discover the gender stereotypes in the definition of the competencies. The capacities that individuals bring to bear to perform their productive function are not intrinsically "male" or "female", but are constructed socially as such;
- ➔ when acknowledging the attitudinal, social and personal dimensions of occupational competencies, it is possible to make visible and place a value on a substantial part of the contribution of women in their occupational performance. From a point of view centred only on the technical aspect of competencies, these capacities – generally acquired in the social experience of women -, are "invisible" or low-valued;
- ➔ when the cultural conditionings of routine tasks are unveiled and are questioned, it also allows men to develop competencies that broaden their opportunities of individual and vocational development, beyond the limitations imposed by the traditional model of the male "should be".

In short, with the combination of both approaches one of the potentially most important channels for the democratisation of gender relations in the world of work is achieved.

Finally, it can be pointed out that, although specific occupational competencies (generally associated with technological or operational aspects) refer to a certain productive function, a **set of labour competencies common to an important number of functions and occupations** appear with increasing force.

These competencies that can be associated to the solution of very diverse real work situations, transcending more than one occupational sector, generally have a strong social, relational and methodological component and are linked to communication, work with others and in a team, systems of comprehension, information handling, management capacity, capacity for planning and evaluation, for working under conditions of safety and hygiene, the orientation to service, etc.

They are competencies that facilitate the adaptation of individuals not only when facing various contexts and functions but also when facing rapid changes in knowledge, technology, and organisation of labour. It is precisely for this reason that such capacities are often called **"cross-cutting"**, and their development broadens considerably the chances of insertion and job mobility of individuals. In fact, this circumstance can favour the possibilities of women, although – from a gender equity focus -, it is advisable to insist on the fact that they are not "natural" attributes, they represent knowledge that has to be valued as such in the labour market. In this sense, their identification and inclusion in the competency profiles is a critically important step.

The map of competencies

In practice, identifying labour competencies that include a gender equity approach faces two situations:

- ➔ That the purpose of the initiative is to identify labour competencies in sectors or sub-sectors where there is no background in that regard and that, from the beginning of the process, includes a gender viewpoint.
- ➔ That the objective is a review of functional maps, units and profiles in place, in the development of which no gender dimensions have been contemplated.

In both situations - and this is worthy of being underscored – the consensus on the objectives and the participation of entrepreneurial organisations and trade

unions, as well as of people in charge of enterprises, experienced workers of both sexes, are crucial.

In the competency identification process several basic steps or stages may be distinguished

1. Identification of the main purpose or the general competency of the organisations or enterprises within the sector or sub-sector to which they belong, and then going on to the large areas or functions arising from them.
2. Identification of the competency units according to the results or objectives to be achieved in each productive function.
3. Determination of the competency and sub-competency elements in terms of activities or performances.
4. Establishment of the standards to which performance must adjust to achieve the results in a competent manner.

Who can contribute relevant and high quality information to identify competencies, to report on performance features in a productive function and to point out the capacities needed in that regard? Assuredly, these are the people closest to the productive function, i.e., the workers, both male and female, who perform on a daily basis in that regard, solving their problems with professional solvency, and, as a supplement, the direct supervisors of the function and those persons who are their internal or external clients.

The identification of competencies, units, elements and standards is an essentially collective process, the products of which arise from the interaction of the members of the working groups convened for that purpose. And, in these groups, the participation of facilitators/experts of both sexes in the methodology of analysis of competencies with training in gender studies is also essential or, failing that, must be supported by gender studies specialists.

The identification process may be implemented under various modalities:

- ➔ workshops of experts
- ➔ technical groups
- ➔ focus groups
- ➔ individual interviews, etc.

They can all be combined with each other and also with observations in the workplace.

Although they are not the focus of the identification and analysis of competencies, the observations in the workplace may be of great interest to detect gender marks and differences that are usually not noticed by the players intervening in the process. It is therefore advisable that the gender specialists of both sexes pay a visit to two or three enterprises to enhance the workshop or group process and open up new areas of reflection, so they can raise issues not contemplated in the first stage.

In turn, although there may be different methodological options, experience shows that work in a workshop is highly recommendable since it generates interaction and group synergy when being carried out, that allow the different players to understand what their work is about and which way they should go to improve their performance.

In the same sense, building up a consensus among participants is also a process of reflection and training, a space for sensitisation and searching with the players regarding contributions, difficulties, interrelationships and conflicts from a gender perspective.

To define general competency –the first step in the sequence–, it is advisable to guide the exchange of points of view with questions such as these:

- ➔ What are the characteristics of the enterprises of the sector? What are the most salient and distinctive features?

- ➔ On what factors is competitiveness based?
- ➔ What are its critical aspects at present and how is the future perceived?
- ➔ Do men and women work in the enterprise(s) of the sector? What are they doing? And why?
- ➔ Are there any obstacles to access the various functions? How could they be overcome?
- ➔ What is the specific contribution of men and women to the viability and competitiveness of the enterprises of the sector?

By starting from these or similar questions, the working groups may with relative ease reach a consensus and general view of the enterprise or of all the enterprises of the sector. As for participation of men and women, the product shall be a first approximation to the subject, to be gone into in greater depth in more advanced stages of analysis.

In the case of organisations where principal areas or functions are well differentiated, it is advisable to include questions such as:

- ➔ What are the specific responsibilities of individuals working in this area?
- ➔ What should they achieve to help the area (or enterprise) to reach its objectives?

As a technique, brain-storming is advisable at this first instance. On that basis functions may be identified –here corresponding to a specific area– in order to later define the competencies that the workers must bring to bear to fulfil them.

This stage yields a first version of the competency units. It is fitting to point out that this is not a linear process, with finished and unquestionable products, but rather that as the process progresses the latter are revised, adjusted and even redefined. Units and elements are added, grouped and/or eliminated in this process; descriptions are also reformulated until a product is obtained in which all the participants, male and female, recognise themselves.

By way of example, let us take a modern enterprise and within it the "Office" area.[5] The general competency of the people who are working there could be formulated as "the capacity to use the electronic and computer resources of the administrative area for a broad range of occupations in the context of the organisation."

The units of competency identified are, among others:

- ➔ Providing support in the administrative area.
- ➔ Attending to the demands of customers of both sexes.
- ➔ Controlling the basic operating conditions of the computer equipment.
- ➔ Handling data base at the operational level.
- ➔ Producing simple documents.
- ➔ Keeping the work area in good conditions.
- ➔ Teamwork with the staff of the enterprise.

Although the list is not exhaustive, it illustrates typical workshop results in this section of the process.

As can be appreciated, there are units where the reference is basically technical, such as "Controlling the basic operating conditions of the computer equipment," "Handling the data base at the operational level" and "Producing simple documents." Others, however, allude to performance in which interpersonal relationships become very central –in the case of the "Providing support in the administrative area", "Attending to the demands of customers of both sexes" and "Teamwork with the staff of the enterprise" units–, referring to the social and behavioural dimensions of the occupational competency. The latter are related to the cultural baggage acquired by women in their socialisation process, traditionally not acknowledged and, therefore, devalued in the productive sphere. It is germane to mention that the inclusion of these capacities in the profile may be understood as progress, both from the point of view of the enhancement of the competency and for the development of gender equity.

5 The technical name for this area is "Basic Ofimatics." The example is taken from a case study performed in Uruguay within the framework of the Project in reference.

From a gender perspective, it is even clearer what occurs if we compare the units **"Controlling the basic operating conditions of the computer equipment"** and **"Keeping the working area in good condition".**

"Keeping the working area in good conditions" refers to a competency usually considered typical of women, acquired by experience in the performance of their domestic role. The opposite is true of the unit **"Controlling the basic operating conditions of the computer equipment"** that "naturally" refers to a "more masculine" performance.

If we keep in mind that the competency profiles are defined as neutral from a gender perspective –hence the importance of the language in which they are expressed–, the incorporation of units of this kind without establishing a hierarchy of one over the other can be considered an important step on the road to equity.

In this line, it is possible still to progress quite a bit in the following stages of the process.

Going into further depth regarding the gender perspective: definition of sub-competencies and performance criteria

Beyond the verbal clarity used in their formulation, the competency units involve complex contents, that must be made sufficiently explicit. The performance criteria are the "moment of truth" in the competency identifying process. That is where the units and elements are transformed into aspects of job performance that can be verified and made objective.

If we return to the example above:

What does "keeping the work area in good conditions" imply? In the case proposed it includes three elements or sub-competencies:

- **Ensuring that the work area is hygienic and safe.**
- **Optimising resources available.**
- **Keeping the work area in order.**

The specification of these three elements allows better understanding of the unit referred to, but it also contributes to highlight its contribution to greater equity in gender relations. To maintain hygiene, order, etc., are elementary requirements in every work area, but if those elements are not specified in detail in the unit and in the competency profile – which is neither masculine nor feminine by definition -, it will most probably end up being a part of what is expected from the female staff. And what is worse, not in their role as workers but simply as women.

Moreover, experience shows that gender stereotypes tend to operate to such an extent in occupational competencies that the mere participation of women in workshops does not ensure by itself the detection of "invisible" performances in the productive area.

For this reason, it is necessary to insist on the usual questions of **who does what and what for in real job situations.** Thus, sufficient data will arise not infrequently to define new units on the basis of important performance, but that were not perceived before nor taken account of as such. In the same sense, it will be relevant to split up units and increase the list of elements, visualising performance hidden under sexist preconceptions and stereotypes.

Development of competency standards

Gender stereotype marks can also be found in standards and, specifically, in performance or accomplishment criteria.

These criteria are the basis for evaluating occupational competency and, operationally, they signal aspects that workers, both male and female, must attend to in their performance for it to be considered competent, and which therefore are specific for each element of the different units.

The standards must express the characteristics and qualities of the results, which are highly related and significant regarding the achievement described in the element of competency involved.

Likewise, it is advisable that they refer to normal and critical situations, decision-making, attitudes and aspects related to safety and hygiene.

Another example, also taken from the Ofimatics area, shows that the first element of the unit "Producing simple documents" is "Drafting simple documents.".

For this purpose, whoever carries out this activity must make sure that:

- **The tone, vocabulary and format used in the documents are in keeping with their purpose and the person who will receive them.**
- **The documents drafted are in keeping with the use and style of the enterprise.**
- **The documents used on a regular basis are produced in standard formats in keeping with instructions received.**

The list is longer but these items are enough for our analysis.

This is an area where males are heavily concentrated at the decision-making levels. It is therefore pertinent to wonder who determine the "use" and the "style" of the firm, who determines and how whether the "tone" and "vocabulary" of a document are adequate or not.

The description of unit of competency and of performance criteria is formally neutral regarding gender. However, in usage and in the social imaginary, the interpretations are not. To ensure equity and transparency, performance criteria should be reviewed and reformulated, in such a way that competency to produce documents will be evaluated on the basis of clarity, conciseness, syntax, suitability regarding their objective, etc., also taking care here not to use sexist language.

"According to the standards of the enterprise", "as established" and other similar expressions are often used routinely in drafting performance cri-

teria. From the standpoit of an equity perspective, this practice is extremely risky since "the standards," "what is established," etc. are beyond the scope of any analysis. Great caution is advised in handling these types of references and, whenever possible, their use should be avoided.

It is also germane to stress that the standards that are established for "proper conduct" also tend to be biased by gender and they must be attended to since they make possible or limit equitable participation and the development of competencies of men and women.

