

SUMMARY: MAIN FEATURES OF THE ALGORITHM FOR THE DRAWING OF LOTS FOR THE MECHANISM FOR THE REVIEW OF THE IMPLEMENTATION OF UNTOC AND THE PROTOCOLS THERETO

The Conference of the Parties to UNTOC at its 9th session adopted resolution 9/1 entitled “Establishment of the Mechanism for the Review of the Implementation of the United Nations Convention against Transnational Organized Crime and the Protocols thereto”. Through the same resolution, the Conference of the Parties also approved the Procedures and rules for the functioning of the mechanism for the review of the implementation of the United Nations Convention against Transnational Organized Crime. The mechanism is a peer-review process, with one State being reviewed by two other States, for each instrument to which it is a party to.

The pairing of States under review and reviewing States will be carried out by a drawing of lots at the beginning of the review process.

The pairing system envisaged in the Procedures and rules is particularly complex as the status of adherence to each instrument varies considerably from State to State and because of the numerous requirements introduced by the procedures and rules.

The requirements of the drawing of lots are described by paragraphs 28 and 29 of the procedures and rules as follows:

“28. At the beginning of the review process, a joint intersessional meeting of the working groups without interpretation shall draw lots to select as reviewing States one State from the regional group of the State party under review and one State from another regional group. The reviewing States shall serve as such for the duration of the review process for each State party under review through four subsequent review phases. The method for the drawing of lots will be based on the following criteria:

- (a) States shall not undertake mutual reviews;
- (b) For each instrument, a State party under review shall not be reviewed by States which are not parties to the same instrument; in the case that a drawn reviewing State is not party to all the instruments to which the State under review is party, an additional drawing of lots shall be carried out so as to select an additional reviewing State only for those instruments;
- (c) The total number of reviewing States for all instruments shall not exceed four unless the State under review decides otherwise;
- (d) The State party under review and the reviewing States may request a maximum of four times each that the drawing of lots be repeated, including but not limited to, for the purpose of facilitating the selection of a mutual working language for the conduct of the country review or to facilitate the participation of at least one reviewing State from a similar legal system;
- (e) In exceptional circumstances, States parties may request a redraw;

(f) If needed, the drawing of lots may be repeated at a subsequent intersessional meeting.

29. By the end of the review process, each State party must have undergone its own review and performed a minimum of one review and a maximum of three reviews. On a voluntary basis, States parties may participate as reviewing State party in more than three reviews.”

Consequently, UNODC developed two manual algorithms and an automated procedure for the drawing of lots.

The first manual algorithm:

- The pairing process for selecting a State party under review and its reviewers consists two steps: first, selecting one reviewer in its regional group; second, selecting another reviewer from other regional groups.
- In each regional group, the pairing of reviewing and reviewed State parties starts from the States parties to the Firearms Protocol (FA¹) and each of them is randomly assigned a reviewer from the same region. This is done by taking the box containing all the States that are parties to FA in a given regional group and extracting randomly, one after the other, all the States from the box. The first extracted State is assigned as a reviewer to the second, the second to the third, and so on, until only one State is left in the box. This will assign the reviewer of the first extracted State. After this process, all States parties to the FA protocol (irrespective of being a party to any other instruments) will have a reviewer from their regional group.
- After the pairing of the State parties to FA, the State parties that are parties to the Smuggling of Migrants Protocol (SOM) (but not to FA) will be randomly assigned reviewers, then the States parties to the Trafficking in Persons Protocol (TIP) (but neither to SOM nor to FA), and finally to UNTOC (but not to FA, SOM or TIP). In each regional group, one takes 2 boxes, the first containing all the States that are party to SOM but not to FA and the second containing all the States that are parties to SOM. One State from the first box is selected as State under review and one State from the second box as reviewer. If a State has already been selected twice, its name is put back in the box (enabling its third time for serving as a reviewer for a State outside the regional group). If the reviewer is the same State that is under review, the State is put back into the box. The process shall continue until the first box is empty. This pairing process will be repeated respectively to pair the States which are parties to TIP but not to SOM and FA and States which are parties only to UNTOC².

¹ State Parties to FA. refers to State parties to UNTOC and FA as only the Parties to UNTOC can ratify or accede to the Protocols. The same applies to parties to SOM or TIP.

² Where applicable, additional two boxes, one containing States that are parties to TIP but not SOM or FA and one containing all the States that are parties to TIP. Where applicable, additional two boxes, one containing States that are parties to UNTOC but not in TIP, SOM or FA and one containing all the States that are parties to UNTOC. Everything is done within a given regional group.

- This process is done on a regional basis, and it ensures that each State has one reviewer from its regional group.
- Once all the States have been assigned one reviewer from the same region, the second reviewer will be selected from other regional groups through a similar procedure to the one described above. Two boxes are prepared, one containing all States that are parties to FA in given regional group, another containing all States that are parties to FA but not from the that same regional group, selecting one State from the first box as the State under review and one from the second box as the reviewer. Then the process is repeated to pair States to SOM but not to FA and so on until all State Parties in the five regional groups are assigned the second reviewers. In the process, if a State has been selected three times as a reviewer, the name of the State Party will be taken out from the box.
- The above described algorithm results in most of the States being assigned two randomly chosen reviewers, one from the same region and another from a different region. In exceptional cases, it may happen that the reviewer is not a party to all the instruments to which the State under review is a party, which would require an additional drawing of lots at the end of the pairing process. The procedure, via this additional correction step³, guarantees that all the requirements of the procedures and rules are satisfied.
- Only at the end of the process States are allowed to ask for re-drawings (up to four times) if the outcome is not deemed satisfactory.
- The algorithm has one drawback: the reviewers can only be selected among States that are a party to the instrument with the lower adherence status to which the State under review is a party. For instance, if the State under review is a party to UNTOC, TIP, SOM and FA, the first reviewer will always be selected among States that are also a party to FA. This slightly reduces the pool of possible reviewers but at the same time enables to keep the number of reviewers at two in most cases⁴.

