CONTRACTOR's obligation under this Contract, the PURCHASER shall, (subject to negotiations as to the cost and extent of such services and effect on the time schedule, if any) agree to pay for such services in accordance with payment terms and time schedules to be mutually agreed.

"15.3 In the event that the PURCHASER and the CONTRACTOR are unable to agree on whether such required services are within the contractual obligations of the CONTRACTOR, or if the PURCHASER considers that the payment demanded for such required services by the CONTRACTOR is exorbitant, the Technical Advisor shall have the right to decide on the quantum of payment, if any, which may be payable by the PURCHASER to the CONTRACTOR. In such an eventuality the CONTRACTOR shall proceed without delay to carry out the design changes, and/or provide the services which are the subject of the dispute, pending the decision of the Technical Advisor. The decision of the Technical Advisor shall be without prejudice to the rights of the CONTRACTOR to submit the dispute to Arbitration."

73. The procedure under UNIDO-TKL and UNIDO-STC is similar.

74. The counter-proposal has a different approach. It stipulates the circumstances in which the contractor will be entitled to extra payment for the additional work. Article 15 provides *inter alia:*

"The CONTRACTOR shall be entitled to claim for additional cost and/or time delays and/or guarantees when a modification, change or variation occurs in the event of any of the following:

"15.1 Any modification, addition or deletion to the contract documents . . . unless the PURCHASER specifically demonstrates that it does not affect the CONTRACTOR's services.

"15.2 Any written request by the PURCHASER which causes a modification to any drawing, specification and document, purchase order or to the CONTRACTOR services or to the work, unless the elements already accomplished were not originally accomplished in accordance with the contract.

"15.3 Any additional engineering studies requested in writing by the PURCHASER, including those which are not followed by execution.

". . .

"15.8 Any modification in the CONTRACTOR's services and/or the work proposed by one of the Parties accepted by the other Party, and ratified by both Parties."

[A/CN.9/WG.V/WP.4/Add.3*]

VIII. Inspection and tests

A. *General remarks*

1. The conformity of the plant with the requirements of the contract is of utmost importance for the purchaser and also in the interest of the contractor. To ensure this conformity works contracts usually contain provisions concerning inspection and examination in the course of production as well as tests before and after completion of the works.

2. The relevant part of article 38 of the Sales Convention stipulates:

"(1) The buyer must examine the goods, or cause them to be examined, within as short a period as is practicable in the circumstances.

"(2) If the contract involves carriage of the goods, examination may be deferred until after the goods have arrived at their destination."

3. In works contracts, especially one for large industrial works, the position is not as simple as that under the Sales Convention. Here it is in the interest of both parties to examine the works in the course of their production. For the contractor early examination means the possibility of curing the defects, if any, in the factory itself rather than on site. The defects would be easier to remedy and less expenses would be incurred. For the purchaser early rectification of defects means avoidance of subsequent delays and difficulties.

4. Works contracts, therefore, often contain provisions concerning the extent of inspection during production of machines and equipment, place and time of inspection, procedure for inspection, obligations and rights of purchaser, duties of contractor, costs of inspection, certification, and legal effect of inspection.

5. Regarding performance tests works contracts usually contain provisions concerning pre-conditions for performance tests, date of performance tests, procedure to be followed, participants, obligations of purchaser in preparation of tests, effects of tests, procedure in case of non-performed or non-successful tests, and protocol.

B. *Inspection during production*

1. *Rights and obligations*

6. The general conditions and model forms under study adopt different approaches to the question of

* 17 March 1981.

"inspection", "checking", "examination" and "test". The ECE General Conditions provide for inspection by the purchaser or his representative but an express agreement by the parties is required in the contract. Furthermore, the ECE General Conditions grant to the contractor a *right* of inspection, whereas the FIDIC Conditions give the right of inspection to the purchaser. The UNIDO model contracts on the other hand speak of the *duty* of the contractor to inspect and grant to the purchaser the right of participation.

7. Clause 8.1 of both ECE 188A/574A states:

> "*If expressly agreed* in the Contract, the Purchaser shall be entitled to have the quality of the materials used and the parts of the Plant, . . . inspected and checked by his authorized representatives . . ."

Here the inspection is related to the quality of the materials used and the parts of the plant. Whether the words "inspection" and "checking" denote different activities is not clear.

8. Other provisions of ECE 188A/574A relate to tests. These tests are obviously carried out by the contractor, in contrast to the aforementioned inspection which is carried out by the purchaser or on his behalf. The tests according to clause 8.3 also require an express agreement by the parties.

9. Another provision of ECE 188A/574A relates to inspection on the site. Article 18.1 provides:

> "Until the Works are taken over and during any work resulting from the operation of the guarantee the Contractor shall have the right at any time during the hours of work on the site to inspect the Works at his own expense. In proceeding to the site, the inspectors shall observe the regulations as to movement in force at the Purchaser's premises."

10. Clause 36 (1) of FIDIC-CEC states:

> "All materials and workmanship . . . shall be subjected from time to time to such tests as the Engineer may direct . . ."

And clause 25.1 of FIDIC-EMW contains the provision:

> "Unless otherwise agreed in the Contract the Engineer shall be entitled during manufacture to inspect, examine and test . . . the materials and workmanship and check the progress of manufacture of all Plant to be supplied under the Contract . . ."

11. Whereas the ECE General Conditions speak only of the materials the FIDIC Conditions include the workmanship and even the progress of manufacture of the plant.

12. In the UNIDO models it is the contractor who is responsible for the inspection. Article 14 of UNIDO-TKL shall serve as an example; UNIDO-STC is almost identical, whereas UNIDO-CRC is substantially shorter. Article 14.1 of UNIDO-TKL reads:

> "The CONTRACTOR shall assume full responsibility for the inspection, testing and certification of all equipment, materials, spare parts and other items . . . for incorporation into the Works. . . . [T]he CONTRACTOR shall be liable for the proper, adequate and sufficient conduct of the functions envisaged in this Article . . ."

13. Apart from the responsibility of the contractor for the inspection of his own equipment, he has to examine the materials supplied by the purchaser. According to article 14.9 of UNIDO-TKL:

> "The CONTRACTOR shall . . . review the quality of the items being supplied by the PURCHASER as listed in Annexure VIII and elsewhere in the present Contract, . . . and shall fully satisfy himself as to whether the specifications of the technical documents supplied by the CONTRACTOR have been met . . ."

14. The purchaser's right of inspection may extend to buildings. For example article 14.11 of UNIDO-TKL states:

> "The PURCHASER shall have the right to inspect all buildings and Civil Works during and after construction, (except for minor items such as painting etc. which may be inspected subsequently) . . ."

15. And article 14.12 of UNIDO-TKL adds:

> "The PURCHASER shall have the right to inspect all the erection of plant and machinery, and all piping, instrumentation, electrical installation and wiring, insulation, painting and all other work connected with erection as detailed in Annexure XXIX."

2. *Place and time of inspection*

16. Place and time are interrelated. If the place of inspection is in the factory, it must be conducted before shipment. Of course the time of inspection must be fixed according to the place where the equipment is situated for inspection. All the general conditions and contract forms under study contain provisions in regard to the place and time of inspection.

17. According to clause 8.1 of both ECE 188A/574A, the inspection and checking during manufacture and on completion,

> "shall be carried out at the place of manufacture during normal working hours after agreement with the Contractor as to date and time."

18. As regards tests, the same General Conditions state:

> *Clause 8.3:* "Tests provided for in the Contract other than taking-over tests will be carried out, unless otherwise agreed, at the Contractor's works and during normal working hours."

19. Clause 25.1 of FIDIC-EMW provides that inspection during manufacture must take place "on the Contractor's premises during working hours". The clause further provides:

"and if part of the said Plant is being manufactured on other premises the Contractor shall obtain for the Engineer permission to inspect, examine and test as if the said Plant were being manufactured on the Contractor's premises."