Besides, regarding occupational hygiene and safety, specific aspects of occupational health must be taken into account and how health can affect women and men in a different way, considering aspects not only referred to physical health but also to mental health.[6]

Regarding language, it would be advisable to keep in mind the following basic points:

- ➔ The impersonal use of verbs when referring jointly to men and women. This applies to languages other than English, for example, instead of saying "the workers plan their work" the neutral expression "to plan their work" should be used.
- ➔ The use of universal terms instead of the male gender when reference is made to both sexes. This is very common in English but not necessarily in other languages. In English it is the pronouns that differ, e.g., "*he/she, him/he.*" which can also be substituted by the plural, "*they/their.*"
- ➔ Making feminine and masculine explicit when in order: in: "*male workers and female workers.*"

6 For example, in the case of Ofimatics it is necessary to consider illnesses typical of the area: lesions due to repetitive effort (known as LRE), such as mental fatigue, stress, depression, and muscular lesions (spine or hands) due to incorrect and prolonged positions in front of the screen, etc.

On principle, language must be handled not only in favour of making women visible, but, and mainly, in terms of a greater democracy in gender relations. Therefore, although it may be somewhat tedious, in the actual process of making them visible, it is necessary to make gender explicit.

Knowledge/comprehension

Knowledge associated with sub-competencies (or competency elements) is essential to evaluate the capacity to transfer competency. They refer to what people must know and understand to perform competently and they are expressed as a combination of facts, opinions, theories and principles, where how they are applied is important.

It is fundamental that, when defining and formulating them, the **different forms of learning** be taken into account, as for example, those of the social and the domestic areas.

Context/Field of application/ Conditions of execution

This refers to the circumstances and conditions in which competency is developed: locality, employment contexts, equipment, methods and techniques, etc. It is decisively a space that must be flexible and to which everything that is central to ensure competent performance is consigned.

After the differentiated positions and marks in gender matters detected in earlier stages have been ascertained, it is necessary to examine carefully, analysing and consigning in what cases work is done under a hierarchy, individually or as teamwork, and **what conditions are needed to ensure equity.**

Evidence and guide or orientations for evaluation

The evidence linked to performance must be formulated in a manner clear and comprehensible to individuals, paying special attention to **possibilities of**

providing evidence of competencies not only by those who possess a long record in the activity, but also by those who validate competencies developed in other spaces. This is especially important with reference to traditionally "masculinised" occupational sectors to which women have gained access only recently.

Review of profiles from a gender perspective

On certain occasions the object of competency analysis are profiles already in place. It involves a review of earlier examples in which the gender perspective was not taken into account.

Firstly, it will be necessary to examine critically the approach used to identify the competencies, inquiring into whether it is - in and of itself – discriminatory. In that regard it is advisable to ensure that the working group in charge of the reviewing is familiar with the present conception of occupational competencies and with the methodology for identifying them, as well as with basic conceptual elements in matters of gender. Obviously, the support the group requires in that regard must be provided by the specialists in the subjects involved.

Profile review also implies taking into account the present reality of the occupational sector and the trends that are to be perceived in its evolution, including here that which pertains to the participation of men and women in it. The same observations made regarding the drafting of new competency profiles are valid for this chapter of the analysis, above all concerning the detection of gender stereotypes.

Regarding the review of the profile itself, a careful reading of its formulation may prove whether:

- ➔ incorporation of new units and/or elements is needed. This need may arise as a result of changes in the organisation of work, new technologies, etc., but also from the identification of performances made invisible by sexist preconceptions;
- ➔ the language used in the original formulation of the profile is discriminatory. This is a relatively simple way to clarify the sexist

load that the profile "brings with it," generated by the social imaginary;

- ➔ the performance criteria are defined on the basis of a male model, or possibly a female model. It is necessary to analyse whether there can or cannot be a differentiation between women and men in performance and, in such case, proceed to make it explicit, in terms of identical valuation;
- ➔ criteria referred to social, attitudinal, and behavioural competencies have been taken into account, as well as technical competencies. In the same way, how workers will prove such competencies will have to be considered. It must not be forgotten that if they were acquired through their social experience – and even work -, they are usually difficult to prove, especially in the case of women.

4. Validating competency profiles

The key question that needs to be answered once the competency profile has been worked out is whether the latter is relevant for the labour market, i.e., whether it is understood and accepted, not only by people who took part in its identification, but also by enterprises and workers of the occupational sector in general.

If this is to occur, it is necessary to consult with the persons in charge of entrepreneurial organisations and trade unions, enterprises, employees and manual workers, taking as a criterion for selection the experience and knowledge they possess about the real requirements of work. In this sense, it is more suitable to speak of a significant sample than a statistically representative sample.

Validation instances are spaces that legitimise through dialogue, reflection and a search for consensuses. Therefore, it is essential that men and women take part in the consulting groups, in an equal or very similar proportion to that of the work group that took part in the identification process, raising their respective issues.

As in the previous stage, here the presence of a specialist in competency identification methodology will also be needed to assure the incorporation of the gender perspective, and who will besides contributing at the technical level on the subject, will be in charge of co-ordination and moderate the work sessions.

More details on this dual role are omitted because it is no different from that performed previously in the workshops. If no facilitator competent in the gender approach is available, an expert in gender studies will need to take part at the validation stage since his/her contribution will affect the quality and, therefore, the consequences of the analysis that is carried out by the consultant groups as can be seen below.

The validation process and the gender perspective

It would be illusory and not very realistic to expect enterprises and workers to approve the material put to their consideration – in this sense, that they share it -, if they do not understand the approach to which that material is in response. On the one hand, the profiles to be validated are the product of a methodology based on the analysis of competencies, but not "in the abstract." Rather they are contextualised in the reality of work. This field is well known to consultant groups and, therefore, their opinions will contribute much to perfecting those profiles. On the other hand, they are the result of an examination of the productive area from a perspective in which the "gender" variable is central. Here is the critical point.

> It is necessary for validation instances also to be sensitisation instances in the face of problems of gender and, especially, of raising awareness of its effects, both regarding labour specifically and the quality of life of women and men.

It is worthwhile to highlight this latter aspect, since it is not a case of promoting a "vindication" of women, but of propitiating a reflection on the intrinsic inequity of traditional gender relations, which box men and women into stereotyped roles and functions, perceived to be immutable and the non-fulfilment of which supposes social disapproval and even guilt feelings on the part of individuals.

Many examples of this fact can be taken from the labour context, and can easily be used to explain the non-sexist approach adopted for designing these competency profiles.

5. Competency profile presentation format

The format is a fixed pattern that organizes all the data on competency profiles. It is a basic structure, designed in such a way that it may be used with relative independence from the occupational sector to which the profiles refer. This feature is important since it allows competencies that are common to the different enterprises within the sector to be acknowledged, as well as those belonging to two or more sectors, facilitating the mobility and employability of the workers.

Besides the formulation of general competency, the units and elements of competency, the format refers to the standards or rules and contains, as a basic structure, the performance criteria, the knowledge associated with it and the conditions or context in which the activity is carried out.

From a gender perspective it is vital that the format –considered in and of itself–, **not be discriminatory.**

- ➔ It is worthwhile to reiterate that the language used needs to contemplate men and women equally. For example, *he or she*, *him or her*, or simply *they* or *the person*.
- ➔ It is necessary for the design of the format to allow inclusion in the competency profile of aspects that are not specific to one or another occupation, but that cut across them. This is the case of dimensions not centred in technical matters, such as relational, attitudinal, etc., dimensions, to which we have already referred and that are frequently "invisible".
- ➔ Knowledge not acquired in vocational training –and, therefore, very difficult to accredit–, must be especially considered in the design of the format.
- ➔ To conclude, we must remember that all aspects that the format used cannot record "do not exist", and therefore, they will not take on value.

The above proves the importance of this instrument, which can contribute, but also can be an impediment to, many changes in the occupational area, and among them gender relations. In this sense, it is essential to include all those that are important to facilitate the acknowledgement of competencies of men and women regardless of how and where they were developed.

Also here solutions are diverse and dynamic, but the format must not be handled as a rigid framework that limits reference to aspects that can condition, favour or make difficult evaluation and training processes based on competencies.

In the presentation of the vocational profiles or of the set of units of competency needed to develop an occupation or a productive function, it is fundamental **to include the summary of those factors that have a negative or positive influence on gender relations in the area of work analysed and that have been identified in the process.** The problems of inequity and discrimination detected must also be pointed out, **taking care that these specifications do not become new discrimination or marginalisation factors** that, from the vantage point of a paternalistic conception, hinder the access of women or men to professions in which they are traditionally a minority.

Likewise, in the occupational competency model, the identification and development of occupational competencies is generally considered to be a phase that gives rise to and provides the inputs for training (fundamentally in reference to modularisation and curriculum development), evaluation of competencies and certification. In a general way, not the same persons participate in each of these phases except for the representatives of the educational sector (although the participants in this stage are not necessarily those who develop curriculum design and even less those who are involved in educational practice). Thus, beyond a systemic conception that necessarily links the different phases, contributions of competency identification are circumscribed to products (functional analysis or competency map, standards or rules).

It is important to draw attention to the richness of competency identification processes that incorporate a gender perspective as an area of

exchange, reflection and construction of the players. In this process and on the basis of the participants, of their experiences, knowledge, doubts and questions, individual life experiences emerge that are submitted to group discussion or exchange regarding aspects that facilitate or limit learning.

The degrees of difficulty involved in the competencies for women and men, the sequence in which persons learn in the enterprise area, the competencies that appear critical for men and women in terms of their social experience or gender relations and the various styles of learning are information of inestimable value for the educational sector, not only for curriculum designers but essentially for teachers and the individuals who learn. Because of this, these aspects should be gathered together and the format should include notes for learning with reference to general competency (general or overall assessments) and to competency units that gather the key aspects collected in the identification process.

Identification methodologies experiences

A. Workshop on silk screening competencies identification

1. Contextualisation of the experience
2. Gender and labour competency
3. Job analysis and curriculum development
4. Guide for workshop development

B. Building a vocational profile on vegetable micropropagation

1. Contextualisation of the experience
2. Intervention framework for occupational profile building and validation from occupational competency and gender approaches
3. Methodology and phases of development
4. Vocational profile building: functional map and competency units

A. Workshop on silk screening competencies identification

1. Contextualisation of the experience

In the year 2000, FORMUJER carried out a technical co-operation experience with the Graphics Industry Core of the National Training Institute (INA) of Costa Rica. Because the Core had to redesign a profile in the manual and semi-automated silk screening area approved by the entrepreneurial sector, a method was sought to facilitate participation and consensus with enterprises of the sector, incorporating the gender perspective.

The INA has established as an institutional policy the need to "…redesign the vocational training programmes under the modern concept of **labour competencies** with a view to ensure, through modularisation, a flexible educational supply, adaptable and integrated into the needs and features of the different INA customers" (INA Policy 3 – Strategic action 12).

In such sense, since 1997 INA has developed an experience of vocational standardisation, training and certification based on competencies in the tourism sector. The National System of Standardisation, Training and Certification of Labour Competencies in the **Tourism Sector** is made up of three interrelated subsystems, the purpose of which is to attend in a flexible and timely manner the demand for training and skills development of the labour force of the sector. The relationship between the subsystems allows feedback among them, as well of the products generated, in the following order: labour competency standards, modules and modularised vocational training programmes and vocational certification theoretical tests and practices.[1]

In order to develop this first experience, INA had to define the methodological processes for each subsystem, draft procedure manuals, train technical and teaching staff, design support teaching materials, standardise, modularise and draft certification tests for the different functional areas of the sector and, as from the year 2000, is implementing and executing competency-based training supply.

1 INA. Normalización, Formación y Certificación Profesional, basada en Competencias Laborales. Costa Rica. 2000.

On the basis of that experience, the Bureau of Training and Technological Services of INA has the intention of broadening this process to include the remaining productive sectors that this institution caters to.

Likewise, the Costa Rica FORMUJER Programme (INA/IDB Agreement) intends to generate and promote gender equity conditions in the policies of the INA vocational training system to ensure, in the future, equal opportunities for women and men in vocational training. To do this, it implemented a strategy for generating pilot experiences with demonstrational and learning purposes, designed to strengthen INA institutionally for the design and implementation of vocational training interventions and policies with a gender perspective, that favour the equality of opportunities and broaden the possibilities of insertion of low income women.