This manual algorithm requires **a maximum of 651 drawings** to meet all the requirements contained in the procedures and rules in pairing reviewing and reviewed States, not counting the correction steps and possible re-drawings. Moreover, the algorithm will require **the preparation of 44 separate ballot boxes in advance and monitored along the drawing of lots process through specific manipulations on such sets**⁵.

³ Considering the actual status of adherence to the four instruments, these situations are very limited in number.

⁴ It means that a State party to FA can only be reviewed by a State which is also a party to FA. For example: State A is party to UNTOC, TIP and SOM and State B is a party to all instruments. State A will not have the opportunity to review State B, although they are both parties to UNTOC, TIP and SOM.

⁵ Some states may need to be removed when they have already been selected a certain number of times as reviewers.

The second manual algorithm:

- The second algorithm works with similar principles as the first. First, it will randomly assign to each State party a reviewer from the same region, regardless of their adherence status. This is done by preparing one box including all the States belonging to the African group, extracting randomly, one after the other, all the States from this box. After each extraction, remove the State from the box. The first extracted State is assigned as a reviewer to the second, the second to the third, etc. The last State left in the box will be the reviewer of the first extracted State. The process is repeated for the five regional groups. It assigns to each State party under review a reviewer from the same regional group.
- As not all the instruments for a State party under review can be covered through the above mentioned process (a State that is a party to all instruments may pick a reviewer which is only a party to UNTOC), a second drawing will be needed to assign the first reviewer to all the instruments to which the State party under review is a party. This time, the selection will not be done necessarily⁶ among States from the same region. It will be done using three additional boxes, containing all the States that are parties to TIP, SOM and FA, respectively, regardless of their regional groups. This ensures that each State is reviewed at least once on each instrument and has one reviewer from its regional group.
- An additional drawing is then performed to select the second reviewer from other regional groups, proceeding exactly as in the second drawing of the first algorithm. This drawing will make sure that each State is reviewed by a State from a different region, as the States will be selected from boxes that will not include States belonging to the same regional group. If a State is selected as reviewer three time, the State's name will be removed from the boxes. In the case of a mutual review, the selected State's name would be returned to the box and a new State would be chosen.
- The procedure includes a correction step to ensure that each State has at least two reviewers on each instrument⁷ as explained in first manual algorithm.
- The procedure requires the preparation of **688 drawings and 40 ballot boxes in the worst-case scenario**, not counting correction steps and possible re-drawings.

⁶Not necessarily but it would still be possible. Hence, the need for the third drawing ensuring that at least one reviewer is selected from a different region.

⁷Correction steps are additional drawings that are meant to ensure that each State under review has at least two reviewers, one per each instrument to which it is a party. The procedure is the same described in footnote 1.

The automated version:

- The automated algorithm does not explicitly implement any of the previous manual algorithms. Instead, it encodes the requirements in a logical language and includes the additional desideratum of having as few reviews as compatible with the requirements. A general-purpose algorithm produces then the desired solution.
- The automated algorithm provides an optimized solution always selecting two reviewers per each State under review⁸. **This optimizes the resources to be allocated to the review mechanism and minimizes the burden resulting from the use of national resources by reducing the possible combinations of languages selected for the review and the number of experts involved.**
- The crucial part of the code, which finds the solution, is written following the answer-set programming paradigm and it is implemented via the programme Clingo, part of the broader POTASSCO project⁹. The complete programme, including the user interface, requested the interaction between the core programme (Clingo-based), and some scripts written in the broadly-used programming language Python.
- The software returns a text file with the solution in less than one minute and allows for States to request re-drawings in case they are not satisfied with the outcome.
- The core code used by the automated algorithm is human-readable and can be easily changed and updated, in case different preferences emerge over time concerning the requirements or the desiderata to be enforced. The code can also be modified in case the status of adherence to any of the instruments change over time.

Conclusions

In summary, **the implementation of the automated solution would be strongly advisable instead of any of the two manual algorithms.** The high number of drawings and the complexity of the preparatory phase makes it not an efficient option.

The automated algorithm produces a complete answer in approximately 30 seconds allowing for re-drawings at any time.

⁸ The adherence status is taken into account by the programme and automatically optimized.

⁹ A bundle of software developed by the University of Potsdam, with MIT license (a variant of a Free Software License)

However, **if a manual solution is preferred, it would be advisable to opt for the first manual algorithm** as it will be faster in finalizing the pairing of States and will produce better results in terms of number of reviewers assigned.

The second algorithm is expected to be more time consuming and to have more reviewers assigned to each State under review. This would imply higher costs for translations and a more complex review process as it would involve more States and governmental experts.