20. Clause 36(1) of FIDIC-CEC provides for tests "at the place of manufacture or fabrication, or on the Site or at such other place or places as may be specified in the Contract, or at all or any of such places."

21. Usually, the time of inspection will be agreed between the parties. Clause 25.2 of FIDIC-EMW provides:

"The Contractor shall agree with the Engineer the date on and the place at which any Plant will be ready for testing as provided in the Contract . . . The Engineer shall give the Contractor 24 hours' notice in writing of his intention to attend the tests."

22. ECE General Conditions provide:

Clause 8.4: "The Contractor shall give to the Purchaser sufficient notice of the tests to permit the Purchaser's representatives to attend."

23. Clause 38(1) of FIDIC-CEC provides for the situation involving covering up of works:

"No work shall be covered up or put out of view without the approval of the Engineer or the Engineer's Representative and the Contractor shall afford full opportunity for the Engineer or the Engineer's Representative to examine and measure any work which is about to be covered up or put out of view and to examine foundations before permanent work is placed thereon. The Contractor shall give due notice to the Engineer's Representative whenever any such work or foundations is or are ready or about to be ready for examination and the Engineer's Representative shall, without unreasonable delay, unless he considers it unnecessary and advises the Contractor accordingly, attend for the purpose of examining and measuring such work or of examining such foundations."

24. The FIDIC-CEC Conditions contain a provision on the time and place of inspection which might not find general approval in the context of the construction of big plants:

Clause 37: "The Engineer and any person authorized by him shall *at all times* have access to the Works and *to all workshops and places* where work is being prepared or from where materials, manufactured articles or machinery are being obtained for the Works and the Contractor shall afford every facility for and every assistance in or in obtaining the right to such access."

25. Such an unlimited right of access would certainly be opposed in some industries. In the course of preparation of the ECE General Conditions 188 an *unlimited* right was given to the purchaser for inspection at the contractor's premises. This was opposed for reasons of commercial secrecy and considerations of national defence.[1]

26. Article 14.1 of UNIDO-TKL deals with inspection and testing "during manufacture and prior to despatch, prior to and during inspection and upon arrival at the plant site".

27. According to article 14.3.1 of UNIDO-TKL the contractor "shall issue such confirmation to the PURCHASER's inspectors prior to their inspection, when the equipment, machinery or material is ready for final inspection."

Article 14.5 provides:

"When any equipment is ready for inspection, the CONTRACTOR shall give at least forty-five (45) days notice to the PURCHASER's representative of the time, place and goods to be inspected. Should the PURCHASER's representative desire to be present the CONTRACTOR shall be advised within thirty (30) days thereafter."

28. In their comments the group of contractors felt it a waste of time that notice be given for "any" equipment and suggested the restriction of the notice to "equipment designated to be inspected".

29. UNIDO-TKL further distinguishes inspections and tests in regard to their various places and times:

Article 14.5.1: "Inspection and Tests at Factory. All work shall be subject to inspection and testing at CONTRACTOR's factory and shall conform to the requirements of the Contract."

Article 14.5.2: "Inspection and Tests at Site. All work shall be subject to inspection and testing on Site and shall conform to the requirements of the Contract. After installation of the Work on Site, the CONTRACTOR shall carry out such required tests to prove compliance with the Contract, notwithstanding any tests which may have been carried out earlier at CONTRACTOR's factory."

Article 14.5.3: "Inspection and Tests on Mechanical Completion. Pursuant to the provisions of Article 18, the CONTRACTOR shall, upon due notice to the PURCHASER of his readiness to undertake the tests to demonstrate and prove completion of the Works, proceed forthwith to commence the procedures in accordance with the requirements of Article 18, but subject to the provisions referred to therein."

[1] See E/ECE/169, Commentary on the General Conditions for the Supply of Plant and Machinery for Export, para. 7.

30. The UNIDO models also contain the right of unlimited access to the premises of the contractor and any sub-contractors. For example in article 14.6 of UNIDO-TKL:

"All equipment, machinery, material and work performed in connexion with this Contract shall be available for inspection by the PURCHASER (through his duly authorized representative, including his underwriters as the case may be). The CONTRACTOR, its sub-contractors, and/or suppliers shall provide safe and necessary access for the inspection envisaged by this Article. The PURCHASER shall be afforded full and free access to the shops, factories, site or places of business of the CONTRACTOR, the sub-contractors and/or suppliers for such inspection to determine the condition and progress of work under the Contract."

31. The above-mentioned inspection of the items supplied by the purchaser according to article 14.9 of UNIDO-TKL must be carried out "after notice from the purchaser . . . as soon as they shall have been manufactured (but prior to beginning of the erection of each item) . . ."

3. *Procedure for inspection*

32. It may prove essential to agree on the procedure to be employed for inspections and tests and perhaps even the instruments to be used. However, "[i]f the technical requirements of the test are not specified in the Contract", clause 8.3 of both ECE 188A/574A provides, "the tests will be carried out in accordance with the general practice obtaining in the appropriate branch of the industry in the country where the Plant is manufactured".

33. The FIDIC Conditions contain no provision on procedure, but in the FIDIC Notes it is stated: "It is, of course, most important that details of inspection and testing requirements should be laid down in the specification in order that there is an agreed procedure . . ."[2]

34. The UNIDO model contracts leave the procedure for the contractor to decide. Article 14.5 of UNIDO-TKL merely provides:

"Wherever required by the PURCHASER, the CONTRACTOR shall associate the PURCHASER or his representative with such inspection, and shall undertake the necessary co-ordination for joint inspections."

But the purchaser may choose additional methods. Article 14.13 of UNIDO-TKL reads:

"During all inspection, the PURCHASER or his representatives may have recourse to such tests as they may consider necessary in order to establish whether the materials, objects, supplies or methods of construction and erection are of the requisite quantity and quality . . ."

4. *Objections and rights of purchaser*

35. If in the course of inspection of the equipment it turns out that certain parts are defective, it would be in the interest of the contractor to replace them. But there might be differences of opinion between the contractor and the purchaser on the extent of defects or indeed, whether there are in fact any defects.

36. Some forms request the purchaser to give his objections with reasons in writing. Clause 8.2 of both ECE 188A/574A provides:

"If as a result of such inspection and checking the Purchaser shall be of the opinion that any materials or parts are defective or not in accordance with the Contract, he shall state in writing his objections and the reason therefor."

Similarly article 25.5 of FIDIC-EMW provides:

"If as a result of such inspection, examination or test of the Plant (other than a Test on Completion under Clause 29) the Engineer shall decide that such Plant is defective or not in accordance with the Contract he shall notify the Contractor accordingly stating in writing his objection and reasons therefor."

37. In the UNIDO-TKL it appears that the purchaser can reject the work by giving notice in writing but without a statement of reasons therefor. Article 14.6 of UNIDO-TKL reads:

"If any services or workmanship supplied by the CONTRACTOR, the sub-contractors and/or suppliers are determined by the PURCHASER, either during the performance of the work, on inspection, or during any applicable warranty period(s), to be defective and not complying with requirements of this Contract and arising out of the fault or negligence of the CONTRACTOR, the sub-contractors and/or suppliers, the PURCHASER shall notify the CONTRACTOR in writing that such work is being rejected."

38. This article is criticized by the "international group of contractors" as the purchaser is made the sole judge as to whether any service or workmanship is defective and he is also given the unilateral right of rejection without giving reasons. Moreover, it is doubtful whether the purchaser may "reject" any part during the warranty period, i.e. after taking-over and acceptance.

39. Article 14.13 of UNIDO-TKL further states:

"The PURCHASER or his representatives may require the replacement or repair, as the case may be, of items which do not conform with the Contract, even after they have been incorporated into the Works, and

[2] Notes on Documents for Electrical and Mechanical Works Contracts, 1980, p. 28.

the provisions of the Contract referred to in Article 14.8 shall apply mutatis mutandis."