In this context, the articulation between FORMUJER and the Graphics Industry Core allowed the implementation of a workshop to identify the **competency profile of the professional in manual and semi-automated silk screening** under a gender perspective, for which purpose an agile and participative methodology had to be applied in harmony with the general outlines of INA's work. The **competency identification workshop (AMOD)** was chosen because it was a rapid and agile methodology that enabled a response in the short term in the matter of training. It starts from the basic principle that it is the expert working staff who best can express the competencies required in the work or function; in turn, interaction and construction of a consensus among participants during the development of the workshop facilitates reflection about contributions, difficulties, interrelations and conflicts from a gender perspective.

The event was attended by an international consultant in the subject[2] and representatives of the silk screening sector in Costa Rica were convened, both from the management or head level, as also first line operating staff, seeking continually to involve the participation of women in the workshop.

The participation of the entrepreneurial sector in the development of the workshop was vital to generate, promote and maintain permanent articulation between the training sector and the productive sector, since labour competencies are a means for both sectors to interact, creating a shared construction space for which a consensus could be reached and in which each of the players made their

2 For more information and authorship, please see the Introduction of this document.

contribution. In the particular case of the AMOD workshop, the members of the panel did not know each other personally but they did handle the presence of their enterprises in the market and perceived each other as competitors. However, they soon became a work team, meeting for the first time for a specific purpose: to develop a profile for a male or female vocational worker in manual and semi-automated silk screening[3] within an occupational competency approach with a gender perspective. The group synergy generated by the participants of both sexes promoted space and interest to continue working together on subjects of interest to the sub-sector, providing, in turn, continuity to the work on profile development.

The workshop achieved things directly and indirectly. The former refer to fulfilment of the objectives set, among which the following can be highlighted:

- ➔ Development of a preliminary profile – focusing on labour competency with a gender perspective – of a vocational worker in manual or semi-automated silk screening.
- ➔ Systematisation of a competency identification experience focusing on gender.
- ➔ Input supply (competency profile and units, critical elements, etc.) later to develop curriculum standards and designs.
- ➔ Profile validation by enterprises of the Costa Rican silk screening sector.

Among the indirect achievements arising from this experience special mention deserves to be made of the development and consolidation of the link between the Costa Rican silk screening entrepreneurial sector and the training institution, through different mechanisms and methods, such as:

a) Holding a National Seminar on “Silk screening today and tomorrow: its implications for vocational training”. This seminar was held as a result of the conclusions of the participants in the workshop and was attended by speakers and experts both in silk screening and in gender, at the national and international level.

3 Hereinafter, and in order to lighten the text, will be referred to as silk screening.

b) Strengthening the Graphics Industry Core Liaison Committee with the incorporation of two representatives of the silk screening area (a man and a woman), which was the result of the earlier Seminar.

c) Incorporation of the silk screening sector to the Costa Rican Graphics Industry Association.

d) Carrying out the first training actions in INA with the course on "Final arts for silk screening", specifically addressed to this sector, with the participation of fourteen women.

As a result of the joint work of the various players involved:

- ➔ the Graphics Industry Core has been able to formulate curriculum designs that are up-to-date and relevant to the needs of the productive sector of the country, as established by the INA curriculum planning process.
- ➔ INA and the training institutions possess an agile and participative method to identify competencies with the entrepreneurial sector and from a gender perspective.

The systematisation of this experience appears below in the understanding that it contributes to the construction of vocational training with equal opportunities for men and women. With this experience FORMUJER expects to open up a path and obtain instruments and innovative methodologies to update and review the curriculum developments and include in them the needs and specificities of women and men by making visible the contributions of both in the performance of their functions.

2. Gender and labour competency

In the profuse and diversified bibliography on the occupational competency approach there are many ways of addressing, characterising and defining occupational competency.

Within the framework of FORMUJER, and for purposes of this experience, by labour competency is meant the combination of knowledge, skills and attitudes that are brought to bear in the performance of a productive function. A social construction of significant and useful learning for productive performance in a real work situation that is obtained not only through instruction but also, and to a large extent, through learning by experience in concrete job situations.[4]

Some components of the concept should be mentioned:

- It proposes a **comprehensive** view since competency makes sense as a dynamic unit, a construction, the components of which, although they can be disaggregated, in isolation are not competency.
- It takes into account the set of aspects that a person needs for his/her **performance** in the labour milieu. However, its frame of reference is no longer the job but the individual working. Performance is a point of convergence where significant knowledge, skills and attitudes are brought to bear to resolve a work situation. Therefore, proof of competency implies alluding to comprehensiveness and not to the sum of qualities or partial execution.
- It points to the **social nature** of the individual construction of learning, as a process of interaction between persons, between individual and collective experience. Collective reflection on labour practices becomes a space for communication, training and research, of knowledge and capacity to transform these practices.

In many countries statistical equality in the participation of men and women in general education has been achieved. However, this equality has not been attained in vocational training and the world of work.

4 For greater development, see Chapter 1.

The routine assignment of women and men to specific functions ends up by being closely linked to what being a man or a women means in specific contexts. The assignment of women and men to different tasks, activities and occupations becomes a rational response to socially constructed differentials but that, in spite of everything, become real in their skills and aptitudes.

Seeking to change present gender relations implies:

- ➔ to reconstruct the symbolic order of the female and the male in social interaction.
- ➔ ".. to consider that all learning is social and that occupational competency development is mediatised by our socialisation as men or women; some necessary competencies are not exercised adequately because we have been told since childhood that 'that is not for women or not for men.' These messages function as unconscious programming that limits vocational training and occupational performance, especially in diversified areas."[5]
- ➔ to attach value to little recognised competencies, generally acquired through female social experience, systematising them and deepening them so that they may be transferred to work situations.

On the basis of the **gender approach** we can wonder who does what in the occupational training and work spaces. This information allows us to formulate curricula that meet the training, occupational and social needs of men and women.

Concepts such as continuing training, the importance of correspondence between training and occupational performance and the growing value placed on people who work as autonomous and proactive individuals within the framework of their work, pose new challenges to educators, workers and employers.

5 FOMUJER/INA-IDB. Quirós, Rebeca. Género y Competencias Laborales, Colección Género en la Formación, 2001.

In the last decades, the need for a fluid and permanent co-ordination between the educational sector and the productive sector has become a constant concern both for enterprises and for educators. Initiatives of reconciliation and interaction have begun to gather strength, and distances separating the training centre from the workplace seem to shorten. Together with this, fears of subordination of one system to another seem to move towards a conception of mutual reinforcement and feedback.

Once the dialogue has begun, the creation of common codes that allow the phenomenon of occupational performance to be addressed from a comprehensive perspective, which includes its global nature and complexity and reports its permanent transformations, emerges as a problem.

> Labour competencies are a space of interaction between the educational sector and the productive sector, a space of shared construction where there is a consensus that each of the players makes their contribution.

Some important aspects of the **competency-based training approach** are:[6]

- ➔ Focusing on real market demand and made up by the users themselves, the individuals, entrepreneurs and vocational training institutions (VTIs), they identify and define jointly the competencies and programmes.
- ➔ It allows for flexible programmes, of higher quality and relevant to the needs of the population and the productive plant.
- ➔ It provides a system that can be updated and adapted with greater ease.
- ➔ It conceives training, not as a finite activity of short duration, but as a long-term process that embraces the whole of an individual's productive life and facilitates his/her accumulation of knowledge, as well as

6 INA Normalización, Formación y Certificación Profesional, basada en Competencias Laborales, op.cit

the development of competencies that broaden his/her opportunities of advancement and individual and vocational progress.

- ➔ It makes greater institutional co-ordination possible, as well as greater permeability between work centres (enterprises) and the supply of training of the VTIs.

The labour competency approach is supported by identification of competencies and evaluation criteria that serve as a basis to design modularised and flexible training programmes.

Competency-based training proposes a new approach focusing on the person who is being trained. Training practices will seek to respond to the following criteria:

- ➔ The competencies to be attained are **carefully identified** with the participation of all players.
- ➔ Training is a **comprehensive** process where facts, concepts, knowledge and attitudes are part of competency learning.
- ➔ Emphasis is laid on the achievement of concrete results, always with reference to **performance criteria** that are defined and known a priori by the individuals being trained.
- ➔ What is sought is for the trainee to **manage and control** his/her learning process, with the support of the educators.
- ➔ Work becomes a privileged pedagogical and didactic instrument: training in services is privileged and continuing training is encouraged.
- ➔ The progress of the trainees in the programme occurs at the pace each one of them sets. The competency instruments make possible the **personalisation of the processes and the paces of learning.**

3. Job analysis and curriculum development

The workshop and the construction of a competency profile

There are methodologies that make possible a rapid identification of competencies for educational purposes and that, likewise, facilitate the articulation of training with the world of work at a practical learning level in a labour setting, that is an important teaching resource in a competency approach.

The DACUM ("development of a curriculum") methodology is characterised by articulating, from its design phase, the functions and tasks performed by the worker with the construction of the curriculum. It was one of the first efforts, and was widely applied, that linked competencies with training and skills development.

The DACUM was originally developed in Canada, at the end of the sixties, with the purpose of building a curriculum guide that would allow the involvement of the trainee in the training programme and in the definition of the objectives to be achieved. The methodology is highly participative, starting with the definition itself of the contents, and is developed together with the workers and supervisors, who jointly identify the tasks, functions, and knowledge, skills and attitudes required for their performance, as well as the equipment, tools and materials needed.

The workshop with expert workers is the core of the procedure to formulate the DACUM chart or map, which is a matrix of functions and tasks that individuals have to be capable of performing, supplemented by the identification of knowledge and general skills, important for their work, by the social behaviour required (attitude, treatment), by the equipment, materials and tools they use, and by the trends and prospects of work for the immediate future. The result is a chart or map of functions and tasks that is used, at a second stage, to develop the training contents, the criteria and instruments for evaluation and the teaching resources.

The DACUM methodology has undergone adaptations and interpretations during the last thirty years. In order to make the analysis more precise, the premises or principles that are its theoretical support are as follows:

- ➔ People who work (expert workers, both male and female) can describe and define their work more precisely than anyone else in the organisation.
- ➔ An effective way of defining a function is to use as a basis the activities that the workers perform.
- ➔ If they are to be executed adequately, all tasks must use certain knowledge, skills and abilities, the individual's tools and positive attitudes. Although those are not tasks, they are the means or facilitating elements that make possible successful performance.

These premises are based in turn on a combination of theoretical currents of the behaviourist and functionalist school, although the latter is reluctant to incorporate task analysis, since it seeks to express work in terms of results and not processes.[7]

The AMOD workshop. A curriculum development model

The AMOD methodology is defined as one among many of the models that exist to identify competencies and develop curricula arising from the DACUM methodology. It was developed in Canada as an alternative and supplementary version of the DACUM map (Analysis of functions and tasks). As has already been indicated, it is a quick and agile method that allows responses to be provided in the short term on matters of training. During the development of the workshop, group synergy and interaction is generated that allows the different players to understand what their work is about and which way to go to improve performance. Likewise, building a consensus of participants is also an act of reflection and training.

7 Mertens, Leonard. Competencia laboral: sistemas, surgimiento y modelos (Herramientas para la transformación, 2), Cinterfor/ILO, Montevideo, 1996.

In short, the advantage of the workshop over other methodologies lies in the agility and openness it provides to connect an occupational profile with training, and the evaluation makes possible a very quick response to the need to structure training and learning, opening up a space to incorporate the gender approach.

The AMOD begins, as does the DACUM, with a basic principle: expert workers can express the competencies required in the work or function in the best way.

This method seeks to establish a direct relationship between the elements of the curriculum, expressed as a map of competencies, and the training and evaluation sequence of the learning process.

