

International Union for Pure and Applied Physics
Position Paper – New Members
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The Union is about a hundred years old. It is obvious that many of the below points would have been discussed and debated over the years, undoubtedly vociferously at times and in some form or another. Despite this and since this is a new Council, and we have a new portfolio of *Vice President – New Members* whose mandate and *modus operandi* still needs to be more fully conceptualised, it will be helpful for us to assess where we stand today with regard to membership of the organization, and strategize how we take the Union forward.

One of the main points of this paper is that driving new membership should not be seen in isolation as a separate endeavour, but as an intrinsic part of consolidating the current membership and ensuring that all current members benefit from membership and understand and appreciate the importance of being a part of the Union. One needs to recognize at the outset that there are multiple players within a single member country (rank and file scientists, influential or leading scientists, agency personnel who usually control the budgets, and government people, with mainstream society playing a role also), and the Union needs to find a way to engage with members and potential new members at multiple levels within the member country to ensure their long-term commitment. This is compounded by the fact that many different countries manage science differently, for instance in some countries decisions around membership are made at the level of the government, whilst in other countries rank-and-file scientists and leading scientists have the potential to petition their authorities to join. In some cases, the people writing out the cheques take their cue from their scientific leadership, but in other instances they make the decisions themselves and foist this on the scientific community. This means that the Council needs to develop a nuanced approach for each member and each potential new member. What might work in one part of the world might not necessarily work as effectively in another, and this needs to be factored into our position. One needs to recognize the importance of science diplomacy in what it is that we wish to achieve. In here, we must call on the newly formed International Council for Science to play an influential role in broadening its global footprint for the benefit of all the unions.

There are currently about 60 members of the Union. The Council needs to acquire good information (intelligence) on its current membership as a prelude to drawing in new members, for it is not very strategic if new members are recruited at the expense of old members.

Which members are secure in the Union, and what do these members see as the primary benefits of membership? What do these members want to see in the future of the Union? For example, does the merged International Science Council create an impetus for collaborating more closely with the social scientists, or is this not seen to being an urgent need for members, and how should the Council position itself with regard to this matter? Is there a strong push for being apolitical and actively reaching out across the many different political divides that exist as was so successfully done during the Cold War? Do we know what the political consequences (fallout) of an apolitical approach will be in this day and age? Is there a view that we should aim for a greatly expanded Union (say, twice as big by 2050), or should we manage our current situation on a case-by-case basis where membership simply ebbs and flows naturally

as the circumstances change for individual countries? Is the Developing World seen to being an important expansion area for the Union, and if so what should the Union be doing much more now to reap the long-term benefits of new members for the future? Is collaborating between different unions seen to being a priority, and if so how can this be driven further? Is bringing in more young people into the activities and the affairs of the Union a way to ensuring its long-term future?

It is important that the different views of current members on these questions be considered at the level of the Council to enable it to plan properly for its future.

Which current members appear to be somewhat precarious in terms of their membership? Do the systems that we have in place enable us to be forewarned about a member that could possibly default in their payment? What steps should the Council be actively taking to address this situation? Or should the Council not be proactive and simply leave it to the adhering body to languish with its own problem? Is aloofness a policy of the Union (for example, is simply writing a letter of demand sufficient?) or should we embrace active engagement, and if so what shape and form should this take? In these cases, are we always sure that we are talking to the right people in the country in question? Are we employing scientific diplomacy effectively?

Of the members that have recently left, are we clear about the reasons for departure? It is commendable that the Union has a grace period, often negotiated and usually generous, to assist members who are in decline. It is only after (about) six years of non-payment that a member is considered to be truly out. This would have given the defaulting member sufficient time to fix the problem. We should note that political cycles are short and people in positions of power come and go, sometimes rapidly. But what changes on a slower time scale is the body of scientists, and in here lies some hope: how can we make a greater effort at keeping the body of scientists in these countries still strongly coupled to IUPAP in the hope that their adhering body can eventually come around to prioritizing funds for membership? How good are we at doing this currently?

My experience is that money is available - it always is at a national level. The only question is whether the body that controls the purse strings sees the advantages of membership and is willing to prioritize its funds, amidst other competing imperatives, for this purpose. As a Union, we must ask how is it that we can influence this process more effectively? And as mentioned above, there are multiple players that should be engaged with in ways that make sense for that particular country in question or region, or even continent as relevant.