According to this provision the purchaser may request replacement or repair although the contractor is not obliged to meet the purchaser's requirements. Article 14.8 of UNIDO-TKL states:

"In case of a difference of opinion, the CONTRACTOR may proceed to act on his own responsibility as regards the despatch of such goods and equipment, but subject however, to the relevant provisions of Article 25 and Articles 27 to 30 inclusive."[3]

5. *Duties of the contractor*

40. The contractor usually will replace items which have been found defective during inspections. The general conditions and model forms contain not only obligations to that effect but also deal with the time required. Clause 8.5 of both ECE 188A/574A provides:

"If on any test (other than a taking-over test as provided for in Clause 21) the Plant shall be found to be defective or not in accordance with the Contract, the Contractor shall with all speed and at his own expense (including any transport expenses) make good the defect or ensure that the Plant complies with the Contract. Thereafter, if the Purchaser so requires, the test shall be repeated."

Similarly, clause 25.2 of FIDIC-EMW states:

"The Contractor shall with all speed make good the defect or ensure that the Plant complies with the Contract. Thereafter, if required by the Engineer, the tests shall be repeated under the same terms and conditions."

41. If under article 14.6 of UNIDO-TKL the purchaser has rejected "any services or workmanship . . . the CONTRACTOR shall, at his own expense, promptly remove and replace or correct such defective work by making the same comply strictly with all requirements."

And article 14.8 of UNIDO-TKL states:

"Should the PURCHASER's representative establish during inspection any deficiency in the inspected items, the CONTRACTOR shall take immediate steps to eliminate them. The CONTRACTOR shall maintain records of deficiencies noted and corrected."

6. *Costs of inspection*

42. The inspection will involve various kinds of expenses: costs of the contractor and of the purchaser; costs of materials; personal costs; costs at the contractor's premises or at site; costs for the first inspection, costs for a re-inspection after the removal of the defects. Not all these are dealt with in the various general conditions and forms.

43. According to clause 8.6 of both ECE 188A/574A the contractor shall

"Unless otherwise agreed . . . bear all the expenses of tests carried out in his works, except the personal expenses of the Purchaser's representatives."

44. Clause 25.3 of FIDIC-EMW deals not only with the financial but also the technical side of the matter:

"Where the Contract provides for tests on the premises of the Contractor or of any Sub-Contractor the Contractor shall provide such assistance, labour, materials, electricity, fuel, stores, apparatus and instruments as may be requisite and as may be reasonably demanded to carry out such tests efficiently."

45. The FIDIC Conditions seem to place personal expenses on each party like the ECE General Conditions. However, if a test has to be repeated after the removal of defects "all reasonable expenses to which the Employer may be put by the repetition of the tests shall be deducted from the Contract Sum." (Clause 25.5 of FIDIC-EMW).

46. The other FIDIC Conditions deal extensively with this matter. Article 36 of FIDIC-CEC provides:

"(1) . . . The Contractor shall provide such assistance, instruments, machines, labour and materials as are normally required for examining, measuring and testing any work and the quality, weight or quantity of any material used and shall supply samples of materials before incorporation in the Works for testing as may be selected and required by the Engineer.

"(2) All samples shall be supplied by the Contractor at his own cost if the supply thereof is clearly intended by or provided for in the Contract, but if not, then at the cost of the Employer.

"(3) The cost of making any test shall be borne by the Contractor if such test is clearly intended by or provided for in the Contract and, in the cases only of a test under load or of a test to ascertain whether the design of any finished or partially finished work is appropriate for the purposes which it was intended to fulfil, is particularised in the Contract in sufficient detail to enable the Contractor to price or allow for the same in his Tender.

"(4) If any test is ordered by the Engineer which is either

"(*a*) Not so intended by or provided for, or

"(*b*) (In the cases above-mentioned) is not so particularised, or

"(*c*) Though so intended or provided for is ordered by the Engineer to be carried out by an independent person at any place other than the Site or the place of manufacture or fabrication of the materials tested,

[3] Those articles concern guarantees, warranties, liquidated damages etc.

"then the cost of such test shall be borne by the Contractor, if the test shows the workmanship or materials not to be in accordance with the provisions of the Contract or the Engineer's instructions, but otherwise by the Employer."

47. A special situation could arise in connexion with the covering up of civil engineering work. If this has to be uncovered at the request of the purchaser the costs will be borne by the purchaser if no defect is found and by the contractor if a fault is detected.

Clause 38.2 of FIDIC-CEC provides:

"The Contractor shall uncover any part or parts of the Works or make openings in or through the same as the Engineer may from time to time direct and shall reinstate and make good such part or parts to the satisfaction of the Engineer. If any such part or parts have been covered up or put out of view after compliance with the requirement of sub-clause (1) of this Clause and are found to be executed in accordance with the Contract, the expenses of uncovering, making openings in or through, reinstating and making good the same shall be borne by the Employer, but in any other case all costs shall be borne by the Contractor."

48. UNIDO-TKL contains very special requirements:

Article 14.14: "The CONTRACTOR shall place at the disposal of the PURCHASER, free of charge, such instruments, and in particular equipment for the radioactive check of welds, along with specialized operating staff, if requested by the PURCHASER, to enable the PURCHASER to carry out his inspection of the CONTRACTOR's work or supplies, efficiently."

The comment of the "international group of contractors" relates to the costs of such equipment which in their view should be borne by the purchaser if such instruments are not already in the possession of the contractor.

7. *Certification*

49. Both ECE 188A and 574A speak of a test report which has to be prepared by the contractor and which, in practice, would usually be signed by both parties, but which "shall be accepted as accurate by the Purchaser" in case he fails to be represented at the tests (clause 8.4).

50. Under clause 25.4 of FIDIC-EMW it is not the contractor, but the purchaser who issues the certificate:

"As and when Plant shall have passed the tests referred to in this Clause the Engineer shall furnish to the Contractor a certificate in writing to that effect."

51. In the UNIDO-TKL the contractor who is responsible for the inspection would also be responsible for the certification. According to article 14.3.2 the contractor,

"shall issue proper *Certificates of Inspection* in respect of all items of Plant and Equipment respectively, before despatch, and shall send copies of such Certificates to the PURCHASER, and *certificates of tests* carried out in connection with the issue of such Certificates of Inspection."

It is not clear whether there is a difference between certificates of inspection and certificates of tests, and what tests are necessary in *connexion with the issue* of certificates.

52. The ECE General Conditions are silent on the need to obtain certification from suppliers but provision is made in the UNIDO model forms. Article 14.2.3 of UNIDO-TKL provides that the contractor

"shall require its suppliers to provide the necessary test certificates in proper form together with all other documents required by the Inspecting Authorities in the country of manufacture or as may be required by the PURCHASER in consideration of the regulations in force in (*country*) and/or as provided for in the specifications."

8. *Legal effect of inspection*

53. As mentioned earlier, the requirement of inspection is in the interest of both parties. The contractor's liability for breach of obligations usually remains despite inspection by the purchaser. Indeed, some model forms provide that failure by the purchaser to inspect does not prejudice his rights against the contractor under the contract.

54. Clause 25.1 of FIDIC-EMW provides:

"Such inspection, examination or testing if made shall not release the Contractor from any obligation under the Contract."

55. Article 14.5 of UNIDO-TKL puts it thus:

"The presence of the PURCHASER's representatives shall not in any manner qualify the CONTRACTOR's obligation under this Contract. The presence of the PURCHASER's representatives also shall not in any way imply contractual acceptance of goods or transfer of ownership."

And again in article 14.17 of UNIDO-TKL:

"The inspection by the PURCHASER and/or repair or replacement of equipment or construction works at the request of the PURCHASER shall not excuse the CONTRACTOR from the liabilities, warranties or guarantees as expressed in this Contract."