In order to achieve this, much emphasis is placed on the interaction between acts of self-evaluation on the part of the trainee and the evaluation of the instructor/supervisor staff, by applying a scale of qualifications that tends to vary from three to six levels and that is designed according to needs.

The methodology development process begins and ends with a panel of experts (workers, supervisors, managers) whose selection is the key and depends on the course or courses to be taken (training instances for a company or for a certain area common to several enterprises; in the latter case it must be kept in mind that what is gained in breadth is lost in depth). The workshop admits the presence of observers who will not take an active part in the identification of the profile. The panel of experts is located physically in front of a wall, while the facilitator (assisted by a person familiar with the methodology) records the expressions of the participants on cards that are successively placed on the wall.

In the first stages of development of the workshop, brain storming is used and all the descriptions are recorded on cards, while the facilitator plays a non-leading role, inducing participation and consensus among participants.

In the last two stages of the workshop, the facilitator not only provides guidance for the process but also leads it and refines the descriptions.

Work stages

The stages of a competency identification workshop are presented below, and illustrated by the products resulting from the experience in the silk screening sub-sector, on the understanding that that experience, as well as its products, are used as an example and guide for whomever decides to apply the methodology.

For practical purposes, the process has been divided into two large phases:

- ➔ The first phase finishes with the production of the **vocational profile,** presenting families of functions with their corresponding competencies ordered according to levels of increasing complexity.
- ➔ An ordering of the **training sequence** to be developed and a proposal for **development of standards** are produced in the second phase, on the basis of the experience of the group of participants, and as an input to produce training/ evaluation guides. These instruments acquire fundamental value in training processes, as guides for learning in a work situation, and as tools to detect skills development needs and the results or progress of the learning processes.

The workshop functions in two stages, the minimum duration of which may be reduced to two half days of work. In the first part, the production of maps of functions and competency elements is addressed, while the second part culminates with the identification of performance standards and the skills development sequence.

Having a clear vision of what a person is expected to be capable of doing and of the objectives of the training plan is a teaching resource of great value for training. On the one hand, it places students at the centre of the skills development process, making them responsible for leading and guiding their own learning; on the other hand it makes the whole training process transparent, proving the usefulness and relevance of the skills development proposal. Both aspects motivate an active and responsible attitude on the part of the student, at the same time as they allow him/ her to be more critical and demanding regarding the training which they are provided, allowing them to clearly identify their needs for training and support.

By way of example, throughout the document the experience of the silk screening sub-sector workshop is presented.

Sixteen individuals were selected and took part in the panel, from 11 silk screen printing enterprises, including both women and men.

The group was made up of panellists, who were the protagonists of the workshop, and observers, who joined the activities later as a way of ensuring the continuity of the work done by INA. Female methodologists or facilitators were in charge of co-ordination and provided guidance, helping to prioritise the objectives and maintain the directionality of the process.

Seventeen individuals were considered to be a sufficient number to generate debate and discussion on the different subjects addressed, and at the same time not hinder the continuity and evolution of production. Furthermore, the participation of "observers" began at the time when a formulation of the map of functions was achieved. Discussion and interaction are indispensable to generate information on which a consensus can be reached but they must be kept within certain margins if the results expected are to be attained. An effort must be made to reach the *"potential output"* of the panel, by ensuring the participation of all its members but, likewise, it is important to guide efforts in the same direction, avoiding no exit discussions. Uniform participation (where everyone takes part) and stable participation (where participation does not decline as the workshop evolves) must be attained.

The members of the panel did not know each other personally. They did handle the presence of their enterprises in the market and perceived each other as competitors. However, shortly after the first workday of the workshop began, they became a work team, gathered together for the first time for a specific purpose: in this case, to develop a competency profile for sub-sector male and female workers. It was, however, impossible to venture an opinion regarding the stability and permanence of relations.

In point of fact the invitation and the work in the workshop involved a first instance in which core enterprises were established in the sub-sector (medium-sized and small). The advantage of an area for joint reflection was quickly demonstrated, as was the need to provide it with continuity and for work to continue on common themes.

Male and female participants perceived INA to be a binding agent that could provide them an opportunity to continue working jointly on subjects of interest to the sub-sector, and initiatives arose that would be propitiated by FORMJUJER (for example, prospective forum and digitalisation impacts) and that allow stable co-operation areas to be projected.

4. Guide for workshop development

Workshop preparation

It involves the definition of the area to be analysed and the selection of the participants.

What do we know about the sub-sector?

Usually, vocational training institutions know and have links to sector or sub-sector enterprises, either through formalised instances or through their graduates, teachers, etc. To use this capital, update it and increase it to guide the selection of the panel implies a prior analysis of the sub-sector or the enterprise that provides general information and data broken down by sex, including:

- ➔ Key organisations and representative and lead enterprises.
- ➔ Participation of men and women in employment and training.
- ➔ Types of occupations/ jobs and trends.
- ➔ Vocational history within the sub-sector/ enterprise. Entries and exits.
- ➔ Link to other sectors. Competency transfers.
- ➔ Other aspects that may affect the sub-sector: restructuring, new enterprises, investment projects, etc.

The purpose is not to obtain a rigorous survey but rather to gather reliable information to obtain an adjusted selection of enterprises and individuals to make up the panel.

In the case of the silk screening sub-sector, two groups of enterprises can clearly be differentiated on the basis of the technology employed, the market at which they aim and the size of the units: i) automated silk screen printing (large and medium-sized enterprises) and ii) manual and semi-automated silk screen printing (medium and small enterprises). The INA Graphics Industry Core, by evaluating its installed capacity, training needs and possibilities of employment generation (wage earning and creation of enterprises), decided to address the functional area of manual and semi-automated silk screen printing.

A first survey of information of the sector was carried out with the technical support of the person responsible for liaison with the FORMUJER entrepreneurial sector. In Costa

Rica, there is no instance of establishing core enterprises that operate in the market in this area nor of their workers (for example, chambers, vocational associations, trade unions). It was thus necessary to identify enterprises and make contact with the people in charge of them to obtain preliminary information. Thus, enterprises were detected with a regular staff of between three and around twenty persons, mainly males but where the incorporation of some women has been observed in latter years, not only in administrative or executive functions but also as entrepreneurs. On the other hand, among INA courses, a recent exponential growth in female participation in silk screening courses has been evident. The persons who work are multi-functional: "we do everything," they would say afterwards in the workshop, except in some medium-sized enterprises where there is a certain amount of specialisation.

Selecting the panel

As was mentioned above, the panel that will describe the competencies must consider persons who carry out the functions to be analysed and those who fulfil supervisory tasks. It is generally advisable that the number of panellists be between around six and twelve individuals.

In the case of a training course for one or two enterprises, they will be invited to take part, by selecting expert workers in the area to be analysed. If the purpose is for the courses to address one sub-sector, enterprises will be chosen in such a way that they are sufficiently representative of that sector.

In all cases, the criterion is that panel members shall be valued for their performance in the enterprise and that a balanced representation of men and women is required, if participation in the job permits it. This instance usually involves making contact with the people in charge of the enterprise, explaining what and who are involved in the programme, what the purpose is, what the training institution needs them for, what they can contribute and in what way the enterprise will benefit. It is advisable to explore possible dates and schedules that suit the characteristics of the enterprise and do not interfere with its normal operation.

About fifteen enterprises were selected for the silk screening sub-sector, three of which sent female representatives.

Planning the workshop

The next step will involve working out a plan of activities and responsibilities for carrying out the workshop, that envisages:

- ➔ **dates and schedules;**
- ➔ **facilitators and methodology.** Regarding the facilitators, it is suggested that they be persons who know the methodology and who have a certain amount of experience in analysing work and group dynamics, creating a climate that encourages participation and building a consensus. Their function is to facilitate and organise the information of the players of the productive sector through trigger questions, ensuring the participation of the full panel;
- ➔ **selected enterprises; panellists;**
- ➔ **observers and logistical aspects.**

The workshop being referred to was held on two half working days of three hours each. Thirteen men and three women took part. They performed different functions (silk screening, management, production heads and workshop heads). As an example, the workshop programme is presented below:

Monday	
17.15	Welcome. Activity presentation
17.20	Rules of the game
17.25	Round of introductions
17.35	Sub-sector. What would you call it? • Main purpose • Comparative advantages • Trends • Gender participation • Brain storming
18.30	Coffee break
19.00	Functions

Tuesday	
17.15	Reviewing functions
18.00	Ordering by complexity • Critical sub-competencies
18.30	Coffee break
19.00	Workgroups: Execution criteria and knowledge
19.30	Roundup
20.00	Closing Presentation of certificates

Workshop development

The panel is located around a table and in front of a wall or a large blackboard where the sheets of flip charts are placed and later the cards recording the contributions of the successive stages of workshop development. The facilitators are standing, writing on the cards and relocating them on the wall or blackboard according to the different phases.

Defining the objectives and general strategy of the enterprises in the market

In this stage the holistic aspects are introduced, which are later referred to again in successive instances. The panel is requested to point out the characteristics that, in their opinion, differentiate the enterprises of the sub-sector: what elements make them more competitive, what is the defining aspect of the enterprise or product; what are its most salient features; what are its critical aspects or the threats that menace it and how they imagine the future; what trends do they believe will increase in depth. The descriptions that arise from the brain storming are recorded on a flip chart that is placed on the wall.

Guidance questions:

- ➔ What are the distinctive characteristics of the business/ activity of the enterprise/sub-sector?
- ➔ Which are the competitiveness factors?
- ➔ What is the enterprise (or enterprises) intending to do to ensure their viability?

In this first stage of the silk screening workshop, high levels of participation and expression were to be observed. They increased as work progressed. Some aspects that demonstrated the centrality of the topics appeared repeatedly. There was exchange on common experiences and specific work situations were subjected to discussion. An increasingly relaxed climate was generated that favoured communication among the members of the panel with a view to achieving a general vision of consensus of the sub-sector.

PURPOSE

- ✓ Satisfy client needs
- ✓ Quality
- ✓ Offer options to clients
- ✓ Art
- ✓ Market demands knowledge
- ✓ Beyond that, deliveries to clients (client services) return
- ✓ Price, quality, delivery
- ✓ Need for profits
- ✓ Profitable enterprise
- ✓ Some clients ask for price, others for quality
- ✓ Fair competition is needed
  Price competition affects quality
- ✓ Disadvantage of "quick" courses: poor quality
- ✓ Need for practice
- ✓ Understand that there is one administrative structure and system

ADVANTAGES OF SILK SCREENING

- ✓ Offers options such as dyes for exteriors (digital printing)
- ✓ Allows printing on several substrates

FUTURE OF SILK SCREENING

- ✓ INA and government support to improve training (schools)
- ✓ The trend for the future is to automate which makes for greater simplicity
- ✓ Manual will not disappear but can be automated (keep both)
- ✓ Machine: "even" quality always the same, does not get tired

Participation of men and women

In a manner similar to the previous stage, the participation of men and women in the area to be analysed is at issue. An attempt is made to reflect on the relations between the two sexes, the functions they fulfil, what aspects facilitate or hinder equitable participation and integration, whether there are or not discriminatory factors, and whether specific contributions or capacities of either sex are to be perceived.

The information gathered at this stage and the previous one shall be returned to later, both regarding identifying competencies of individuals and drafting standards, since it allows contextualisation as well as upgrading and inclusive proposals regarding professional performance.

Guidance questions:

- Do women and men work in the enterprises of the sub-sector? Doing what? Why?
- Do they perceive difficulties in access to other functions? Which? How can they be overcome?
- What is the specific contribution of women and men to the viability and competitiveness of the organisation or the sub-sector?

