

SURVEYORS: THE PEACEMAKERS



HAIM SREBRO LOOKS AT HOW COUNTRIES AROUND THE WORLD DETERMINE, MONITOR AND MAINTAIN THEIR BOUNDARIES – AND THE VITAL ROLE GEOSPATIAL EXPERTS PLAY IN THIS

Ensuring the stability of international boundaries is of utmost importance in peacekeeping throughout the world. Surveyors play a central role in the boundary-making process. International boundaries of a state define the territorial limits of its sovereignty and the area where its laws are applicable.

The lack of clarity in defining international boundaries between states has been one of the main reasons for territorial disputes and ensuing wars. In 1907, Lord Curzon stated that: "Frontiers are indeed the razor's edge on which hang suspended war and peace." An unequivocal definition of boundary

lines, especially in modern time, based on very precise tools for accurate definition of boundaries, is largely dependent on the skill and knowledge of the surveyor. The value and contribution of the surveyor in all the stages of boundary making, including boundary maintenance, is largely underestimated and deserves emphasis and support.

The contribution of the surveyor to the accuracy of the boundary definition has legal importance regarding the validity of law. It is of political and security importance, as well as of administrative, governance and economic importance. The surveyor's role regarding cadastral boundaries,

which are important for management of property rights is well recognised, and their contributions to construction and infrastructure projects are usually well appreciated. However, here we will focus on the surveyor's contribution to the stability of international boundaries, which consequently contributes to the strength and stability of the state, and to peace around the world.

The stages of international boundary making

The political process consists of three stages: the boundary allocation, agreeing roughly on the boundary location; the agreement; and the ongoing boundary administration. The surveying, mapping and geoinformation expert is responsible for collecting geoinformation data and organising it in a dynamic geoinformation database to support the initial negotiations; in the ensuing stages, the surveyor is responsible



A fallen boundary pillar represents the need for boundary maintenance

for determining the exact delimitation of the boundary line in the treaty, preferably by coordinates. Otherwise, the surveyors of both sides must specify in the treaty an agreed joint professional process leading to the agreed coordinates of the boundary line. They must also specify the details of the agreed rules regarding the boundary line along unstable and changing sectors of the boundary line (for example, along rivers). These detailed specifications should be part of the signed treaty. Any mistake or omission at that stage will be reflected in future disputes causing potential boundary instability.

The surveyor's role is critical. Their absence may prevent the agreement or may result in an improper or problematic treaty.

In the stage following the treaty, the surveyors must place the pillars, survey them, fix coordinates and prepare boundary documentation. Before the boundary survey, the surveyors have to define and prepare consensual geodetic reference network.

Boundary maintenance

The boundary administration must follow the agreement. As part of it the surveying experts are responsible for the boundary maintenance, based on the demarcated boundary pillars and the boundary documentation. Maintenance is required due to erosion of the pillars and their movement because of sand dune movement, floods, and human damage, for example. Only surveyors can precisely monitor the changes, restore the pillars and redocument them.

A different kind of required boundary maintenance refers to boundaries on unstable ground, such as rivers, lakes and glaciers which are affected by global warming. Only surveyors with geospatial expertise can monitor the changes, supporting the



Israel-Jordan - GPS survey for boundary documentation

required decisions regarding the movement of the boundary or restoring the original boundary line, and documenting it.

Joint team of experts

The numerous tasks imposed on the surveying and geospatial experts during the negotiations and the boundary delimitation, as well as the need to construct a geodetic reference and control network, to jointly place boundary pillars, survey and document the boundary line, as well as to maintain the boundary, requires continuous joint professional cooperation. Therefore, the establishment of a joint team of experts is required even before the peace or boundary



The chairs of the Israel-Jordan joint team of experts (author pictured right) conclude the successful boundary demarcation



Boundary pillars between Israel and Egypt and Israel and Jordan near the Red Sea

agreement takes place. Such a team should be an essential part of the joint boundary commission, which gains legitimacy and legal power from the two governments.

The contribution of surveying and geospatial experts to international boundary settlement and maintenance lies in its definite contribution to boundary stability, and boundary stability is of utmost importance to global peace keeping and collective security.

In addition, peace negotiations usually follow long disputes and even wars. The preliminary suspicion and mistrust between the political negotiators and among the public on the two sides is often high and tensed. At that stage, the experts on both sides, who share the same professional language and background, may begin to promote technical issues that can serve as confidence-building measures between the two sides.

In special cases in which the UN is involved in international boundary delimitation, surveying and mapping experts may ultimately influence the process. The boundary commission receives power based on a Security Council decision and receives guidelines from the Secretary General. However, owing to political constraints the ability to influence the decisions of the professional staff is limited, and they are largely empowered to decide according to professional considerations. This situation occurred in 1992 regarding the UN boundary commission on the Iraq-Kuwait boundary demarcation, and in 2000 regarding the UN cartographic team delimiting the Blue Line between Lebanon and Israel.

Conclusion

Surveying, mapping and geoinformation experts play an important role, sometimes even crucial, throughout all the stages of international boundary making and maintenance. The rapid development of



A GPS survey station at the Iraq-Kuwait boundary

relevant technical tools and technological environments supports this challenge.

During my 47 years of involvement in boundary making and maintenance, I have observed a few breakthroughs in relevant supporting technologies: from the use of poor small-scale paper maps, plain tables, dividers and compasses, through the use of electronic range measurement, orthophotos and satellite images, to real-time satellite positioning, remote sensing, and the use of drones, LiDAR and on line geospatial information management; from accuracies of tens to hundreds of metres to boundary accuracies of centimetres. The methodology of international boundary making is discussed in FIG Publication number 59 on International Boundary Making.

Haim Srebro is the founder and chair of the FIG sub-committee on international boundary settlement and demarcation



Installation of a pillar complex at the Iraq-Kuwait boundary