56. Different provisions are contained in the various forms in relation to the non-participation of the

purchaser. According to article 8.4 of both ECE 188A/574A:

"If the Purchaser is not represented at the tests, the test report shall be communicated by the Contractor to the Purchaser and shall be accepted as accurate by the Purchaser."

57. The FIDIC-EMW Conditions provide in clause 25.2:

". . . and unless the Engineer shall attend at the place so named on the date agreed the Contractor may proceed with the tests, which shall be deemed to have been made in the Engineer's presence, and shall forthwith forward to the Engineer duly certified copies of the test readings."

58. The UNIDO models follow a different approach. Article 14.6 of UNIDO-TKL provides:

"Neither the failure to make such inspection nor failure to discover defective workmanship, materials or equipment, nor approval of, or payment to the CONTRACTOR for such work, materials or equipment (pursuant to this Contract) shall prejudice the rights of the PURCHASER thereafter to require correction, replacement or reject the same as herein provided."

And again in article 14.7:

"If the PURCHASER waives his right of inspecting or testing as herein provided, it shall in no way relieve the CONTRACTOR of full liability for the quality, proper operation and performance of the completed work, and/or sections or parts thereof, nor shall it prejudice or affect the rights of the PURCHASER set forth under the Contract."

C. *Taking-over or performance tests*

1. *General remarks*

59. After completion of the works, taking-over or performance tests are usually carried out. The nature and duration of the tests depend to a large extent on the kind of performance expected of the plant.

60. ECE 188A/574A provide for taking-over tests. These tests are required to be carried out "unless otherwise agreed" (clause 21.1 respectively). On the other hand, during manufacture a special agreement in the contract is necessary.

61. FIDIC-EMW provides for tests on completion (clauses 29.1 to 29.6) whereas FIDIC-CEC leaves the question to the parties (clause 48.1).

62. Besides the above-mentioned inspections and tests the UNIDO models distinguish between mechanical completion tests (article 18) and performance guarantee tests (article 26). According to article 18.7 of UNIDO-TKL:

"the pre-commissioning of the Plants . . . and the carrying out of the Mechanical Completion Tests shall consist of the carrying out of such operations and making of such tests as are detailed in Annexure XX to establish the correct mechanical functioning of the Plants."

And article 26.2 of UNIDO-TKL provides:

"The plant supplied by the CONTRACTOR shall be capable of meeting the full requirements of normal operation, capacity, quality of Products, consumption of raw materials and utilities, all of which . . . shall be proven and demonstrated by test runs as specified in this Article and in the Annexures and Specifications (provided that the Plant is operated in accordance with the contractor's technical directions and instructions), and that such test runs are conducted in accordance with the conditions set forth herein."

2. *Time for performance tests*

63. Usually it is the contractor who decides on the time for performance tests (in the absence of stipulations in the contract). According to clause 21.1 of both ECE 188A/574A,

"the Contractor shall notify the Purchaser in writing when the Works will be ready, and such notification shall be in sufficient time to enable the Purchaser to make any necessary arrangements."

64. Clause 29.1 of FIDIC-EMW is more specific as to what constitutes sufficient time:

"The Contractor shall give to the Engineer, with a copy to the Employer, 21 days' notice in writing of the date after which he will be ready to make the Tests on Completion. Unless otherwise agreed the tests shall take place within 10 days after the said date on such day or days as the Engineer shall notify the Contractor in writing."

65. UNIDO-TKL does not mention any period in regard to mechanical completion tests, but requires 45 days' notice for performance tests:

Article 18.3: "As soon as any parts of the Works or Plant or any part thereof, is in the opinion of the CONTRACTOR substantially complete and ready for inspection the CONTRACTOR shall notify the PURCHASER (by means of a Construction Completion Report) that the Plant or a section thereof is ready for Mechanical Completion Tests." And,

Article 14.10: "Where the CONTRACTOR or any of his sub-contractors are undertaking any performance tests of any equipment to be supplied under this Contract, or any tests required under statutory law, the CONTRACTOR shall give at least forty-five (45)

days notice of such tests to the PURCHASER, or his representatives if such have been designated, and if desired the said representatives shall be present at such tests."

Furthermore the commencement of the performance test is connected with the start-up of the plant. Article 26.10.1 provides:

"The first twenty (20) day test of Ammonia and/or Urea Plant shall commence within ninety (90) days from the Start-up of the Plant(s), . . ."

3. *Procedure for performance tests*

66. The procedure to be followed for performance tests depends on the performance guarantee, if any, and is therefore usually agreed upon between the parties. Clause 21.2 of both ECE 188A/574A refers, in the absence of contractual provisions, to general practice:

"The tests shall take place in the presence of both parties. The technical requirements shall be as specified in the Contract or, if not so specified, in accordance with the general practice existing in the appropriate branch of the industry in the country where the Plant is manufactured."

67. Clause 29.2 of FIDIC-EMW implies that the tests shall be carried out in the presence of both parties (i.e. contractor and engineer acting on behalf of the purchaser) but is silent in regard to the technical requirements.

68. As mentioned already, the UNIDO model forms distinguish between mechanical completion tests and performance tests. According to article 18.3 of UNIDO-TKL the construction completion report

"shall indicate which parts of the Works or the Plant the CONTRACTOR proposes to demonstrate, have been completed in accordance with the specifications and have passed initial inspection tests as may have been specified in the Contract. The CONTRACTOR shall prepare and submit a programme of tests to prove the individual equipment and/or section, of a Plant."

69. The procedure for the tests has to be agreed between the parties and article 18.6 of UNIDO-TKL contemplates a subsequent review:

"When all the items of equipment in a Plant or any of the sections of the Off-sites and Utilities are ready and have been completed pursuant to this Contract (viz. erected, installed and tested), the CONTRACTOR and PURCHASER shall review the procedures for the pre-agreed tests for the demonstration of the Mechanical Completion of the Plant to be undertaken in accordance with Annexure XX (or otherwise) and the detailed procedures therewith."

70. Article 18.8 of UNIDO-TKL also makes provision for the question of who is responsible for the tests:

"The operations and tests referred to in 18.6 and 18.7 above shall be carried out in a competent manner by the CONTRACTOR's personnel under its direction and responsibility and in the presence of the PURCHASER's personnel."

71. In regard to performance tests UNIDO-TKL is more specific. Article 26.9 provides:

"The procedures to be followed for the execution of the Guarantee Tests shall be agreed upon between the parties three (3) months before the commencement of the above tests. Instruments tolerances shall be warranted by the CONTRACTOR. The PURCHASER shall have the right to specify instruments with low margin of tolerance for measurement of the Plant capacity and consumptions."

72. UNIDO-TKL does not specify whose personnel is to carry out the performance tests but article 26.10 provides that "the Performance Guarantee Tests of the Plants shall be run under the direction and supervision of the CONTRACTOR's personnel." Also,

"all measurements will be taken jointly by the PURCHASER and the CONTRACTOR and in the event of any dispute relating only to the correctness, sufficiency and/or adequacy of the tests and/or in the manner in which the tests were conducted, the provisions of article 37 shall apply."[4]

73. Since the performance test is to be carried out over a certain period UNIDO-TKL provides for adjustments to be made to the plant during that period:

Article 26.10.3: "The CONTRACTOR shall have the right to have the Plant(s) operated in accordance with its requirements at its own risk during the period to the CONTRACTOR to perform the test(s) and the PURCHASER's personnel shall work under the directions and technical instructions of the CONTRACTOR."

The purchaser on the other hand "shall have the right to operate the Plants as and when such operation shall not interfere with the CONTRACTOR's work."

74. UNIDO-TKL stipulates the aim of the performance test—the demonstration of a sustained steady operation of the plant over a specified continuous period (article 26.3.3). The capacity of the plant, its capability of producing specified products as well as the consumption of raw materials and utilities must be demonstrated (article 26.8).