Notes recorded in response to these questions in the workshop

Men and women

- ✓ **Male trade union has hampered women's entry into silk screening, offset, etc. Will is required.**
- ✓ **Women are more delicate, more careful, have more vision, take care of details.**
- ✓ **Not all women like to fill their hands with dye.**
- ✓ **Women like sales and office.**
- ✓ **Some enterprises do not hire women in the workshop so as not to place them at risk because it is a very hard and male environment and men feel it to be their own space. Sexes are not mixed in workshops.**
- ✓ **Women are more flexible when they are given orders, while men sometimes deceive, they do not follow orders.**
- ✓ **Perhaps women would not be accepted.**

Capacities that must be demonstrated by persons working in the area

It is a first approximation to the functions of the workers of the area.

The the general objectives of the area are brokedown into the attributes that the person must demonstrate. All contributions are recorded by expressing them with a verb of action on cards that are placed successively on the wall or the blackboard.

Silk screening (manual and semi-automated). Example of brain storming

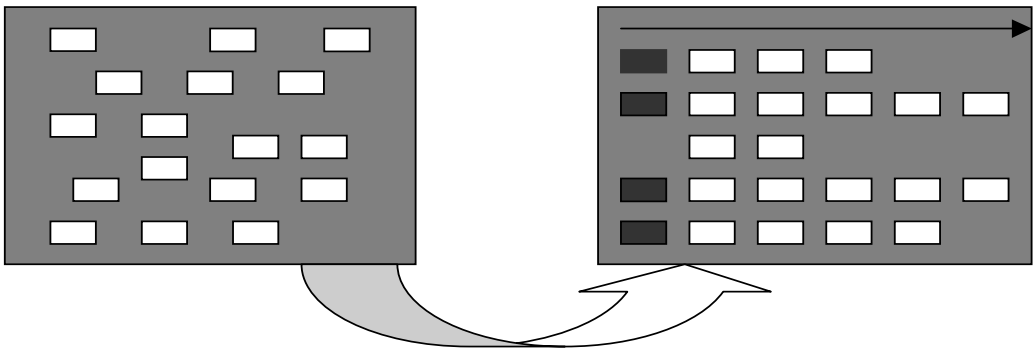
Prepare frameworks	Stamp, Print	Attend the client	Estimate price	Develop
Sell products and services	Follow instructions order	Solve contingencies and problems	Plan schedules (only 1 printing)	Perform position tests
Design, Art	Tauten silk	Receive and record requests	Use elements of protection	Take precautions with solvent products

Guidance questions

- What are the specific responsibilities of the area operators?
- What must they achieve and do to fulfil the general objectives of the enterprises of the area?

Structuring in families of functions

In a first instance, the information is ordered on the basis of criteria regarding areas of responsibility, similarity of activities undertaken and of personal competencies involved. Simultaneously, the descriptions are adjusted gradually: repetitions are eliminated, sub-competencies are added that arise from exchange and consensus. The process is dynamic and implies gradually relocating the cards until the map is obtained. It is advisable to place common elements in rows and later proceed, if necessary, to the final drafting of the general competency or function constructed, considering a broad formulation in order that it may be comprehensive of the sub-competencies identified. The function is placed on the extreme left and its components are deployed towards the right.



Guidance questions

➲ How can the functions and responsibilities mentioned so far be grouped into large groups that provide evidence of the worker's performance?

Silk screening (manual and semi-automated). Example of first version of the profile

Perform client service A	Advertise A1	Sell products and services A2	Attend to client A3	Receive and record orders A4	Request/ obtain faithful originals A5	Interpret/ Analyse client demand A6	Advise client (or salesman) A7
Draft budget B	Consult suppliers B1	Calculate times B2	Pricing B3				
Work planning and organising C	Select and decide what materials will be used C1	Plan work and schedules (for one printing) C2	Take advantage of/optimise resources C3	Follow purchase order instructions C4	Standardise schedules and processes C5		
Produce/ Execute D	Design arts	Develop	Prepare frames	Tauten silk Mount	Prepare substrates	Prepare dyes	Clean materials
	Perform tests of position	Stamp-Print (sample for client)	Dry	Make cuts	Stamp in die	Pack	Get cuts ready
Solve contingencies and problems E	Identify/analyse the problem (locate it) E1	Consult other people E2	Make decisions to solve problems E3	Maintain serenity E4	Take relevant action to avoid repeat E5		
Working in conditions of hygiene and safety F	Use protective elements F1	Take precautions with solvent products F2	Take informed decisions accid: exting, medical, 911,etc F3	Maintain conditions of hygiene and order in work area F4			
Establish effective communication G	Relate to hierarchical superiors G1						
Teamwork H	Handle and fulfil responsibilities and roles assigned H1	Co-operate with other people H2	Take joint (shared) decisions H3	Fulfil-attend to other functions according to needs H4	Be aware of the process as a whole H5		
Maintain machines and equipment I	Perform simple repairs I 2	Detect flaws I3	Apply quick or alternative solutions I4				

Critical elements

Profile review

These sets are refined on the basis of certain criteria that, in general terms, may be considered similar in many productive processes and that take into account the strategies that the individual brings to bear for their attainment. The facilitator guides the panel according to an updated view of the work and points out certain functional areas such as: equipment and product conservation, operation in itself, general vision of the enterprise or business; attitudes, communication, safety and hygiene. The group will have to build its own consensuses and its ordering criteria.

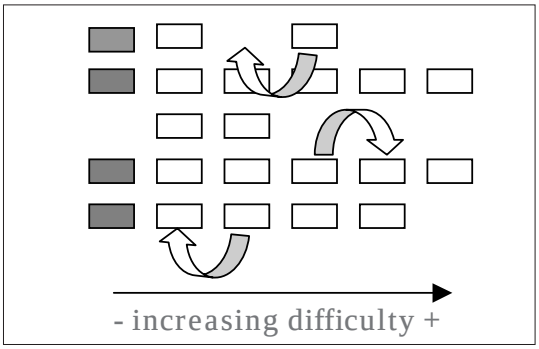
This stage comes to an end when the group considers that all possibilities have been covered and that the functions and sub-competencies of the worker are made sufficiently explicit.

This review is generally done at the beginning of the second workday in order to allow the facilitators to work on the first version between both instances, in order to analyse it, identify aspects that have been little developed or are confusing and enhance its presentation.

The result of this stage shall be the map or profile of competencies of the worker, male or female, of the area analysed.

Analysis of the order of difficulty from the viewpoint of learning for each family of functions

This involves ordering the sub-competencies by levels of difficulty, placing the most simple ones starting at the left of the row until the more complex are reached at the extreme right. The objective of this ordering is to allow a visualisation of the process to achieve performance of a competency.



The ordering process based on the complexity of the acquisition of competencies generates a space of joint learning among workers, supervisors and the training institution itself. For the workers, this involves a process of reflection and analysis of their experience, strengthening an active visualisation of occupational performance itself, at the same time as it allows the very meta-cognitive strategies to be acknowledged.

Guidance questions:

➲ What is the order of complexity, starting with the simplest elements, of the process of acquisition of each of the competencies defined?

Identification of critical elements

Once the ordering is finalised, the elements are identified that, according to the panel's experience, are critical for competent performance of each function. The result of this process must be able to respond to the question: what are the elements for which performance involves the greatest problems or errors and that are fundamental to be competent in that function/occupation?

Thus the critical or basic functions are then identified in the following senses:

- good performance in this function is considered fundamental
- it is considered to pose difficulties
- a competent worker knows how to handle this aspect very well.

This selection has a dual objective: i) to identify priorities and critical aspects to be kept in mind during the learning process; and ii) to economise on working time in the workshop, by identifying key elements to initiate the process of development of standards.

Silk screening (manual and semi-automated) Example of the second version of the vocational profile

Client services A	Request/ obtain faithful originals A1	Receive and record orders A2	Advertising A3	Advise client (or vendor) A4	Attend to client A5	Interpret/ analyse client demand A6	Sell products and services A7
Make budgets B	Consult suppliers B1	Calculate times B2	Pricing B3				
Work planning and organising C	Follow purchase order instructions C1	Select and de-cide on materials to use C2	Plan work and times (only 1 edition) C3	Take advantage of/optimise resources C4	Record operations and costs C5	Standardise times and processes C6	
Prepare final art D	Prepare positives D1	Design arts for silk screening D2					
Develop E	Taping E1	Drying E2	Blocking E3	Burning E4	Emulsioning E5	Keep frames, silks and emulsions in good condition E6	Choose and tauten silk E7
Prepare materials F	Prepare substrates F1	Perform cuts F2	Choose and prepare dyes F3				
Printing G	Drying or curing G1	Test to check printing quality G2	Print edition G3	Place guides G4	Machine assembly G5		
Put finishing touches H	Pack H1	Stamp H2	Quality control H3				
Solve contingencies and problems I	Take relevant measures to avoid repeat I1	Consult other people I2	Make decisions to solve problems I3	Maintain serenity I4	Identify/ analyse the problem (locate it) I5		
Work in conditions of hygiene and safety J	Use protective elements J1	Take precautions with dangerous materials and equipment J2	Take informed decisions in accidents, extinguisher, physician, 911, Etc. J3	Maintain conditions of hygiene and order in work area J4			
Establish effective communication K	Relate to people in a climate of respect K1	Transmit learning and experiences and support fellow workers K2	Relate to hierarchical supervisors K3	Report mistakes quickly K4	Transmit necessary information K5	Seek communication in cases of conflict K6	
Teamwork L	Handle and fulfil responsibilities and roles assigned L1	Be attentive to process as a whole L2	Request opinions from other persons L3	Co-operate with other people L4	Take joint (shared) decisions L5	Fulfil/ attend to other functions at needs L6	
Maintain machinery and equipment M	Flaw detector M 2	Do simple repairs M3	Find quick or alternative solutions M4				

Critical elements

Standards identification exercise

It involves identifying the essential aspects for competent performance of each element. The standards should serve as a clear basis for self-evaluation/ evaluation and they are expressed as evaluative statements that define the level of performance required in the job under normal and contingency situations.

The workshop intends to concentrate on the elements that were identified as critical and work on them in small groups. The facilitators, both male and female, go from one group to another to guide the formulation and discussion. When the work is finished a roundup is performed that makes possible the integration of suggestions and criticisms and to refine the descriptions.

Silk screening (manual and semi-automated)

The object of this exercise was to clarify the scope of the competency identification process and familiarise the panel and observers with the criteria to be used.

Three groups of panellists and observers were formed. They chose the elements to be analysed and they were provided with a common format to organise the products. Some of the results are shown below by way of example.[8]

8 As is stated in the Introduction, all the Competency Units, already revised and validated, are available in the consultants' document that has been the base and reference framework of this chapter.

Competency Unit: Client services

Competency Element: Obtain faithful originals

Definition: Request and obtain the most faithful and clearest original possible to be able to evaluate the work requested.

Execution criteria:

The person must make sure that:

- Contact with clients is direct, either personally or by telephone
- Clients are requested to provide a sufficiently clear and faithful original to assure a high quality result.
- Viable alternatives are suggested to clients in order to obtain faithful and clear originals.
- If the quality of the original is not top notch, clients are informed of the limitations that affect the result and of possible alternatives.
- All the information needed during the printing process is available (colours/ size, etc.).

Knowledge:

- General knowledge of pre-printing techniques.
- General knowledge of silk screen printing techniques.
- Notions of other graphic arts.
- Standards and policies of the enterprise.
- Public relations principles and basic negotiating techniques.

Socio-affective behaviours:

- Client service must be friendly and dynamic.
- Messages must be orally understandable, clear and precise.
- Initiative to offer clients alternatives.
- Responsibility to make decisions, solve problems and attend to contingencies in a timely and suitable manner.

Competency Unit: Teamwork

Competency Element:
Maintain a relationship based on respect for fellow workers

Definition: Contribute to a good working environment, maintaining a relationship based on respecting fellow workers.

Execution criteria:

The person must make sure that :

- Mutual living patterns and group relations are understood and accepted.
- Fellow workers are treated with respect and their personal characteristics and opinions are accepted.
- The method of interaction shows acceptance of fellow workers with no judgements passed.
- Differences of opinion or possible conflicts are resolved through interchange in a climate of respect and co-operation to fulfil common objectives.
- Limits to communication and a good relationship are identified and minimised.