This leads very naturally the matter of new members. If we are confident in satisfying the needs of our current members, we will have a strong basis for reaching out to potential new members. The question is should we simply be looking out for new opportunities for membership as these come up (*ad hoc* approach), or should there be an active drive for new members? If the latter, can we readily identify a group of countries or a region(s) that we feel have a realistic potential to join, say over a horizon of the next six years? On what basis do we make this assessment? Are we doing our homework here sufficiently well? Whose responsibility should it be to explore this, and how should this be done? What incentives can we give new members to join? Can we develop a scheme that is advantageous, for example, a discounted

rate initially that gets ramped up to the full rate over a period of time as is being contemplated for some ASEAN countries?

Given my own history and experience, I would like to turn my attention to the case of Africa. There are unique challenges here, but I am sure that in paying close attention to these challenges many valuable lessons can be learnt, some of which could apply elsewhere. There are real opportunities in Africa for new members of the Union, but much work (science diplomacy) needs to be done. I commend the recent General Assembly for resolving to write a letter to the African Union in support of investments in science, but this needs to be followed up with science diplomacy and every effort should be made to work with potential new members at multiple levels as referred to above.

It is unfortunate that the African Physical Society has not achieved all that it set out to achieve despite many laudable efforts. This is an important starting point if one wishes to talk about the broad development of physics on the African continent. This matter has become controversial with many competing opinions expressed, and will set physics further back on the continent if this is not sufficiently addressed.

My personal view is that paying membership dues into a continental-wide coffer is a big barrier for individual African physicists, and it will do us well to recognize this as being one of the underlying factors impacting on the AfPS because of its current structure. This is one example of how implanting an idea from one part of the world has not worked successfully in another. I think that setting up the AfPS as a confederation of national physical societies is a practical way to proceed, with its Council comprising members elected from the various constituent national societies. The brief of a renewed AfPS should include supporting the development of physics in areas (geographic and disciplinary) where this is needed, and the formation of national physical societies in countries where these don't currently exist (there are only about a dozen currently). More importantly, the AfPS should speak for physics in Africa. Currently, there appear to be many different seemingly disjointed physics initiatives in Africa, which a better functioning and resourced AfPS will be able to help create a focal point for, for example by way of regular physics conferences, workshops, schools, etc.

The Physics in Africa project that is currently underway has identified the creation of national physical societies as a priority. African physics communication was also highlighted as an important need, as was access to experimental infrastructure and physics education. And all of this should converge to a better-functioning African Physical Society, which has the potential of being extremely valuable for the future expansion of the Union into Africa. So, a longer term approach is needed here.

In light of many different unions that exist, and potentially more so now following the formation of the merged ISC, it does become problematic for some countries to proliferate in terms of union membership. This is certainly relevant in Africa where science budgets are tight. Some unions are closely allied which has both advantages and disadvantages. What makes physics more important? The idea that physics is the proverbial *canary in the coal mine* insofar as science development in concerned needs to be better highlighted in Africa: the state of health of the physics discipline in Africa is an indication of the state of health of science in Africa. This makes membership of IUPAP and the many benefits that accrue from membership so much more valuable.

The upcoming centenary celebrations in 2020 and the International Year for Basic Sciences for Development 2022 are important opportunities for IUPAP to highlight what has been accomplished (history is important), and what more can still be accomplished.

It is in the above light that the following brief for the *Vice President – New members* should be understood:

Recruiting new members of IUPAP is important for its long term sustainability. The President and some others have been working on this, and Council decided to appoint a Vice-President at Large with responsibility for New Members to take on this important job. It is expected that the Vice-President at Large with responsibility for New Members will communicate with potential new members and work to convince them of the merits of joining IUPAP. Given that some members have difficulty remaining as IUPAP members, the Vice-President at Large with responsibility for New Members will also work to convince wavering members to stay in IUPAP. In the last 3 years the President has made visits to 2-3 potential new members a year. These lists have been combined with other travels, often non-IUPAP travel. *At that level of commitment I estimate the workload at about 2 weeks per year.*