4. *Obligations of purchaser concerning performance tests*

75. It is usually the responsibility of the purchaser to provide the personnel, materials, power etc., for the

[4] Article 37 deals with settlement of disputes and arbitration.

purpose of carrying out the performance test. Clause 21.3 of both ECE 188A/574A provides:

"Subject to the provisions of paragraph 2 hereof the Purchaser shall free of charge provide any power, lubricants, water, fuel and materials of all kinds reasonably required for final adjustments and for taking over tests. He shall also install free of charge any apparatus necessary for the above-mentioned operations."

76. Similarly, clause 29.4 of the FIDIC-EMW provides:

"The Employer, except where otherwise specified, shall provide free of charge subject to the provisions of Sub-Clause 5 of this Clause such labour, materials, electricity, fuel, water, stores and apparatus as may be requisite and as may be reasonably demanded to carry out such tests efficiently."

77. The UNIDO-TKL model contract regulates the obligation of the purchaser in great detail:

Article 5.7: "The PURCHASER shall provide free of charge all the raw materials, fuel, consumable items and make-up items necessary for the testing, commissioning, operation and maintenance of the Plant unless otherwise specifically mentioned in the specification or elsewhere in the Contract as to be supplied by the CONTRACTOR."

Article 5.8: "The PURCHASER shall provide all feedstocks, outside utilities, chemicals and other materials required for the operation of the Plant except the first charge of catalysts and chemicals to be supplied by the CONTRACTOR within his scope of supply. The feedstocks shall be in accordance with the specifications contained in this Contract or as otherwise agreed. The maximum quantity per hour and conditions of outside utilities (power, water, etc.) will be intimated by the CONTRACTOR to the PURCHASER within six (6) months of the Effective Date of the Contract. The requirement of all chemicals and other material inputs required for the start-up of the Plant and regularly thereafter, shall be intimated by the CONTRACTOR to the PURCHASER at least nine (9) months before the Mechanical Completion of the Plant."

Article 5.9: "The PURCHASER shall provide free of charge operation and maintenance personnel for the CONTRACTOR throughout the period from the beginning of the mechanical testing of equipment till the date of Acceptance of the Plant in numbers and of competence corresponding to the manning requirements which are to be developed by the CONTRACTOR in the form of a Manpower and Qualification Chart and approved by the PURCHASER."

5. *Unperformed performance test*

78. If no performance test is carried out within the period stipulated in the contract this can be due to reasons for which either one or none of the parties would be responsible.

79. If the contractor does not carry out the agreed tests the FIDIC-EMW Conditions provide that the engineer on behalf of the purchaser may proceed to make the tests:

"If in the opinion of the Engineer the tests are being unduly delayed he may, by notice in writing, call upon the Contractor to make such tests within 21 days from the receipt of the said notice, and the Contractor shall make the said tests on such days within the said 21 days as the Contractor may fix and of which he shall give notice to the Engineer. If the Contractor fails to make such tests within the time aforesaid the Engineer may himself proceed to make the tests. All tests so made by the Engineer shall be at the risk and expense of the Contractor unless the Contractor shall establish that the tests were not being unduly delayed in which case tests so made shall be at the risk and expense of the Employer." (Clause 29.3.)

80. UNIDO-TKL contains several provisions concerning tests not performed by the contractor, for instance,

Article 18.17: "If for reason attributable to the CONTRACTOR (whether directly or indirectly), the CONTRACTOR is unable to demonstrate any or all of the Guarantee Tests and/or Performance Requirements referred to in Article . . . the provisions of Articles 27.2 to 27.5 (inclusive) (as the case may be) shall apply . . ." This means the contractor has to pay liquidated damages. Or:

Article 26.10.2: "If, for reasons ascribable to mistake(s) and/or error(s) in process and/or detailed engineering or for any other reasons related to the work and services provided or performed by the CONTRACTOR, and/or mistake(s) and error(s) in the Contractual Specifications and instructions, the CONTRACTOR is not able to perform the test(s) within the period(s) stated in Article 26.10.1 above, the provisions of Article 26.11 shall apply."

81. In any event, according to article 18.1 of UNIDO-TKL,

"If Guarantees and/or Performance Guarantee Tests and/or any of the tests or pre-commissioning tests required are not capable of being commenced, undertaken, met or completed for reasons attributable to the CONTRACTOR's work and/or services, . . ." then

"The CONTRACTOR shall be responsible . . . for undertaking repairs and modification(s) of the Plant(s) and/or of any of the sections and/or parts thereof, in relation to any part of the Work(s) supplied by him or for which he is responsible under this Contract . . ."

82. UNIDO-TKL also foresees the possibility that the tests have to be made subsequently for reasons not attributable to the contractor. Under these circumstances the contractor is still obliged to demonstrate the tests, but article 26.16 of UNIDO-TKL makes provision for the costs:

"In the event the Performance and Guarantee Tests cannot be made within the period stipulated in Article 26.14 above, the CONTRACTOR shall be obligated to send personnel to Site to start up the Plant and to undertake tests on the Plant provided however that the PURCHASER shall pay additional fees and travel expenses for this service as may be agreed between PURCHASER and CONTRACTOR."

83. Where the tests cannot be performed due to reasons solely attributable to the purchaser the contractor is not obliged to undertake all future tests. Article 26.14 of UNIDO-TKL provides:

"The obligations of the CONTRACTOR (subject to Articles 18, 28, 29 and 32) shall be deemed to have been fulfilled if for reasons attributable solely to the PURCHASER, the first Guarantee Test cannot be carried out within eighteen (18) months from the Mechanical Completion of the Plant."

6. *Unsuccessful performance test*

84. If a performance test proves unsuccessful for reasons attributable to the work of the contractor then he has to remedy the defects and he is usually entitled to another test. The parties have to agree on the number of tests and on the question of costs.

85. Clause 21.2 of both ECE 188A/574A provides:

"If as a result of such tests the Works are found to be defective or not in accordance with the Contract, the Contractor shall with all speed and at his own expense make good the defect or ensure that the Works comply with the Contract, and thereafter, if the Purchaser so requires, the test shall be repeated at the expense of the Contractor."

Similarly, clause 29.5 of FIDIC-EMW reads:

"If any Portion of the Works fails to pass the tests, tests of the said Portion shall, if required by the Engineer or by the Contractor, be repeated within a reasonable time upon the same terms and conditions, save that all reasonable expenses to which the Employer may be put by the repetition of the tests shall be deducted from the Contract Sum."

And article 18.9 of UNIDO-TKL reads:

"If during the course of the tests mentioned above, any *defect(s)* or malfunction(s) become apparent in the plant and/or equipment supplied, or in any part of the Works, the CONTRACTOR shall *immediately* take steps to *replace* the defective equipment and/or rectify the defective part of the Works in the minimum time . . ."

86. The FIDIC-EMW Conditions also provide for the situation where a second test proves not successful:

Clause 29.6: "If the Works or any Section thereof shall fail to pass the tests on the repetition thereof under Sub-Clause 5 of this Clause the Engineer shall be entitled:

"(*a*) To order a further repetition of the tests under the conditions of Sub-Clause 5, or

"(*b*) To reject the Works or Section thereof in accordance with Clause 28 (Defects before taking-over) if the results of the tests show that the Works or the Section fail to meet the performance guarantees or the agreed tolerances specified in the Contract, or if there are no such guarantees or tolerances, the results show that the Works or the Section are not in accordance with the Contract, or

"(*c*) To issue a Taking-Over Certificate, if the Employer so wishes, subject to such reduction of the Contract Sum as may be provided in the Contract or, failing such provision, as may be agreed by the Employer and the Contractor or, failing agreement, as may be determined by arbitration."