Knowledge:

- Standards and policies of the enterprise.
- Relationship patterns and living together as a group.

Socio-affective behaviours:

- Active listening.
- Proactivity.
- Co-operation with the team.
- Interpersonal relations to achieve a suitable interchange with all the members of the team and senior staff.
- Respect for difference and valuation of diversity.

Competency Unit: Developing
Competency Element: Development achieved in condition for production
Definition: Exposure to source of light, blocking and taping
Execution criteria: **The person must make sure that:** • Exposure times are calculated and applied correctly. • Equipment is suitably calibrated. • The development procedure is performed according to the sequence and applying the quality criteria in order. • The undesirable parts are blocked. • Inspections are performed by evaluating quality and making the necessary adjustments. • The developed product is a faithful copy of the positive or negative of the art. • Toxic substances and waste water are handled in compliance with occupational safety and hygiene standards. • Safety devices are used.
Knowledge: • Knowledge of pre-printing techniques. • Knowledge of different types of machines. • Calculation of exposure times. • Use of grey scale filters. • ISO quality standards handling. • Safety and hygiene standards. • Techniques of sealer, taping, blocker and dryer application. • Knowledge of different types of tables.
Socio-affective behaviours: • Compliance with the different phases of the process systematically and precisely. Multi-focalised attention. • Responsibility for making decisions, solving problems and attending to contingencies in a timely and suitable manner.

After the workshop

Once the workshop instances have concluded, a new stage of work begins in which the training institution will decide what steps to take to continue the work on the basis of the products of the workshop: competency profile, order of complexity, critical elements, bases for the development of standards.

Beyond the fact that training institutions may develop their particular strategies according to the objectives they have set themselves, these products, once they have been validated, are the references for the production of training and evaluation instruments and for the development of curricula.

Validation

Its objective is to ensure that the profile is acknowledged and understood by other enterprises and workers in the area. To do so, a broad consultation is held with other workers in the area that can be instrumented according to the purpose and possibilities of the institution, either by sending the profile or through personal contacts. The scope of the sample is determined on the basis of the objectives.

In the case of the work undertaken by FORMUJER and INA with the representatives of the sector, the result of the validation was as follows:

Professional Figure: Professional worker in silk screen printing

General competency: Professional worker in manual and semi-automated silk screen printing will be able to perform competently to provide the service to clients, produce final arts and implement silk screening techniques up to their final finished stage, in the field of silk screen printing.

Map of Competencies

1. Client servicing	Obtain faithful originals 1.1	Interpret client demands 1.2	Plan the work to meet deadlines 1.3	
2. Produce the final art	Design arts for silk screening 2.1	Produce positives and negatives 2.2		
3. Develop on screen	Select materials (mesh, emulsion) 3.1	Prepare materials for insolation (tautening, emulsioning, drying) 3.2	Development to be in condition for production 3.3	Recover silks to be reused 3.4
4. Print on substrates	Prepare materials and minor equipment 4.1	Assemble and adjust the machine 4.2	Printing (tests and work) 4.3	
5. Final finishes	Control quality of each substrate 5.1	Final finishing 5.2		
6. Maintenance of machinery and equipment	Preventive maintenance of equipment and machinery 6.1	Solve flaws 6.2		
7. Solve contingencies and problems	Identify the problem 7.1	Analyse the problem 7.2	Make decisions to solve problems 7.3	
8. Work in hygienic and safe conditions	Take care of personal hygiene and safety and working equipment 8.1	Keep the work/ equipment area in conditions of hygiene, order and safety 8.2		
9. Establish effective communication	Exchange necessary information to meet goals 9.1	Communicate orally with diverse interlocutors 9.2		
10. Teamwork	Co-operate with all the team 10.1	Maintain a relationship based on respect for fellow workers 10.2	Fulfil responsibilities and roles assigned 10.3	Attend to/ support other functions 10.4
Optional unit				
11. Price work				

Evaluation

This methodology places much emphasis on the interaction between self-evaluation by the person being trained and evaluation by the teachers or supervisors.

A scale of qualification may be applied, the levels of which may vary (generally from three to six levels). For example:

1. **Is not yet competent.**
2. **Knows the essentials but needs support.**
3. **Knows in normal situations.**
4. **Knows how to solve problems and contingencies.**

The implementation process consists of a self-qualifying and qualifying dynamic accompanied by acts of instruction when needed.

A needs assesment may be undertaken at the beginning to detect what the training needs of the person are, as well as other evaluations that record progress and difficulties throughout the process.

To start with, the individuals are given the profile (AMOD map) and are requested to self-evaluate themselves in each of the sub-competencies that express what is expected of them. The instructor or person in charge will grade the trainee once a certain period of time has elapsed and the grade will be the result of a consensus between both scores.

The initial evaluation allows a first training plan to be drawn up that contemplates the individual history of each trainee. If they are competent in one or several identified sub-competencies, either because they were trained or because of prior experience, the order and contents of the curriculum are adapted and unnecessary instances are avoided.

Each time individuals feel that they have improved their performance in a certain sub-competency, they re-grade themselves and confirm their results with the instructor. Once competent performance in each one of them has been achieved, they submit their grades to the committee of experts who evaluate them and validate them and can grant the trainees a certificate of skills in the function.

Preparation of teaching guides

Teaching materials play a fundamental role in competency-based training.

The teaching guide is based on the individualised nature of the instruction and is conceived as an instrument to facilitate a responsible and increasingly au-

tonomous learning process on the part of the trainee. To fulfil the purpose of being a support for individualised learning, the structure of the teaching guide centres on self-learning and develops on the basis of instructions linked to key or critical sub-competencies.

It involves the development in sequence of the tasks defined in the workshop (teaching modules), on the basis of which the students will advance at their own pace, with the help of specialised supervisors and instructors. To simplify the learning process, a variety of instruments that refer to the various learning styles must be offered so that participants may choose those that are most suitable for each particular way of learning.

In general terms, a teaching guide must include:

- ➔ A description of the standards of performance expected regarding the subject.
- ➔ Clear instructions for its use.
- ➔ The basic principles that support the functions addressed, contextualised regarding the enterprise and/or working area.
- ➔ Reference to the concrete problems that arise in a work situation.
- ➔ Clear explanations, through examples, both of the procedures and of the consequences arising from errors in application.
- ➔ Practical exercises (simulation, real situation).
- ➔ Self-evaluation schemes throughout the process.
- ➔ Aspects to be evaluated and conditions under which the evaluation will be carried out.

The limits of teaching materials that cannot address all aspects of instruction must be acknowledged. Thus it will be necessary to concentrate on the most critical aspects, stressing what must be known and mastered, what kind of decisions must be faced, the consequences of mistaken decision-making and safety aspects to be taken into account.

B. Building a vocational profile on vegetable micropapagation

1. Contextualisation of the experience

Within a conceptual framework, with common objectives, strategy and structure for the Regional Programme, FORMUJER Argentina had to establish a specific implementation modality marked by the fact that it was located in the Ministry of Labour, Employment and Social Protection. In contrast to the initiatives of Bolivia and Costa Rica, which were executed by a single training institution with national coverage, in Argentina the Programme is located within a scenario in which the supply of technical education and vocational training is decentralised and scattered among a heterogeneous universe of players. The role of the State is to determine the framework, guide the actions and co-operate with those who intervene in the field, according to policy objectives. Because of this, FORMUJER Argentina co-executes its actions with third parties, developing a mode of implementation with the following main axes:

- ➔ a management structure based on co-ordination of several players, behind a training for work initiative;
- ➔ a strategy of intervention, at the State level, in relation to these players, centred on co-operation and institutional strengthening of their projects and institutional capacities, within a framework of objectives and components that are clearly determined and monitored;
- ➔ a strategy of relationship with the population at which its actions are aimed, low income women, who are its target population, also centred on strengthening or building personal or collective projects, tied to work.

In this scenario, and in the light of the main objective of promoting equity and relevance in training, the latter is conceived as a tool for the development of personal projects tied to employment, although also as a fundamental factor in making local or regional development and productive initiatives more dynamic. Therefore, it must be defined and oriented according to context requirements.

Because of this, the design of FORMUJER supposed that labour market studies would be carried out earlier in each area of focalisation. The results of

those studies contributed elements for the co-executing vocational training institutions (VTIs) to review their decisions regarding the choice of specialities. In some cases, it was necessary to put aside the decision made and think of a speciality that had not been planned for from the beginning. In other cases, they provided valuable information on the needs of the sector and gender issues from the point of view of employers and workers. Starting with these first inputs, the VTIs initiated the process of profile and curriculum materials construction.

Moreover, in keeping with the objective of institutional strengthening, and given the diversity of contexts and points of departure, a decision was made not to implement a particular method, but rather to agree on some common guiding criteria that would allow each institution to work freely, on the basis of its own experience and with the technical assistance of the National Executing Unit in those aspects that require it. These guiding criteria can be synthesised as follows:

- ➔ Define competencies on the basis of job performance.
- ➔ Start from the acknowledgement of learning acquired in different areas.
- ➔ Conceive guidance and training as phases within the construction of the occupational project of individuals.
- ➔ Mainstream competencies for the construction of the occupational project and the gender perspective in specific technical competencies.
- ➔ Bring together practice and theory in training.
- ➔ Formulate the competencies of the profile keeping in mind vocational autonomy, problem solving capacity and performance in complex situations.
- ➔ Give a place to cultural and language differences both in instructors and in the population.

Within this framework, the National University of Quilmes, one of the co-executing institutions, through the Unq-Fundemos Programme developed, in the year 2001, a pioneer experience in building up, from a gender perspective, the Competency Profile in the area of Vegetable Micropagation (of seedlings) of the fruit and horticulture sector.

The Univeristy of Quilmes had previous experience in the competency approach and developed a methodology for the construction of the profile, based on observing the performance of male and female workers in this speciality and in interviews with privileged witnesses. Its objective in this process was to introduce a gender perspective. The first step was to build up the occupational profile, on the basis of the characteristics of the speciality selected and given that there were no bibliographical background or previous experiences.

This text seeks to describe the process undertaken with the intention of presenting a concrete example of how to operationalise, in training actions and when assembling the occupational projects for the target population of FORMUJER, the reflection on crossing the gender and competency approaches. The methodological considerations that are posed are the consequence of subsequent systematisation and reflection undertaken by the University of Quilmes' team regarding the experience, and references and some concrete or relevant results of the experience are included to serve as an example.[1]

1 For greater breadth and depth, see the introductory chapter of the book and the base document *Informe final sobre el perfil de competencias..., op.cit.*

2. Intervention framework for occupational profile building and validation from labour competency and gender approaches

One of the key components of the construction/ validation of occupational profiles and the associated competency-based training under a gender perspective, is an approximation to the occupational sector/field that is the object of study, in order to achieve the following:

- ➔ To approximate the training world to the reality of the labour situation.
- ➔ To adapt the training supply to the needs of the target population (low income women). To do this, external and internal factors that influence the development of the task shall be surveyed.
- ➔ To asses the learning, skills and abilities of the workers of the profile selected, with respect to their labour competencies (effectiveness, efficacy, needs, etc.), highlighting a critical approach regarding gender marks in the performance of their profession/occupation.

With these general objectives as an end, the occupational competency approach adopted by FORMUJER was used as a starting point, i.e., "a complex and comprehensive aggregate of knowledge, abilities, attitudes and skills that people bring to bear in real work situations to solve the problems that they raise, according to standards of professionalism in each vocational area".