87. Sometimes the parties limit the number of tests and also the period within which the tests have to be repeated. An example is article 26.10.1 of UNIDO-TKL:

"Subject to the provisions of Article 26.10.2 this ninety (90) day period shall be extended if the Plant(s) is unable to operate normally and in the event of failure of this test the CONTRACTOR shall be permitted not more than two (2) other tests to be run within six (6) months immediately thereafter . . ."

88. So far we were concerned with unsuccessful tests where the contractor is responsible. Article 26.12 of UNIDO-TKL deals with interruption of performance tests:

"If the ten (10) days capacity Performance Test(s) is interrupted due to reasons for which the CONTRACTOR is not responsible, the Plant(s) shall be started again as soon as possible and when the Plant(s) has reached normal operating conditions, the Test(s) shall continue immediately thereafter. The duration of the Test(s) shall be extended by the duration of such interruptions and the Test(s) shall then be deemed to have been performed continuously . . ."

7. *Protocol on performance test*

89. Generally for each test a protocol is signed by both parties. The FIDIC-EMW Conditions make pro-

vision where the purchaser's engineer is not represented at the tests:

Clause 29.2: "If the Engineer fails to appoint a time after having been asked so to do or to attend at any time or place duly appointed for making the said tests the Contractor shall be entitled to proceed in his absence and the said tests shall be deemed to have been made in the presence of the Engineer and the results of the tests shall be accepted as accurate."

90. In contrast to ECE and FIDIC, the UNIDO models are very specific in regard to protocols of any tests. For example, in UNIDO-TKL we find a construction completion report, a mechanical completion report and a performance test report.

The relevant provisions read as follows:

Article 18.4: "Upon satisfactory inspection of the plant and/or equipment and/or section of a Plant, the CONTRACTOR and the PURCHASER shall sign the Construction Completion Report stating that the Plant or part thereof has been inspected and is substantially complete and that any procedures required to prove the mechanical fitness and demonstration of Mechanical Guarantees prior to the Plant being put into operation may safely be carried out. (Such Construction Completion Report may include a note of any minor items which can be completed after start-up.)"

Article 18.7: ". . . When all such operations and tests have been fully and satisfactorily completed individually and/or together . . . and the Mechanical Completion of the Works has been achieved, the CONTRACTOR shall thereupon prepare a Mechanical Completion Report which shall be signed by both parties following a joint examination of the Plant(s) or those sections of Utilities and Off-sites concerned, and upon such signature of such Report by both parties, the Mechanical Completion of the Plants or sections of Utilities and Off-sites concerned shall be deemed to be achieved."

Article 26.13: "After the successful completion of any Performance Test, in accordance with the Contract (which the PURCHASER and CONTRACTOR accept as being a successful test) the CONTRACTOR shall prepare a Performance Test Report which shall be signed by the CONTRACTOR and submitted to the PURCHASER for approval."

IX. Completion

A. *Definition of completion*

91. It is not always clear what is meant by "completion". This notion is sometimes used to describe the end of the contractor's obligations to supply and construct a plant, including the performance tests and the handing over of the plant. Actually it is *this time* of completion which has effect for the purchaser. This notion seems to be adopted in the ECE and FIDIC General Conditions.

92. On the other hand, completion in the UNIDO model contracts occurs before commissioning, start-up, performance tests and take-over. Article 18.2 of UNIDO-TKL provides:

"The Work(s) and/or sections and/or parts thereof shall be considered to have been completed when the requirements of Articles 18.4 to 18.7 have been satisfied . . ."

Those articles relate to the construction completion (articles 18.4 and 18.5) and to the mechanical completion (articles 18.6 and 18.7).

93. Thus for the UNIDO-TKL the operation of the plant *follows* the completion:

Article 18.10: "Upon Mechanical Completion of any Plant and testing of each Plant in accordance with Article 18.7 and Annexure XX, as soon as possible thereafter, the relevant Plant shall be brought into operation."

94. The UNIDO-TKL also uses the notion "commercial production" describing a stage *after* completion but *before* performance tests and take-over:

Article 18.11: "Thereafter the Plant shall be started up and when all sections of the Plants are in a satisfactory operating state, and specification grade Ammonia and Urea are in continuous and uninterrupted production for ( ) days at ( )% capacity in accordance with the terms of the Contract, then, the Plant shall be deemed to be in Commercial Production."

B. *Time for completion*

1. *Agreed time*

95. One of the essential elements in a works contract is the time when the plant is completed and ready for operation by the purchaser. The parties therefore usually fix a date or a period for completion. If the parties choose a period they should agree on its starting point.

96. ECE 188A/574A provide for three different situations, a fixed completion period, an estimated period, and no specific period mentioned:

Clause 20.1: "Unless otherwise agreed the completion period shall run from the latest of the following dates:

"(*a*) The date of the formation of the Contract as defined in Clause 2;

"(*b*) The date on which the Contractor receives notice of the issue of a valid import licence where such is necessary for the execution of the Contract;

"(*c*) The date of the receipt by the Contractor of such payment in advance of manufacture as is stipulated in the Contract."

Clause 20.4: "If the time for completion mentioned in the Contract is an estimate only, either party may after the expiration of two thirds of such estimated time require the other party in writing to agree a fixed time.

"Where no time for completion is mentioned in the Contract, this course shall be open to either party after the expiration of nine months from the formation of the Contract.

"If in either case the parties fail to agree, either party may have recourse to arbitration, in accordance with the provisions of Clause 28, to determine a reasonable time for completion and the time so determined shall be deemed to be the fixed time for completion provided for in the Contract and paragraph 3 hereof shall apply accordingly."

97. In most cases it will be in the interest of the purchaser that the plant should be completed as early as possible. To encourage early completion the parties may agree on a premium.

Clause 13.3 of the FIDIC-EMW for instance contains the following provision:

"If the Contract provides for the payment of a bonus in relation to the Completion of the Works or any Section thereof this shall be set out in Part II."

98. UNIDO-TKL urges expeditious completion:

Article 18.1: "The CONTRACTOR shall execute the work diligently and shall adhere strictly to the requirements for expeditious completion of the Works, notwithstanding the contractual time schedules provided herein."

99. Furthermore, the above model employs a concept which is strongly opposed by contractors:

Article 11.1: "Time shall be deemed to be of the essence of the Contract."

Article 11.2: "The CONTRACTOR acknowledges and agrees that it is capable of completing its contractual obligations within the time schedules set forth in this Contract, and that it possesses the necessary skills and means to discharge its responsibilities in a proper, efficient and expeditious manner."

Article 11.3: "The CONTRACTOR agrees that the timely completion of the Works herein (by virtue of this Turn-Key Contract) is an integral part of the responsibilities assumed by the parties to this Contract, and accordingly, the CONTRACTOR agrees to adhere strictly to the contractual requirements of time and promises to fulfil its contractual obligations speedily, competently and reliably."

2. *Extension of time*

100. As every construction of a plant is an individual work it is not always possible to take into account all subsequent events and meet all the time schedules. Contracts therefore usually contain provisions on extension of time.

101. Clause 20.2 of both ECE 188A/574A provides:

"Should delay in completion be caused by any of the circumstances mentioned in Clause 25 or by an act or omission of the Purchaser and whether such cause occur before or after the time or extended time for completion, there shall be granted subject to the provisions of paragraph 5 hereof such extension of the completion period as is reasonable having regard to all the circumstances of the case."

102. The FIDIC-EMW Conditions contain similar provisions, listing eight different reasons for extending the time all of which, as in the case of ECE, do not include the fault of the contractor:

Clause 30: "If by reason of:

"(*a*) Extra or additional work, or

"(*b*) Exceptional adverse weather conditions unforeseen at the time the Contract was signed, or

"(*c*) Employer's instructions beyond those specified in this Contract, or

"(*d*) The failure of the Employer to obtain any required import licence or permit, or the failure of the Employer to fulfil any of his obligations under the Contract, or

"(*e*) Delay by any other contractor engaged by the Employer, or

"(*f*) Any suspension of the Works under Clause 27, or

"(*g*) Any industrial dispute, or

"(*h*) Any cause, except as may otherwise be provided in the Contract, beyond the reasonable control of the Contractor,

"the Contractor shall have been delayed or impeded in the completion of the Works, whether such delay or impediment occur before or after the time or extended time fixed for completion, provided that the Contractor shall without delay have given to the Employer or the Engineer notice in writing of his claim for an extension of time, the Engineer shall on receipt of such notice and supporting detailed particulars of the claim grant the Contractor from time to time in writing either prospectively or retrospectively such extension of the time fixed by the Contract for the completion of

the Works as may be justified. Any delay on the part of a Sub-Contractor which prevents the Contractor from completing the Works within the time fixed by the Contract for the completion of the Works shall entitle the Contractor to an extension thereof if such delay was due to any cause for which the Contractor himself would have been entitled to an extension of time under this Clause."

103. The UNIDO-TKL does not deal with any possible extension but states in article 11.4:

"The CONTRACTOR acknowledges and agrees that the supply of the plant, equipment, materials and spare parts (together with the services related thereto) is crucial to the schedules for completion of the Works, and the CONTRACTOR hereby obligates itself and ensures that its scope of supply and services provided under this Contract are in conformity with the requirements of the contractual time-schedule(s) (expressly or impliedly), and, shall furthermore, in anticipation of any delay or shortfall in the scope of its supply and/or services undertake steps forthwith to remedy the delay and/or (in consultation with the PURCHASER) utilize alternate resources immediately available without compromising any of the contractual criteria as to quality and/or quantity with respect to such goods and services."

C. *Delayed completion*

104. The effects of and remedies for delay are dealt with, in part two, XI, *Delays and Remedies, infra.* Here it suffices to note that there cannot be an indefinite delay and therefore, in some contracts, the purchaser is entitled to fix a final date for completion. Clause 20.5 of both ECE 188A and 574A provides:

"If any portion of the Works . . . remains uncompleted, the Purchaser may by notice in writing to the Contractor require him to complete and by such last mentioned notice fix a final time for completion which shall be reasonable taking into account such delay as has already occurred . . ."

X. Take-over and acceptance

A. *General remarks*

105. Take-over generally involves the taking of possession. Acceptance signifies approval. One of the main obligations of the purchaser under the Sales Convention is to "take delivery" of the goods (article 53). This obligation involves doing all acts which could reasonably be expected of him in order to enable the seller to make delivery and taking over the goods (article 60).

106. In a works contract the obligation of the purchaser to take over the works is not always defined. In some cases take-over is regarded as identical with acceptance. In other cases the actual take-over is *preceded* by an acceptance (which in turn is preceded by acceptance or taking-over tests (see VIII, *Inspection and Tests, supra*). Sometimes the acceptance *follows* the take-over.

107. The obligation of the purchaser to take over or accept is not always spelt out but may be implied from the provisions in the contract.

B. *Pre-conditions for take-over and acceptance*

108. Provision is made in ECE 188A and 574A for the taking-over of the works:

Clause 22. "Taking-Over

"22.1 As soon as the Works have been completed in accordance with the Contract and have passed all the taking-over tests to be made on completion of erection, the Purchaser shall be deemed to have taken over the Works and the Guarantee Period shall start to run . . ."

109. In this context taking-over is identical with acceptance in the sense of approval (see also part two, XV, *Guarantees and Warranties, infra*). It is not even necessary for the purchaser to take-over actually, but he is *deemed* as having taken over if two pre-conditions are satisfied:

(*a*) The works have been completed (see IX, *Completion, supra*); and

(*b*) The works have passed all the taking-over tests (see VIII, *Inspection and Tests, supra*).

110. These pre-conditions are generally found in all contracts. The provision in FIDIC-EMW is as follows:

"Taking-Over"

Clause 32.1: "As soon as the Works have been completed in accordance with the Contract (except in minor respects that do not affect their use for the purpose for which they are intended and save for the obligations of the Contractor under Clause 33 (Defects) and have passed the Tests on Completion, the Engineer shall issue a certificate to the Contractor, with a copy to the Employer, (herein called a "Taking-Over Certificate") in which he shall certify the date on which the Works have been so completed and have passed the said tests, and *the Employer shall be deemed to have taken over the Works* on the date so certified whereupon title to and risk of loss or damage to the Works or any Section or Portion thereof shall,

subject to the provisions of Clause 15 (Liability for Accidents and Damage) and Clause 33 (Defects), pass to the Employer, but the issue of a Taking-Over Certificate shall not operate as an admission that the Works have been completed in every respect."

111. In the draft UNIDO model forms there are two types of acceptance, i.e. provisional and final. The pre-conditions for the provisional acceptance in the various models are:

	TKL 18.14	*STC 18.26*	*CRC 18.14*
(*a*) All certificates of inspection and all certificates of materials have been provided;	X	X	X
(*b*) Statement for mechanical guarantee period has been given and approved by engineer;	X	X	
(*c*) All documentation including drawings listed in an annex has been provided;	X	X	X
(*d*) Civil construction completion report has been obtained;	X		
(*e*) Tests have been successfully completed;	X	X	
(*f*) Mechanical completion report has been signed;	X		X
(*g*) Performance test's certificate has been submitted and accepted;	X	X	X
(*h*) Management services have been discharged.	X		

112. The UNIDO-CRC counter-proposal also draws the distinction between provisional and final acceptance. It proposes, however, only three pre-conditions for the issuance of the provisional acceptance certificate (article 18.11):

(*a*) All certificates of inspection and of materials have been provided;

(*b*) All documentation according to the annex have been provided;

(*c*) The performance test certificate has been submitted by the contractor and signed by the purchaser.

113. In the UNIDO models the purchaser must issue a final acceptance certificate when all the contractual requirements have been satisfactorily complied with within twelve months of the provisional acceptance of the plant (article 18.20 of UNIDO-TKL and UNIDO-CRC, and article 18.32 of UNIDO-STC).

114. The UNIDO-CRC counter-proposal has a different conception. Here the provisional acceptance becomes the final acceptance if there are no reservations stated by the purchaser in the provisional acceptance certificate. If reservations are stated in the provisional acceptance certificate the plant will be deemed to be finally accepted when all the reservations have been satisfactorily complied with. The purchaser will then issue, without delay, the corresponding final acceptance certificate (article 18.13 of the counter-proposal). In addition there is a time limit for the latest date of final acceptance which will start to run from the effective date of the contract.

115. The above provisions show that the completion of the plant in accordance with the contract and the successful demonstration of the tests are the minimal requirements for acceptance. In the ECE and the FIDIC Conditions there is no distinction between provisional and final acceptance.

C. *Act of acceptance*

116. In many contracts take-over and acceptance are formal acts. Sometimes representatives of both parties watch the tests or jointly examine the plant. They may also agree on the necessary modifications or rectifications. Both parties sign an acceptance protocol or record stating that the plant has been delivered and accepted. If the plant comprises many single machines and equipment that have been tested individually there will be a collection of protocols of tests. The date of the signing of the last one will be the acceptance date.

117. In other cases no distinction is made between the successful performance test and the acceptance. The signing of the record of the last successful performance test is perhaps deemed to be the acceptance of the plant.

118. The ECE Guide does not deal with acceptance as a formal act. It deals with successful acceptance tests as indicating the overall completion of the plant only in relation to delay and possible calculation of penalties (paragraph 40 (ii)).

119. The FIDIC-CEC Conditions do not deal with acceptance as such. No formal act of acceptance is provided for but after completion of the work (or any substantial part thereof) the contractor may request the certificate of completion and after a certain period, which in these Conditions is called the period of maintenance, a maintenance certificate has to be issued. That will constitute approval of the works (clause 61 of FIDIC-CEC).