Thus understood, **the concept of competency encompasses not only the capacities required for exercising a professional activity, but also aggregate behaviours, decision-making, information transmission, etc. considered to be necessary for the full performance of a function. Because of this, it is necessary to be aware of what concrete cognitive, attitudinal, valuating and skills capacities facilitate the definition and solution of problems, decision-making capacity, etc., broaching it as a continuous and dynamic process that lodges in its own base the possibility of learning to learn of individuals.**

Competency-based training, therefore, allows encouragement and management of learning on the basis of performances gathered in the workplace itself. For that purpose it is necessary to know the following:

- **What does the worker have to know to carry out his/her activity?** It alludes to the field of knowledge and capacities from which the basically theoretical training contents will be derived.
- **What does the worker have to know how to do?** Through which knowledge and capacities are identified, to which training contents of a practical nature are associated, concretely skills and abilities.
- **How must workers act on the job?** Knowledge and capacities associated to training contents tied to attitudinal aspects of professionalism, responsibility and teamwork, autonomy, initiative, decision-making, response when faced with possible contingencies, etc. are inferred from this question.

What is this trilogy of the process needed for?

- so that training participants can build or reorient their occupational project, in such a way that it may **improve in quality or attain its employability,** in a labour situation characterised by narrowness in job generation and the instability and precariousness of the occupational relationship.
- to unravel and show up (for joint reflection) those elements that act by conditioning possibilities and conditions of insertion and of maintenance of the female worker in the world of work.

In this way, the construction and validation of the occupational profile raises the issue of going "beyond" a certain job or a place or position within an entrepreneurial organisation. **What is sought is to rescue, from a gender perspective, all the cross-cutting learning required or needed to improve their present situation in the labour market.**

Within the scope of this definition, a decision is made to incorporate the conceptualisation of **occupational family** in the Micropropagation vocational profile, **on the understanding that this perspective becomes one more tool to improve present and future possibilities of employment and employability.** Occupational family is defined as the set of occupations that, because they are associated with the production process of a good and/or service, maintain a singular training affinity and meaning in terms of employment. The common axis of these occupations is not their belonging to a certain sector of activity, but the convergence of conceptual, attitudinal, and procedural knowledge required to perform in them.

Why is the incorporation of the "labour competency" approach beneficial?

- ➔ It is centred on the *know how* to do, beyond formal education, reinforcing the workers' autonomy and decision making power on the job.
- ➔ The observation is tied to the workers' situation regarding the *labour market*, whereby training is linked to the latter and can be broached as a continuous process that responds to challenges that the world of work itself poses.
- ➔ Qualifications arise from the analysis of effective working roles and, therefore, are designed "*by*" employment, "*for*" employment.

Diversifying female participation in vocational and technical training to provide horizontal and vertical mobility, mastering technologies that are needed in today's labour world, as also identifying and eliminating stereotypes in teaching materials and in the different manifestations of the curriculum, implies a deliberate inclusion of the **gender perspective** that, as FORMUJER believes, "will run through the definition of contents, methodologies, overall construction of training supply and institutional practice itself. A perspective is a conceptual and methodological frame of reference to address our work in specific fields. It is not a content, a module or an isolated activity. **And, therefore, it cannot be other than cross-cutting**".

Integration of the gender perspective in the analysis of the new realities in the world of work as well as what happens in the productive units, –including among them the new modalities and ways of organising the work process (soft technology), the incorporation of state-of-the-art or modern technology (hard technology), the decline of traditional trade and the rise of polyvalent work and the multiple functionality of workers, etc.–, is an indispensable element for identifying myths, stereotypes, limitations and regulations arising from gender relations that generate different opportunities and differentiated restrictions for men and women.

It is appropriate to highlight that this approach of the productive world to the training of beneficiary persons, is implemented with a basic and fundamental input: the construction of the vocational profile based on the identification of competencies in the productive area itself, in which the players involved "gradually identify and/or show" expected and competent performance, i.e., "the knowledge" involved in a concrete job, for which there is also a social construction as regards gender, biased by the socially and culturally determined relationship between the sex of a person and the capacity to perform a task.

3. Methodology and phases of development

This section of the document makes explicit the methodological steps involved in this process of construction and validation of the profile, keeping in mind that, given the inclusive and participative approach defined to undertake the process of gathering and analysing information, a co-ordination of consensus proposals was sought at different levels and realities, with a view to producing a complete version of the profile on vegetable micropropagation.

Intervention methodology

To provide a response to the purpose intended, a "bottom-up" methodology was applied, i.e., it was considered relevant to initiate the process by direct observation and end it with the interviews with qualified informants. It was important for this phase of implementation to select workers/ leaders/ professionals with experience on the job and broad knowledge of the subject to be developed. The objective is to share information on the profile to obtain synergies that enrich conclusions and final products.

Methodological steps chosen and used:

Performance area: Direct contact in the enterprise. Case analyses

⇩

Intervention methodology

⇩

1. Direct observation
2. Direct interviews
3. Participative evaluation groups
4. Qualified informant interviews

⇩

Final product:

Dossier of case analyses to obtain the occupational profile validation

Direct observation

Objective: to identify and characterise the roles actually performed in the work situation and the qualifications and capacities required for it, as well as to ascertain and/or verify the conditions in which women's work is carried out, the exclusions, stereotypes and discriminations they are the object of and that, on many occasions, they find difficult to verbalise (or be consciously aware of).

Being tied to the situation of workers in relation to the labour market, it helps to respond to the objective of human resource training linked to the latter and makes it possible to understand training as a continuous process that is a response to challenges which are posed by the world of work itself.

Considerations for direct observation:

Before entering "the field" to visualise the activities of the workers, the following considerations must be taken into account:

- ➔ to ensure that the workers have information on the visit and its purpose, in order to avoid resistance towards the observers;
- ➔ to observe directly the entire staff of workers at their jobs at the same time;
- ➔ to visit the jobs at different times of the day in order to be able to detect the involvement of the workers throughout the work process in which they take part;
- ➔ to work on a checklist in advance to identify activities being carried out and their importance during the workday. The list should include the functions carried out by workers, to progressively verify whether they are or not carried out, and to what extent they are performed (fields of execution). During the observation, activities shall be added that are considered novel, or that simply were not identified in advance but that are indeed carried out;
- ➔ surveying the working area where the activity is carried out, as for example, means used, physical characteristics of the workplace itself, spatial placement of equipment, female worker distribution, etc.

Direct observation is a fundamental step in the profile construction process, although it cannot be the only mechanism or process for profile building. On many occasions some data (as, e.g., degree of autonomy in the task or gender stereotypes in the occupation or in the performance of the task, etc.) must be requested of the worker or middle level management throughout the visits. Therefore, they must be complemented with direct interviews.

Guidelines for direct interviews

The purpose of these interviews is to get to know and to contrast with the qualified informants of the enterprises the present and future situation of the sector, the enterprises and the occupational profiles.

In the case of vegetable micropropagation in particular, it also became an indispensable element to survey and identify the gender perspective and marks as concrete tasks were being performed. Because of that, it became relevant to hold interviews with different hierarchical levels to obtain various and broader perspectives and opinions on the subjects raised.

The interviews were conceived as semi-directive with the following patterns:

- ➔ Incorporation of a common section in the script of the interview for all individuals interviewed (different hierarchical levels) in order to contrast opinions on competencies needed to perform the task.
- ➔ Open in manner, in order that the participants might offer key information on the profile regarding those issues that most concern them and on those that need to be surveyed according to research objectives.
- ➔ Inclusion of indicators tending to survey the needs, expectations, difficulties, exclusions and representations of the women interviewed;
- ➔ Specific questionnaires were designed in order to construct the profile and develop standards and rules from a gender perspective, rescuing

"the words and sayings" of the persons directly involved in the profile work process.[2]

Guidelines for Participative Evaluation Groups (PEG)

Objective: The purpose of this technique is to facilitate a consensus regarding a certain subject in which individual and collective contributions are combined. In short, to obtain as a result a shared valuation that will help to identify the situation and challenges of the sector and the occupations.

In the particular case of the occupational profile of a vegetable micropropagator, membership in the participative evaluation group was thought of in terms of, firstly, surveying the different realities of the small producers in the area; secondly, contrasting them with the results of direct observation and key informant interviews in the entrepreneurial area; and thirdly, reaching a consensus regarding these dissimilar realities. Thus, a training supply could be offered with a gender perspective in keeping with and useful for the target population and, in this way, facilitate the labour insertion and performance of beneficiary women, on the different opportunities that may arise for them in the future (i.e., either that they may insert themselves in a business, in a nursery or apply this technique on their own land or stretch of it).

The following considerations are suggested for PEG organisation:

- Size: in order to facilitate interaction between members and their participation, there should be around 8-10 individuals in the group including men and women attending, and a majority of women should be sought.
- The approximate duration of the meeting is stipulated to be between three or four hours of consultation/ work.
- Work should start with a brief speech by the facilitators, making explicit the purpose of the meeting (objectives), that would then take the

2 Same as the previous note.

form of a workshop so that, jointly, a consensus might be reached on the main points made. A speaker for the group should then make the PEG conclusions explicit, in order for the co-ordinator to make a note on a blackboard of the relevant points. In a later roundup, individual remarks that may arise may be added.

➔ Lastly, a consensus regarding the final group proposal should be reached.

Interviewing qualified informants

Objective: The purpose of these interviews is to obtain a general overall view of the sector analysed, facilitated by experts who have relevant knowledge of the activity. The script of these interviews must be open, in order to take maximum advantage of their know how, although the inclusion of the main sources of interest around which to centre the dialogue should not be left to chance.

4. Vocational profile building: functional map and competency units

The systematisation of the collected information enables:

- to confirm or question the need and relevance of the profile chosen and its viability for the insertion of women.
- to produce a non-gender biased vocational profile, which implies, at least and to attend to the requirements of competency-based training, the construction of a functional map and its competency units.

The functional map is a matrix of functions and tasks required to achieve outstanding performance on the part of the worker. It contains the description of the key purpose, which is the point of departure to be able to make an efficient and useful breakdown that allows the most basic contents of the units and of the elements to be attained, permitting a gradual analysis of the key functions with increasing levels of detail.

The competency unit is a response to the description of the productive function that allows the objectives proposed for the organisation of work to be fulfilled, i.e., it describes what should occur for this objective to be achieved.

The most well-known form of competency unit contains the following fields:

- **Title of the Element:** is the most refined level of analysis, the concrete action. It identifies what the worker must be capable of doing to achieve the expected results.
- **Performance criteria:** makes reference to the most important characteristics of the activities that will have to be undertaken to obtain the results required, as well as the means to attain them. This criterion must aim at the what and how of the expected performance.

In the micropropagation profile experience, it was considered that this intent of appeal would be better achieved if criteria were formulated in the second person singular and using the most colloquial and informal form of Spanish, such as that usually used in Argentina *("Sos competente cuando.."* instead of *"eres").*

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The intention has been to generate a space in closer contact with the workers that favours their identification with the standard, at the same time facilitating self-evaluation of the conditions required to achieve the performance described therein.

- **Requirements of evidence:** subdivided into evidence of performance and of knowledge. The former is obtained from observation during performance of the element, and is related to concrete results and/or objectives (that were achieved). The latter describes the basic knowledge, skills and cognitive routines used by the workers that can be demonstrated and that are related to obtaining certain results.
- **Field of Application:** The context conditions in which individuals must demonstrate mastery of the element (what is involved) are described.

In keeping with the intention to share both the methodologies and tools developed, and the lessons learned and products derived from their implementation, a synthesis is presented below of the reflections and considerations regarding the viability and potentiality of the profile developed, as well as some examples of products achieved: the functional map of the Micropropagation Profile and a selection of Competency Units.

Some reflections and considerations

Field work and the analysis of the interviews held with qualified informants show the following:

- the players involved in the profile agree that there are no restrictions by sex to working in vegetable micropropagation, although they also agree that better performance of the tasks and functions required by the profile is to be associated with women and the "natural attributes of the female". Because of this, their competitive advantage in the suppliers' market is important and rooted in a cultural stereotype. This consideration, as in the case of other gender marks identified, must be seriously taken into account since they are elements that make for sensitisation and consciousness- raising of the teaching team involved in training supply, while the identification of occupational competencies from a gender perspective contributes to promote and build up equity between men and women.

- Middle-level management and supervisors agree that competency is built on the basis of performance in a specific job and that it cannot be conceived as a stage in formal acquisition of knowledge, followed by practice. Moreover, they observe that it is in actual occupational practice that the competencies are created and the knowledge, abilities and skills involved in the profile are developed. Hence the interest expressed in the proposal to train *from* work *for* work, since they interpret that a training supply of this type is a new kind of value added that is extremely useful both at the personal and the entrepreneurial level.

- Similar views were expressed among the individuals interviewed regarding the need and importance of training in cross-cutting competencies, i.e., competencies that involve learning and skills of a polyvalent nature that cut across different occupations or vocational profiles and thus bring about an improvement of employability, both present and potential, of participants. They include both general or basic competencies and non-specific technical competencies, i.e., those valid for a wide range of occupational families, as was well stated by one of the persons interviewed:

  "..I believe that technical training in micropropagation would make it possible for these trained women to improve the output of their own work in a fabulous way, and on the other hand they would still be at an advantage regarding other women demanding work, since they can perfectly well be employed by a nursery, a company like this one or a hospital, since the steps involved for the sterilisation of the workplace and the tools are the same as the procedures involved in the health sector".

- With regard to the view and perception of the players regarding the expected evolution of the sector and the factors that can affect the profile in general and specifically vis-à-vis the production of the next few years, the following deserve special attention:

  a) they agree in stating that the fruit and horticulture sector is at present suffering from a blow brought on by the recessive stage facing Argentina. However, at the same time, they stated that it is precisely there where trust and expectations had been deposited to implement "new productive techniques" that would allow the rigidities and retraction of the market to be overcome. Regarding the specific profile, the experts assured that micropropagation is unquestionably successful at the international level, whereby they believed that "inevitably" and to the extent that it is promoted as training supply, it will have a positive impact on the domestic economic structure.

  b) given that the cost of implementing the type of technology needed was one of the aspects that generated doubts on the viability of implementing the profile within the framework of the FORMUJER Programme and for the target population, professionals were consulted who had "contacts and knowledge and experience"

in work with Micropropagation techniques with this population, which allowed smaller scale substitution mechanisms to be identified, with equally satisfactory results.

Some examples of the products obtained

Main purpose of the vocational profile on vegetable micropropagation

To produce seedlings using the vegetable micropropagation technique according to market standards, maximising production, optimising the use of available equipment and tools, applying safety and extreme sterility standards, ensuring the quality of production.

Vegetable micropropagation functional map

Produce seedlings using the vegetable micropropagation technique according to standards demanded by the market, maximising production, optimising the use of equipment and tools available, applying safety and extreme sterility standards, ensuring the quality of production.	1. Pre-condition the workplace and material	1. Assure hygiene in the working area 2. Obtain, control and maintain conditions of sterility in the workplace 3. Prepare and disinfect the stock plants to be micropropagated 4. Solve or consult on frequent or basic problems
	2. Prepare mediums of cultivation	1. Plan for the inventory and replacement of inputs needed 2. Prepare the reserve stock of stock or concentrated solutions 3. Prepare the cultivation mediums, salt mix solution and organic compounds interpreting the protocols or chemical "prescriptions"
	3. Autonomously apply techniques inherent to vegetable micropropagation to the different species demanded	1. Select the vegetable material (explantation) that will be used to initiate in vitro cultivation 2. Handle the dissection tools and equipment 3. Cut the explantations 4. Initiate cultivation or sowing in vitro
	4. Do regular outplanting for reserve stock maintenance	1. Observe and control the material sown to follow-up on possible responses and evolutions 2. Separate the sprouts obtained 3. Sow (outplant) the material in a fresh medium every 25 days
	5. Rusticate the material sown	1. Observation to detect the growth of root primordiums 2. Readapt the in vitro plant to environmental conditions 3. Transfer the material to a substrate mix under greenhouse conditions 4. Control irrigation and conditions of rusticated plants
	6. Record data on production, vegetable inventory and reserve stock of inputs	1. Undertake an inventory of reserve stock 2. Record the information on productive data 3. Identify advantages and disadvantages of productive performance
	7. Plan individual work to fulfil activities assigned	1. Establish priorities 2. Organise and manage times and resources to fulfil assigned tasks 3. Apply and maintain safety conditions and procedures

TITLE OF UNIT:

1. Pre-condition the workplace and materials

TITLE OF ELEMENT:

1.1. Assure hygiene of working area

Performance criteria

You are competent when:

1. You clean and keep the working table tidy
2. You check and correct the state of the environmental conditions, equipment and tools
3. You are aware of the correct use and safety measures to operate a sterilizer or pressure cooker
4. You handle the instruments and inputs according to required hygiene and safety conditions

Evidence:

Of knowledge:

- Identification of cleaning elements and materials and of techniques for hygiene and disinfecting
- Identification of equipment and tools
- Recognition of optimum environmental conditions and of equipment and tools in place
- Applying standards and procedures

Performance:

1. Practice of established hygiene and cleanliness procedures
2. Instructions for cleaning the area and the equipment at the proper time
3. Checking temperature, humidity of environmental conditions and equipment
4. Checking the quantity and state of work tools
5. Reserve stock of inputs for hygiene

Field of application:

A. Equipment: Working table, laminar flow cabinet or the like, sterilizer or pressure cooker

B. Tools and instruments: Ambient thermometer, short and long fine-point pliers, scalpel sleeves and blades, dissecting scissors

B. 2. Safety: caps, masks, special footwear

C. Communication and information: Schedule of input requests, labour safety and hygiene standards.

D. Materials: Hygiene and cleaning elements (70% alcohol, biodegradable detergent, commercial chlorine, floor cloths, window panes, sterile papers and water, etc.).

TITLE OF THE UNIT:

1. Pre-conditioning of the workplace and materials

TITLE OF ELEMENT:

1.2. Obtain, control and maintain conditions of sterility in the workplace

Performance criteria

You are competent when:

1. You sterilize the instruments and work tools assiduously
2. You use the material in sterile conditions
3. You check the normal operation of the sterilizing equipment
4. You use the personal safety and hygiene elements required (sterile clothing) and fulfil your hygiene and personal presentation routine

Evidence:

Of knowledge:

- Handling sterilization procedures
- Recognition of production standards in aseptic conditions
- Knowledge of how equipment works (sterilizer, laminar flow) and of inputs that guarantee sterility
- Identification of risk areas and procedures
- Explanation of the consequences of flaws and poor implementation in the sterilizing process, both of the instruments /work tools, and regarding personal hygiene)

Performance:

1. Sterilization procedure practice
2. Application of standards for sterile manipulation of the instruments and work tools
3. Working materials ordered
4. Equipment observation and checking
5. Register of breakdowns
6. Fulfilment of condition and use of safety and hygiene elements

Field of application:

A. Equipment. Laminar flow cabinet or the like, sterilizer or pressure cooker

B. Tools and instruments: infrared sterilizer or alcohol wick

B. 2. Safety: caps, masks and dust-coat

C. Communication and information: occupational safety and hygiene standards. Detailed list of information on sterility conditions

D. Materials: personal hygiene elements (alcohol, gauze or paper, liquid soap). Materials to be sterilized: short and long fine point pliers, scalpel sleeves and blades, dissection scissors, culture flasks and glass material (containers where the culture medium is packed)

TITLE OF THE UNIT:

1. Pre-conditioning of workplace and materials

TÍTLE OF ELEMENT

1.3. Prepare and disinfect the stock plants to be micropropagated

Performance criteria

You are competent when:

1. You select the stock or elite plants
2. You evaluate the condition of the plant to be worked on
3. You prepare the plant chosen for micropropagation
4. You handle the instruments and equipment according to their function
5. You concentrate all the time on controlling the risk of contaminating the species

Evidence

of knowledge:

- Identify the species with best sanitary control
- Handle the sanitary, sterility and aseptic procedures, both personal and of tools/ instruments/ equipment and the vegetable material
- Explain and interpret preparation and processing parameters of the species chosen for micropropagation
- Are familiar with disinfectant solution handling and fungicide and insecticide use
- Identify and explain situations where there is a risk of contaminating the species
- Recognise critical points of preparation processes for the plant chosen
- Know how the equipment works

Performance:

1. Observe the sanitary characteristics of the stock or elite plants
2. Specific control of sanitary procedures
3. Superficial disinfecting of all organs which may be micropropagated
4. Use of disinfectant solutions
5. Rinse with sterile water
6. Use equipment to ensure sterility conditions
7. Practice sterilisation, safety and hygiene procedures

Field of application:

A. Equipment: laminar flow cabinet or the like

B. Tools and instruments: pliers

B. 2. Safety: caps, masks, special footwear or cloth to disinfect footwear and dust-coat

C. Communication and information: Occupational safety and hygiene standards. List of information on optimum conditions to select the elite plant

D. Materials: sodium hypochlorite solution (diluted commercial chlorine), sterile distilled water, biodegradable detergent

TITLE OF THE UNIT:

1. Pre-conditioning the workplace and materials

TITLE OF ELEMENT:

1.4. Solve or consult on frequent or basic problems

Performance criteria

You are competent when:

1. You identify problems in the actual work situation
2. You detect and solve simple problems
3. You exhaust the alternatives within your reach to solve a problem or contingency
4. You consult the proper person to solve a problem effectively

Evidence:

Of knowledge:

- Identify problems of operation of equipment and machinery
- Recognise critical points in the preparation, processing, sterilization and maintenance of materials to be worked on, as of the instruments, tools and equipment needed
- Identify and recognise possible contaminating agents (bacteria, fungus)
- Identify frequent problems and be aware of probable solutions

Performance:

1. Check input characteristics in work situations, as well as customary procedures
2. Put in practice instructions for solving a contingency
3. Timely actions in the face of critical moments
4. Timely reporting of incidents and/or risk situations, breakdowns and/or maintenance

III. Competency-based training with a gender approach

1. Curriculum design within the framework of lifelong education and of training for employability
2. The design phase
3. Curriculum design in competency-based training

- **An experience in design**
  - A. The Dual Training Programme for Nursing Aides under a competency approach
    1. Contextualisation of the experience
    2. Building a vocational profile
    3. The Training Programme

1. Curriculum design within a framework of lifelong education and of training for employability

Once the occupational profile has been developed and the activities and results to be attained in a productive activity have been identified, the next and essential step in vocational training is to ask how learning and the development of these competencies are facilitated. Competency-based training (CBT) seeks to provide an answer to this central question.

> "Competency-based training (CBT) can be understood to mean an open and flexible process of development of occupational competencies that, based on the competencies identified, provides curriculum design, pedagogical processes, didactic materials and occupational practices and activities in order to develop in participants capacities for them to become members of society as citizens and workers"[1]

In order for the occupational or vocational life of individuals to be developed, it needs to be permanently nourished with new knowledge and specialisations. However, basically, it needs a new kind of learning. One that, in times of change and uncertainty, is capable of enhancing the employability of individuals in terms of access, maintenance, mobility or generation of employment and that may no longer be circumscribed to a stage at the beginning of vocational life but that must be an on-going process.

A lifelong education implies that it be conceived as structured around a vertical axis which lasts as long as life itself for the individual, and a horizontal axis whereby all the spaces in the course of that life become educational. To make lifelong education possible, mechanisms are required that allow continuous training to be brought about and, as has been seen, at present it is the competency approach that is turning out to be the most effective. Moreover, it cannot be the sum of

1 Irigoin, M; Vargas, F, *Competencia Laboral: Manual de conceptos, métodos y aplicaciones en el sector salud,* Cinterfor/ILO, Montevideo, 2002.