120. As stated earlier one of the main pre-conditions for the provisional acceptance in the UNIDO-TKL draft is the submitting and accepting of the performance test report (see also VIII, *Inspection and Tests, supra*). For the acceptance of the plant itself a special certificate will be issued according to article 26.13.1 of UNIDO-TKL:

"If the said Report (the performance test report) is satisfactory, the PURCHASER shall issue within thirty (30) days from the receipt of the CONTRACTOR's Report an *Acceptance Certificate* or shall inform the CONTRACTOR's Site representative

within the same period the reasons for non-acceptance."

D. *Acceptance of part of works*

121. Acceptance of part of the works is possible if different parts of the plant are ready at different times and if it is possible to use them independently. FIDIC-EMW contains two provisions concerning taking-over portions:

Clause 32.1: "In the event of the Works being divided by the Contract into two or more Sections the Employer shall be entitled to take over any Section or Sections before the other or others, and thereupon the Engineer shall issue a Taking-Over Certificate in respect thereof."

Clause 32.2: "If by agreement between the Employer, the Engineer and the Contractor any Portion of the Works (other than a Section or Sections) shall be taken over before the remainder of the Works the Engineer shall issue a Taking-Over Certificate in respect of that Portion."

E. *Presumed acceptance*

122. There are cases where the purchaser is deemed to have accepted the works or the plant. The following provide some examples:

(a) *Purchaser's failure to perform certain acts*

The purchaser is under an obligation to take delivery. This involves doing all necessary acts to enable the contractor to deliver. If, for instance, the performance tests cannot be carried out because the purchaser did not fulfil his obligations relating to material, water, energy, workers, etc., the purchaser usually is deemed as having accepted the plant.

(b) *Unwillingness of purchaser to have taking-over tests performed*

Clause 22.2 of both ECE 188A/574A provides as follows:

"If the Purchaser is unwilling to have the taking-over tests carried out the Works shall be deemed to have been taken over and the Guarantee Period shall start to run on a written notice to that effect being given by the Contractor."

FIDIC-EMW deals with a similar situation:

Clause 32.4: "If, by reason of any act or omission of the Employer or the Engineer, or of some other contractor employed by the Employer, the Contractor shall be prevented from carrying out the Tests on Completion then unless in the meantime the Works shall have been proved not to be substantially in accordance with the Contract, the Employer shall be deemed to have taken over the Works and the Engineer shall issue a Taking-Over Certificate accordingly; . . ."

(c) *Postponement of take-over tests*

Clause 22.3 of both ECE 188A/574A provides that:

"If by reason of difficulties encountered by the Purchaser (whether or not covered by Clause 25), it becomes impossible to proceed to the taking-over tests, these shall be postponed for a period not exceeding six months, or such other period as the parties agree, and the following provisions shall apply:

"(*a*) The Purchaser shall make payments as if the taking-over had taken place, . . .

"(*f*) If at the end of six months or such other period as the Parties may have agreed the tests have not taken place, the provisions of paragraph 22.2 shall apply unless the provisions of Clause 25 are applicable."

(d) *Purchaser's conduct*

Apart from the performance tests there are other cases where the purchaser is deemed to have accepted the plant. Clause 32.1 of FIDIC-EMW provides:

"Save as provided in Sub-Clause 3 of this Clause the Employer shall not use the Works or any Section or Portion thereof until a Taking-Over Certificate has been issued in respect thereof. If nevertheless, the Employer does so use the Works or any Section or Portion thereof the Works or Section or Portion shall be deemed to have been taken over."

(e) *Delay in acceptance*

The UNIDO-TKL draft also contains a provision concerning a presumed acceptance. According to article 26.13.2 the non-issuance of the acceptance certificate mentioned earlier does not in all cases prevent the acceptance:

". . . in the event of the PURCHASER failing to issue the Acceptance Certificate or to inform the CONTRACTOR as provided in Article 26.13.1, the CONTRACTOR shall request the PURCHASER for an explanation for the delay and if the PURCHASER fails to respond within another thirty (30) days the *Acceptance* of the Plant for which the Performance Test was conducted *shall be deemed to have taken place,* on the date that the test was successfully completed."

F. *Refusal of acceptance*

123. It follows from the foregoing that the purchaser may refuse to accept the works if the plant has not been

constructed in accordance with the contract or if the plant is not complete or if the tests have not been successfully carried out. However, the purchaser has to accept if there are only minor or immaterial defects (see clause 32.1 FIDIC-EMW, *supra,* paragraph 121).

124. In the UNIDO models minor defects do not permit the purchaser to refuse acceptance. This is not stated in the drafts but it follows from other provisions. It seems that the provisional acceptance certificate will be issued even if:

(*a*) The tests are not successful and the purchaser claims liquidated damages (article 18.17 of UNIDO-TKL);

(*b*) Repairs are necessary which the contractor has to carry out (article 18.18 of UNIDO-TKL).

G. *Legal effects of take-over and acceptance*

125. By accepting the plant the purchaser acknowledges that the contract has been duly performed. However, the parties may state in the acceptance protocol the defects, if any, and agree on the period for their rectification.

126. According to clause 32.1 of FIDIC-EMW "the issue of a Taking-Over Certificate shall not operate as an admission that the Works have been completed in every respect."

127. A similar provision is contained in both UNIDO-TKL and UNIDO-CRC:

> *Article 18.16:* "The *Provisional Acceptance* of the Plant or the Take-Over of any specified part or section of the Plant(s) by the PURCHASER . . . *shall not be* construed as *evidence that any portions* of the Work(s), part(s), section(s) and/or material(s) thereof *are complete.*"

Similarly in UNIDO-STC:

> *Article 18.28:* "The Provisional Acceptance of the Plant(s) or the Take-Over of any specified part or section of the Plant(s) by the PURCHASER shall not in any way release the CONTRACTOR from his obligations under the terms of this Contract, and shall not be construed as evidence that the Plant(s) are free of defects."

128. An international group of contractors has criticized those provisions, stating that a signed report must mean what it says and any reservations thereon should be written into the report (see ID/WG.318/4, page 23).

129. According to clause 32.1 of FIDIC-EMW the legal effect of the acceptance and take-over is that title to and risk of loss or damage to the works pass to the purchaser.

130. According to clause 22.1 of both ECE 188A/574A the guarantee period commences on the date of acceptance.

131. According to article 18.19 of UNIDO-TKL the purchaser, upon take-over, "shall be responsible for the management, operation and maintenance of the Work(s), and shall take out and carry such insurances as may be deemed necessary."

132. Sometimes the credit period, payment of installments or payment of interests commences on the date of acceptance. However, this effect is sometimes expressly excluded. For instance, according to clause 62 (1) of FIDIC-CEC, the maintenance certificate which marks the approval or acceptance of the works is not a condition precedent to payment to the contractor.

133. On the other hand according to article 26.15 of UNIDO-TKL the acceptance certificate entitles the contractor to receive payment:

> "The issue of these Provisional Acceptance Certificates shall . . . entitle the CONTRACTOR to receive due payments on completion of the Performance Guarantees and Acceptance of the Plant in accordance with Article 20."

[A/CN.9/WG.V/WP.4/Add.4*]

XI. Delays and remedies

A. *Preliminary remarks*

1. As a general rule, the parties to a contract must perform the contract according to its terms. This obligation relates not only to the performance itself but also to the time within which the performance must be completed. If the party does not perform within the time fixed by the contract, there exists a "delay" under the terms of the contract.

2. Delays in the execution of a contract may occur at different stages of the contract and can be caused by a breach of the contract by the parties or may be attributable to causes beyond the control of the parties.

3. If a delay occurs the aggrieved party may ask that this situation be remedied. The remedy will depend on the gravity and the seriousness of the delay. In view of the nature of contracts for the supply and construction of large industrial works, it is to be expected that they will be essentially performance oriented and that it will be only as a measure of last resort that the aggrieved party will be entitled to put an end to the contract.

* 27 May 1981.